Orchestrating Organisational Change for Corporate Sustainability

Strategies to overcome resistance to change and to facilitate institutionalization

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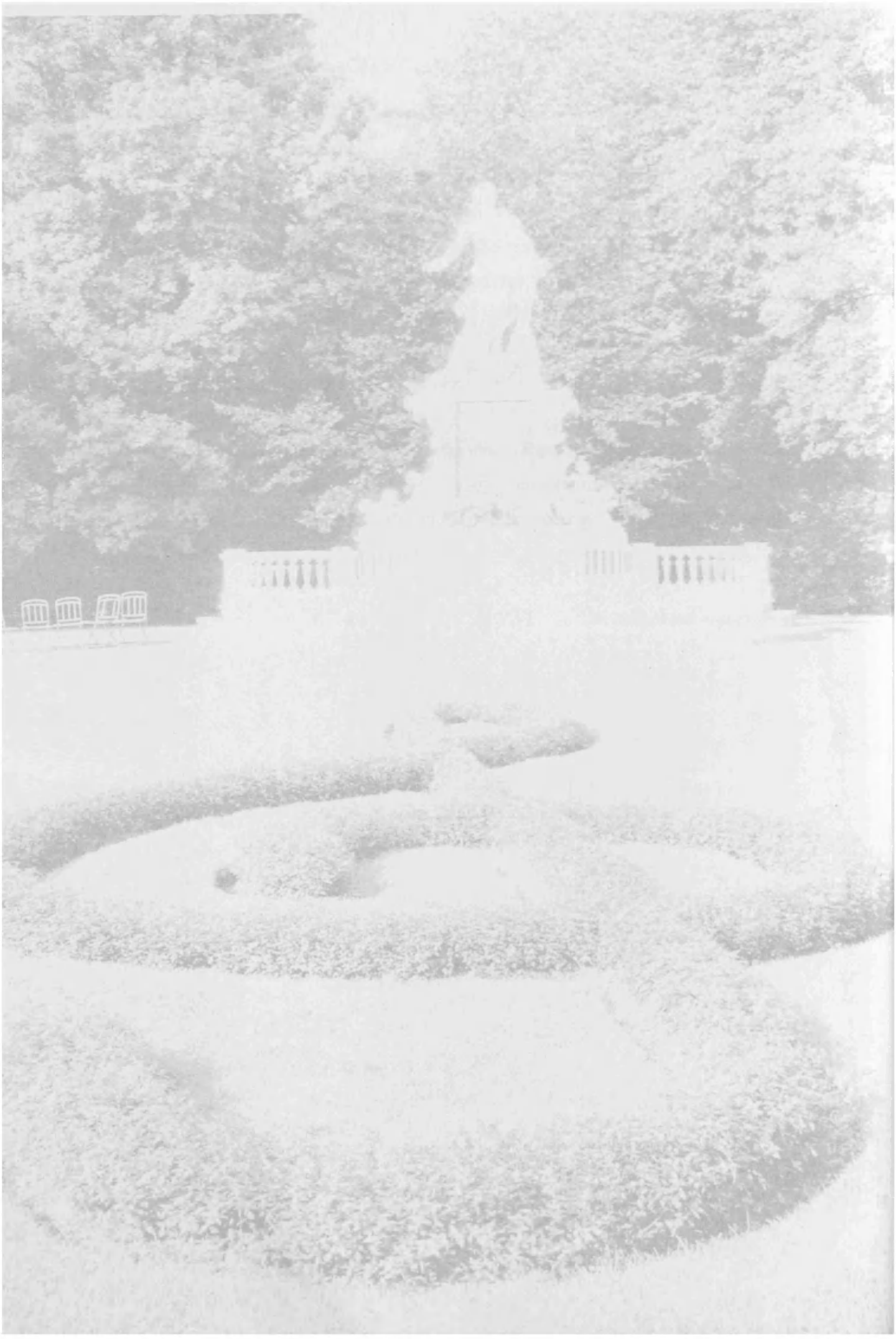

Abstract

Sustainability has appeared as an alternative to development models prioritising economic activities to the exclusion of the environmental and social dimensions. It aims to produce a dynamic balance among economic, environmental and social aspects, and the time dimension. This thesis focuses on large corporations, which are increasingly recognised as having the potential to help societies become more Sustainability orientated.

A variety of corporate efforts, (such as Life Cycle Assessment, Eco-efficiency, and Corporate Social Responsibility), are being used to incorporate Sustainability principles into company activities. Nonetheless, in many cases these efforts have been limited by their focus on a particular Sustainability issue, 'hard' technocentric solutions, or not being effectively integrated into organisational change processes. Corporate Sustainability (CS) has recently emerged as an alternative to address, or avoid, such drawbacks.

This research aims to 'Orchestrate' organisational change to incorporate and institutionalize CS. This is accomplished in four 'movements': **Firstly,** gathering and integrating the literature review results, three case studies, and interviews with experts. **Secondly,** applying tools to the data to identify and understand CS drivers, barriers to change, and strategies to overcome the barriers. **Thirdly,** using innovative methods in the context of CS, to investigate the nature of planned CS change. **Fourthly,** integrating, with the help of Grounded Theory, the findings from the literature review, case studies, and interviews.

The 'Orchestration' focuses on helping the move from the *status quo* to a more Sustainability oriented state, in an iterative process, where CS drivers promote change. The drivers' efficacy may be disrupted, or blocked, by barriers to change. The use of appropriate strategies is essential to overcome the barriers throughout the organisation, and the associated attitudes. Leadership plays a key role in initiating these changes, while making CS part of the institutional framework, helping to maintain stability, and facilitate CS institutionalization.

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Abbreviations

AWU	Annual Work Unit
BBC	British Broadcasting Corporation
B.R.A.S.S.	The ESRC Centre for Business Relationships, Accountability, Sustainability and Society, Cardiff University
BSC	Balanced Scorecard
CAQDAS	Computer Aided Qualitative Analysis Data Software
CC	Corporate Citizenship
CCE	Business Coordinating Council
C.E.C	Commission of the European Communities
CEEC	Corporate Environmental Enforcement Council
CEO	Chief Executive Officer
CFCs	Chlorofluorocarbons
CESPEDES	Commission for Private Sector Studies for Sustainable Development
CONCAMIN	Confederation of Industrial Chambers (in Mexico)
CP	Cleaner Production
CS	Corporate Sustainability
CSR	Corporate Social Responsibility
DfE	Design for Environment, also referred to as Eco-design
DSP	Dominant socio-economic paradigm
DJSI	Dow Jones Sustainability World Index
ECSF	European Corporate Sustainability Framework
EF	Ecological Footprint
EHS	Environment, Health and Safety
ELV	End-of-life vehicles
EMS	Environmental Management Systems
EPA	U.S. Environmental Protection Agency
FOMECAR	Mexican Carbon Fund
GDP	Gross Domestic Product
GEMI	Global Environmental Management Initiative
GHG	Greenhouse gases
GRI	Global Reporting Initiative
GT	Grounded Theory
HEVs	Hybrid electric vehicles
HIV-AIDS	Human Immunodeficiency Virus-Acquired Immune Deficiency Syndrome
HQ	Headquarters
HR	Human Resources
Hu	Human element
HVAC	Heating control, ventilation, air conditioning

IBLF	International Business Leaders Forum
ICCR	Interfaith Centre for Corporate Responsibility
IEB	Information-emotions-behaviours
IIED	International Institute of Environment and Development
ILO	International Labour Organisation
ISO	International Standards Organisation
ITT	International Telephone and Telegraph
JCI	Johnson Controls Inc.
KAP	Knowledge-attitude-practice
KEP	Knowledge-emotions-practice
LCA	Life Cycle Assessment
LEED™	Leadership in Energy and Environmental Design
MIPS	Material Inputs per Unit of Service
MNE	Multinational Enterprise
MNC	Multinational Corporation
MuSIC	Multi-dimensional Sustainability Influence Change
NGLS	UN Non-Governmental Liaison Service
NGOs	Non-governmental organisations
NOM	Official Mexican Standards
NTSC	The National Science and Technology Council
ODS	Ozone-depletion substances
OECD	Organisation for Economic Co-operation and Development
OHSAS	Occupational Health and Safety Advisory Services
PCBs	Polychlorinated biphenyls
PR	Public Relations
PROFEPA	Mexican Environmental Protection Agency
ROI	Return on investment
SACS	Sustainable Community Self-Sufficiency System
SBSC	Sustainability Balanced Scorecard
SD	Sustainable Development
SGL AG	SGL Carbon Aktiengesellschaft
SME	Small and Medium size Enterprises
SQ	*Status quo*
SQN	*Status quo novus*
SR	Sustainability Reporting
STOP	Safety Training through Observation Programme
SUV	Sport Utility Vehicle
TBL	Triple bottom line
TNC	Trans-national Corporation
TNS	The Natural Step

TQM	Total Quality Management
TRI	Toxic Release Inventory
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
UNRISD	United Nations Research Institute for Social Development
UK	United Kingdom of Great Britain
U.S.A.	United States of America
USD	United States Dollars
USDOJ	United States Department of Justice
USPTO	United Stated Patent and Trademark Office
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on the Environment and Development

1. Prelude

The research presented in this PhD was born from the questions and frustrations encountered in my master's thesis, where the focus was on the incorporation and institutionalization of Sustainable Development (SD) in higher education institutions. The master thesis' key concerns included: a focus on the individuals' barriers to change and strategies to overcome them; the several years, if not decades, that it would take current students to reach positions of influence in society; and its relatively shallow coverage of organisational change. Although, I have continued with a practical interest in helping academic institutions to embrace Sustainability[1], it was realised that real progress hinged on the willingness and ability of large corporations to embrace it. Therefore, I decided to focus on corporations for this PhD thesis.

During the last two centuries, and particularly during the last two decades, corporations' reach and power have grown immensely, mainly due to the dominant socio-economic paradigm (DSP), neoliberal capitalism[2] (which considers natural resources are unlimited and human resources to be limited), and phenomena such as globalisation, privatisation, liberalisation, and the relentless quest for profit. These phenomena have allowed corporations to respond to consumer preferences, and develop strategies for resource allocation, while increasing their managerial expertise. However, this has also resulted in some corporations behaving indecorously, or even abusively, exploiting their market position and using their economic and political powers to avoid taxation, protect their patents, lobby governments, block competitors, and negatively impact the environment, human welfare and labour rights, or any combination thereof. These factors have sometimes had direct impacts on a corporation's short- and long-term survival and viability, in extreme cases even resulting in bankruptcy or the disappearance of the corporation.

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[1] Due to the centrality of Sustainability to the thesis, it is being teated as a proper noun and writing it with a capital letter throughout.

[2] Neoliberal capitalism considers the economy as an independent, self-regulating and self-sustaining system where productivity and growth are not seriously constrained by the environment or resources limits. It relies on the assumed simple mechanics of free and open markets to maximise wealth (Rees, 2002).

Sustainable Development (and the related concept of Sustainability), as an approach to economic and other forms of development, has appeared as an alternative way to address issues of economic disparity, environmental degradation, and social inequalities for the current and future generations. Sustainability aims at securing a dynamic balance between the economic, environmental and social aspects, as well as the temporal aspects; encompassing short-, long- and longer-term perspectives.

Although many efforts are taking place worldwide to help societies become more sustainable, it is noticeable that the results tend to be limited, as in the case of communities and NGOs, or will only be seen within the next two generations, or so, as in the case of higher education institutions.

In spite of the recognised urgency of the need for greater Sustainability, change and progress towards it have been slow. Meaningful changes in the 'hard-wiring' of our production and consumption systems; and the 'soft-wiring' of our lifestyles and mind-sets will be required to accelerate progress towards more Sustainable Societies. These changes will need to be complemented with other changes which will move away from reductionist approaches toward more holistic systems ones; and away from simple 'cause-effect' approaches to problem solving, to 'double-loop' and 'triple-loop' learning, so that we can reshape our mental models, attitudes and behaviours.

To help face and avoid such problems, an increasing number of corporations have, during the last decade, been incorporating the principles of Sustainable Development (SD) and Sustainability into their products, processes and management systems. This is evidenced by the development and rapid growth of initiatives, tools and approaches that help corporations on their path towards Sustainability, such as Life Cycle Assessments (LCA), Eco-efficiency, Cleaner Production, Environmental Management Systems (EMS), Sustainability Reporting (SR), Corporate Social Responsibility (CSR), and Corporate Sustainability (CS). However, the majority of the initiatives and tools developed by and for corporations to address their contributions to Sustainability have focused on integrating economic and environmental aspects, and more specifically on 'hard' techno-centric issues such as pollution control.

Although some initiatives have called for changes in 'soft' issues, their success is limited, as discussed in Chapter 3, because they rely on linear thinking; have limited consideration of social aspects; lack a systems perspective; have limited focus on organisational change processes, and tend to neglect the time perspective. The use of only one initiative, tool or approach at a time is insufficient to address all the environmental and social aspects of the sustainability agenda. Progress will require a complementary range of tools and approaches to be applied in parallel. Recently there have been attempts to articulate holistic, and more balanced approaches to the pursuit of Sustainability amongst corporations, denoted by the term 'Corporate Sustainability' (CS). This pursuit is the focus for this thesis

From the review of the relevant literature presented in Chapters 2, 3, 4, and 5, the following questions were developed:

1. What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?
2. What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?
3. For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?
4. What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?
5. Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?

These questions underpin this thesis' main objective: to contribute to a better understanding of how corporations can 'orchestrate[3]' organisational changes that would help to accelerate the incorporation and institutionalization of Corporate

[3] This term is partly a tribute to the hundreds of hours spent listening to music, especially the operas of Verdi, Mozart, and Strauss, while researching and writing this thesis.

Sustainability (CS). This research 'orchestration' is done with the help of the constant comparative analysis from Grounded Theory (GT). It is accomplished in four 'movements':

Firstly, the gathering and integration of primary and secondary data through literature review (Chapters 2 to 5), and the completion and analysis of case studies (Chapter 7) and interviews with non-case study experts (Chapter 8), to better understand how to develop and strengthen connections:

- Between Sustainability, and corporations and organisational change (in theory and in practice); and
- Within the organisational context, among individuals, groups, and the organisation, and their informational, emotional, and behavioural attitudes.

Secondly, the application of a comprehensive diagnostic tool in the analysis of data to help recognise and better understand Corporate Sustainability's (CS) drivers, barriers to change, and strategies to overcome those barriers more systemically, systematically and holistically (Chapters 6, 7, and 8).

Thirdly, the use of innovative methods and the development of new analytical frameworks in the context of Corporate Sustainability (CS) to better understand and clarify the nature of planned CS change strategies, such as the Multi-dimensional Sustainability Influence Change (MuSIC) memework[4] (Lozano, 2006b, 2008a) to illustrate barriers to change, the strategies that can be used to overcome them, and the CS meme transfer in corporations' systems (Chapters 6, 7, and 8).

Fourthly, the integration of the findings from the literature review, case studies and interviews with the help of the constant comparative analysis of Grounded Theory,

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[4] Memework is a new term coined by the author. It is a hybrid between a model and a framework It draws form the meme concept which Dawkings (1978) defines as "*...a noun which conveys the idea of a unit of cultural transmission, or a unit of imitation.*" (Collins & Porras, 2002) Memes are propagated by leaping from brain to brain. A memework has the aim of helping transfer memes, *i.e.* help to transfer ideas or units of imitation throughout a system, from an individual to another, to and among groups and organisations.

with the aim of pushing forward the boundaries of knowledge in CS research and practice forward (Chapters 9 and 10).

Morgan's (1997) 'Organisations as Flux and Transformation' metaphor helped to maintain this PhD research more manageable by narrowing its focus on organisational change towards CS, and the roles that leadership and management play in this process. The 'Cultures' metaphor was also considered as a supporting metaphor, to provide a supplementary perspective focusing on changing skills, mind-sets, values, norms, and culture.

The research aimed to be exploratory, and to tackle the challenges of changing organisational mind-sets and practices in order to help a corporation to implement changes that will enable progress towards CS. This provided opportunities to search for creative ways of framing the challenge of organisational change strategies for CS, and to devise new approaches to better understand and address it. Although the constraints of a single PhD do not provide enough scope to follow through and develop, test or refine many of these approaches, nevertheless they provided an opportunity to test some propositions, and set the starting point for other, future, research efforts by the author, and others working in the field.

1.1 Challenges

During this PhD research different challenges were faced, some of which seem to be common to other PhDs, such as: the academic writing learning curve, including the need to write in a second language; limited resources and time; limited access to the study subjects, especially for the case studies; the capricious behaviours of word processors and library databases, which crashed during the writing process or got corrupted; and personal issues that slowed down the research process.

One of the biggest challenges in this research was to 'untangle the web of inter-relations' and their breadth, together with the number of issues raised by organisational change management in achieving Corporate Sustainability (CS), so as to provide a structure that would make sense for this PhD and its readers. Complementary challenges included: dealing with one issue or topic, but not losing

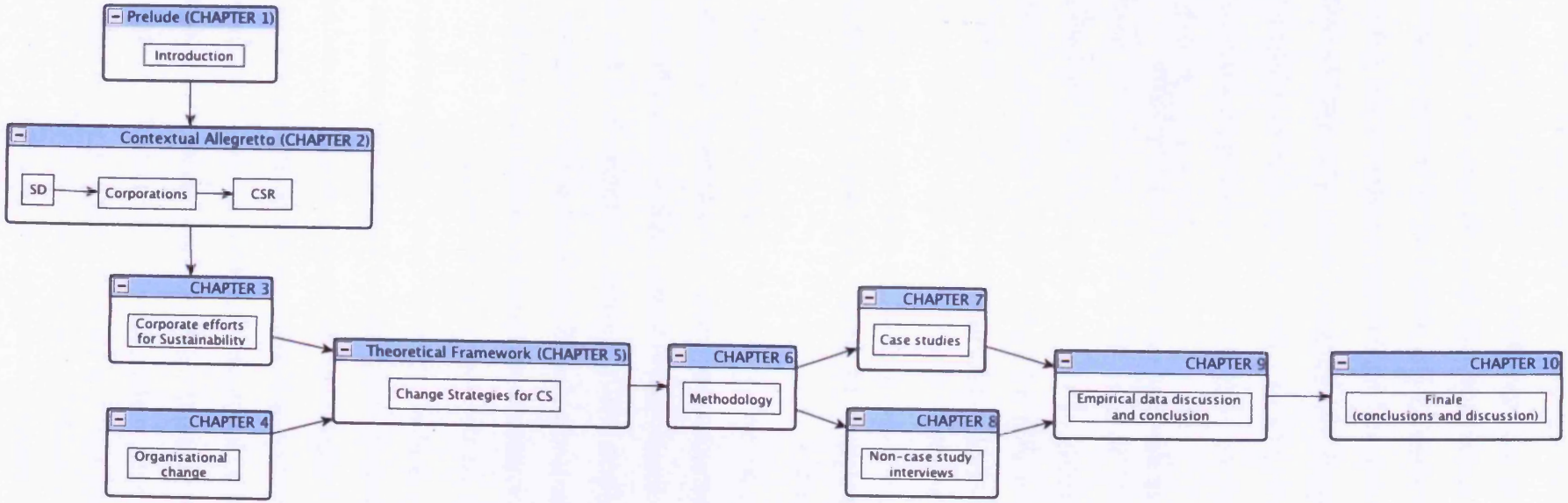
track of the whole picture; and the linearity of writing which, by forcing a beginning and an end, constrains a coherent presentation of the linkages of different topics and issues. Traditional positivist and interpretivist approaches, which rely on reductionism, are well suited to the process of writing a thesis, but tend to be limited in their potential to address and understand CS.

Although the challenges presented many problems in the beginning, the use of Grounded Theory, and the qualitative analysis programme NVivo (QSR, 2002b, 2006) were useful in recognising and dealing with the number, complexity and inter-relatedness of issues. As an ongoing research effort, the author sought to publish some elements of the research in refereed journals, some of which are referenced within this thesis.

1.2 Roadmap

The thesis' roadmap, presented in Figure 1-1, is divided into 6 major sections. The first section focuses on the literature review, it is divided into the context of this thesis (Contextual allegretto), where a brief discussion on 'Sustainable Development (SD)' is offered, and through a discussion on 'Corporations' (Chapter 2), which leads to a chapter on 'Corporate efforts to Sustainability' (Chapter 3), and a discussion of organisational change (Chapter 4). These three chapters are used as a basis to create the second section, this thesis' theoretical framework 'Change strategies for Corporate Sustainability' (Chapter 5). The third part focuses on the methodology used for data collection and analysis (Chapter 6). The fourth focuses on the empirical research, divided into the case studies used in this research (Chapter 7) and responses from non-case study expert interviewees (Chapter 8). The fifth (Chapter 9) provides a discussion of and conclusions from the empirical data. Finally Chapter 10 integrates the learning from the empirical data with the literature review to attempt to answer this thesis' research questions.

Figure 1-1 Thesis' roadmap



2. Contextual allegretto

This chapter sets the context of this thesis. It starts by offering a brief discussion on Sustainable Development (SD); a brief overview on corporations, providing an emphasis on leadership and institutional framework; and a discussion on Corporate Social Responsibility (CSR) in its role as an antecedent to Corporate Sustainability (CS).

2.1 Sustainable development and Sustainability

This section presents an overview and discussion about Sustainable Development (SD) and Sustainability. These concepts offer an alternative to industrialisation policies that have created imbalances among economic, environmental and social aspects, now and for future generations.

2.1.1 Brief overview on challenges that industrialisation caused or has caused during the last century

This section offers an overview of the effects that industrialisation has had on the environment and societies (for further information on the topic refer to Ayres, 2004; Brown, Larsen, & Fischlowitz-Roberts, 2002; Cairns, 2004; Carley & Christie, 2000; Dalal-Clayton & Bass, 2002; Dunphy, Griffiths, & Benn, 2003; Elkington, 2005; Hart, 2000; Hodge, Hardi, & Bell, 1999; Reid, 1995; Shearer, 2002; WCED, 1987). Industrialisation's impacts is a major field of study in itself, however some key issues are summarised by the aforementioned references.

During the last century many radical changes and innovations have taken place, "*...we have unlocked countless secrets of matter, space, and biology... dominated the planet with our numbers, technology, and sophisticated organization.*" (Korten, 2001, p. 27) In particular during the last two decades, there have been unprecedented advances in development and industrialisation with dramatic economic and technological changes, mainly driven by corporations (Dunphy, Griffiths, & Benn, 2003; Jensen, 1993; NGLS & UNRISD, 2002). The two other sectors, what Holliday

et al. (2002) call the other two pillars of society[5], civil society and government, have made lesser, but also important, contributions. Such advances can be exemplified by:

- The large increase in economic activities, from $2.4 trillion in 1900 to $6.3 trillion in 1950 to $46 trillion in 2001, a 19-fold increase (Brown, Larsen, & Fischlowitz-Roberts, 2002; Flavin, 2001);
- The large growth in industrial production outputs, over fifty times during the past century - four-fifths of this since the 1950s (WCED, 1987);
- The rise in individual average income from $2,582 in 1950 to $7,454 in 2001 (Brown *et al.*, 2002; Roodman, 2002);
- The increase in international goods trade, from $311 million in 1950 to $5.5 trillion in 2000 (G. T. Miller, 2002); and
- The improvements in agricultural output, the so-called "Green Revolution", with the help of synthetic organophosphate fertilizers, from 14 million tons in 1950 to 134 million in 2000. This, together with increases in irrigated land area, from 90 million hectares in 1950 to 270 million hectares in 2000, helped to increase the world's grain yield from 1.06 tons per hectare in 1950 to 2.78 in 2000 (Brown *et al.*, 2002).

Industrialisation and development have also helped to increase life expectancy (up by 20 years in developing countries); halve infant mortality rates; increase literacy rates; increase food production and consumption at rates higher than population growth rates; improve incomes; and spread democratically elected governments (Carley & Christie, 2000; Dalal-Clayton & Bass, 2002; Korten, 2001; WCED, 1987).

Nonetheless, it is recognised that current economic activities have often resulted in detrimental impacts on, or increased risks to, what Dyllick & Hockerts (2002) called the three types of capital: economic, environmental, and social. This has raised concerns that the resulting damage to the earth's environment and quality of life for future generations will be irreparable (Ayres, 2004; Cairns, 2004; Carley & Christie, 2000; Dalal-Clayton & Bass, 2002; Dunphy *et al.*, 2003; Elkington, 2005; Goldin &

[5] The three pillars metaphor however fails to capture the dynamism and interconnectedness of society, since pillars are essentially static, separate and inert. A better term to use could be societal dimensions.

Winters, 1995; Hart, 2000b; Hodge, Hardi, & Bell, 1999; Kaku, 2003; Korten, 2001; Lindfelt, 2002; Reid, 1995; Shearer, 2002; WCED, 1987), especially if developing countries follow the historical Western development model, and repeat the same environmental mistakes (Hart, 2000b). The impact of human activity on the environment has been greater during the last hundred years than in all the centuries before (Gremmen & Jacobs, 1997). After 80 years, economic growth dominated paradigms have exacerbated old trends and challenges to the economic, environmental, and social aspects, and incorporated new ones.

2.1.2 From 'Environmental Revolution' to Sustainable Development

During the last 4 decades different authors and institutions have attempted to address economic disparity, environmental degradation, and social inequalities, evolving from the 'Environmental Revolution' to Sustainable Development (SD). Comprehensive explanatory timelines for this evolution are offered by the Global Sustainability Institute (2002), the IISD (2006), and Elkington (2006). Some of the most important events selected from the timelines are presented in the following paragraphs; a condensed form is shown in Table 2-1.

Three books and an article laid the foundation for the SD movement: Carson's (2000) 'Silent Spring', first published in 1962; Ehrlich's (1968) 'The Population Bomb'; the Club of Rome's (Meadows *et al.*, 1974) 'Limits to Growth', (Goldin & Winters, 1995); and Goldsmith *et al.*'s (1972) article 'A Blueprint for Survival'.

Also in 1972, the protection of the environment and its relation to development were for the first time systematically addressed, becoming a central issue at the UN Conference on the Human Environment, in Stockholm, where it was recognised that: "*The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.*" (UNEP, 1972) The Stockholm Conference had a strong focus on regulating development within natural limits set by the carrying capacities of the Planet (Dobers & Wolff, 2000). The Stockholm Conference was a breakthrough; however, it lacked the integration of social aspects. This is understandable since it was

one of the first efforts to address industrialisation's negative effects on the environment.

Table 2-1 Timeline of important events from the 'Environmental Revolution' to Sustainable Development (SD)

Year	*Event*	*Main contribution*
1962	Carson's' (2000) "Silent Spring" book published	Sparked the 'environmental revolution', exposed the toxic effects of agro-chemical products on humans and the environment, and started to make evident inter-connections between economic, environment, and social aspects
1968	Ehrlich's (1968) "Population Bomb" book published	Connections between population, resource exploitation and the environment
1972	Club of Rome's "Limits to Growth" (Meadows, Meadows, Randers, & Bherens, 1974) book published	Made clear that resources in the world are finite, and highlighted the consequences of continuing exponential growth in resource use and pollution creation
1972	"A Blueprint for Survival" article published (Goldsmith, Allen, Allaby, Davoll, & Lawrence, 1972)	The 'sustainable' adjective, *i.e.* capable of being sustained, from the Latin *sustinere*, *sus-* 'sub' and *tenere* 'hold', was first linked to industrial expansionism and its effects on the environment
1972	UN Conference on Human Environment (UNEP, 1972) held in Stockholm	The protection of the environment and its relation to development were for the first time systematically addressed and became a critical issue
1974	World Council of Churches (Dresner, 2002)	The concept 'Sustainable Society' is coined. A Sustainable Society is defined by four principles: (1) Social stability, (2) Food supply, carrying capacity and biodegradation, (3) Reduction of non-renewable resources use, and (4) Human activities that have little or no impact on the global climate.
1980	World Conservation Strategy (IUCN, UNEP, & WWF, 1980)	The concept of Sustainable Society was connected to Sustainable Development (SD)
1987	'Our Common Future' (WCED, 1987), the Brundtland Report, published	A simple SD definition is created (being the most quoted one up to date). It helped to bring SD to mainstream international political agenda, and to raise worldwide awareness.
1992	United Nations Conference on Environment and Development (UNCED) (UN, 1997), Earth Summit, held in Rio de Janeiro	Provided a forum to express global concerns about environmental and developmental issues. The main outcomes were: The Earth Charter, and Agenda 21 (a global action plan outlining the priorities for SD for the 21st century)
2002	World Summit on Sustainable Development held in Johannesburg (UN, 2002)	Highlighted as most urgent world problems of poverty, water, consumption and production patterns, natural resources, and rich/poor increasing gap. Its main outcome was a Plan for SD Implementation

Sources: Adapted from (Carson, 2000; Dresner, 2002; Ehrlich, 1968; Elkington, 2006; Global Sustainability Institute, 2002; Goldsmith *et al.*, 1972; IISD, 2006; IUCN *et al.*, 1980; Meadows *et al.*, 1974; UN, 1997, 2002; UNEP, 1972; WCED, 1987)

Dresner (2002) indicates that in 1974, the term 'sustainable' was first used at the World Council of Churches as an adjective in Sustainable Society. The term Sustainable Society was one of the first attempts to explicitly integrate environmental and social issues with economic activities. Accordingly, a Sustainable Society is defined by four principles: (1) Social stability, (2) Food supply, carrying capacity and biodegradation, (3) Reduction of non-renewable resources use, and (4) Human activities that have little or no impact on the global climate. The World Council of Churches was heavily influenced by clergymen from developing countries who thought that environmentalism was a 'bourgeois' concern that would deviate attention from justice and development Environmentalism, *i.e.* the protection of the environment without regards to social problems, was seen as primarily a developed countries' concern (Dresner, 2002).

In 1980 the concept of Sustainable Society was later connected to Sustainable Development (SD) in the World Conservation Strategy. Their definition was: "*For development to be sustainable it must take account of social and ecological factors, as well as economic ones; of the living and non-living resource base; and of the long term as well as the short term advantages and disadvantages of alternative actions.*" (IUCN *et al.*, 1980, p. 1) SD initiatives have, since the mid-1980s, blossomed across the world (Doppelt, 2003b).

The principle of equitable distribution, the cornerstone of a Sustainable Society, and Sustainable Development (SD) became the basis for the now famous 1987 Brundtland Report, titled 'Our Common Future' (WCED, 1987). Prior to the Brundtland Report, SD had been thought of as development that seeks to be continuous (Hopkins, 2002). The Brundtland Report changed this perspective and helped bring SD to the global agenda (Cheney, Nheu, & Vecellio, 2004; Clark, 2001; Elkington, 2002; Stavins, Wagner, & Wagner, 2003).

2.1.3 Sustainable Development (SD) and Sustainability definitions

Since the terms SD and Sustainability were coined, many definitions have appeared (Cairns, 2004). By 1992 there were at least 70 different ones, with the Brundtland

report providing the most commonly quoted (Kirkby, O'Keefe, & Timberlake, 1995). The Brundtland Report's SD definition is:

- "*Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.*" (WCED, 1987, p. 8)

Other illustrative examples include:

- "*Sustainable Development involves the simultaneous pursuit of economic prosperity, environmental quality, and social equity.*" (Elkington, 2002, p.2).
- Herman Daly defines SD as: "*Sustainable Development is the amount of consumption that can be continued indefinitely without degrading capital stocks – including 'natural capital' stocks...*", he mentions that "*Definitions of sustainability are also obviously dependent on the time and space scale we are using. Rather than trying to determine the correct time and space scale for sustainability we need to concentrate on how the different scales interact and how we might construct multiscale operational definitions of sustainability.*" (Daly, 2002, p. 47)
- "*Environmental economists define sustainability in terms of non-depletion of capital.*" (Dresner, 2002, p. 3) (This appears a somewhat incomplete definition, since it only takes into consideration the environmental and economic dimensions and neglects the social ones).
- "*Sustainability literally means the capacity for some state or condition to be continued more or less indefinitely.*" (Bhaskar & Glyn, 1995, p. 38) (This belies the technical use of the term 'Sustainability, and, if taken at face value, would imply the possibility of untrammelled economic growth, requiring the near infinite availability of natural resources)

The Sustainable Living Network web page presents a compilation by Susan Murcott (1997) of different definitions of SD; a few selected ones are presented in the following paragraphs to illustrate the diversity of emphasis:

- "*Sustainable development - maintenance of essential ecological processes and life support systems, the preservation of genetic diversity, and the*

sustainable utilization of species and ecosystems." (IUCN, WWF and UNEP, 1980, p. 4):

- *"Sustainable development means basing developmental and environmental policies on a comparison of costs and benefits and on careful economic analysis that will strengthen environmental protection and lead to raising and sustainable levels of welfare."* (World Bank, 1992, p.8):
- *"Sustainability: An ecological system is healthy and free from 'distress syndrome' if it is stable and sustainable, that is, if it is active and maintains its structure (organization) function (vigor) and autonomy over time and is resilient to stress."* (Costanza, 1994, p.15):

Bhaskar & Glyn's (1995) Sustainability definition is the closest to the dictionary definition (see the Shorter Oxford English Dictionary (SOED, 2007)). Constanza (1994), Daly (2002), Dresner (2002), and the IUCN, *et al.* (1980) focus on environmental maintenance by avoiding the depletion of natural capital. The Worldbank's (1992) definition follows an economic analysis for environmental protection, and adds the issue of welfare. Elkington's (2002) definition has a broader scope, which includes economic, environmental, and social aspects. The WCED's (1997) definition tends to be the most encompassing by making explicit reference to inter-generational needs. Although not being explicit in the definition, the three dimensions (as indicated in Elkington's (2002) definition) are thoroughly discussed throughout the document.

SD is considered by some (*e.g.* Atkinson, 2000; Gremmen & Jacobs, 1997; Hussey, Kirsop, & Meissen, 2001) as a broad, complex, controversial, open ended, and challenging notion that is open to different, and in many cases mutually exclusive, definitions and interpretations. While for others, SD means everything and nothing, or looks good in public relations brochures (Rosner, 1995). This has created much controversy, especially since such characteristics makes it difficult to implement and be of practical value (Gremmen & Jacobs, 1997; Hussey *et al.*, 2001); and conflicts from different interpretation in different sectors (Gremmen & Jacobs, 1997).

Additionally, some definitions incorporate behavioural, organisational, and power relations. For example: learning, change, and leadership (Fokkema, Jansen, & Mulder,

2005); systems thinking (Fullan, 2002); change and risk management (Hodge *et al.*, 1999; Schütz, 2000; Zadek, 1999); technology, planning, and lifestyle (Langer & Schön, 2003); attitudinal change, rationality, alignment, motivation and empowerment (Nguyen Cam, 2004); and calls for grounding the definitions into action (Lozano, 2006b, 2008a).

In the majority of cases, SD definitions have predominantly environmental connotations. Some authors mention the social aspects, however these tend to be less mature and more difficult to measure than environmental issues (Salzmann, Ionescu-Somers, & Steger, 2003), which are, in general, easier to monitor, assess and analyse than the social ones. Diesendorf (2000) proposes the use of the term 'ecologically sustainable and socially equitable development'; however such attempts merely adorn SD with more adjectives.

In general, it is possible to find in the SD definitions the following elements: an emphasis on the maintenance of the natural resources; the interconnectedness of environmental problems; the necessary reduction of social problems and increment in the quality of life; and the necessity of an intergenerational vision. Thus, SD encompasses the economic, environmental, and social impacts, and their inter-relations or cross-cutting aspects, with inter-generational perspectives.

For the purpose of this thesis, SD is to be understood as: "**A process in which societies continuously strive to improve their quality of life for this generation and future ones, while protecting and improving the natural environment; through changes in activities and attitudes.**"

It is common to find in the literature the terms SD and Sustainability used interchangeably, but they are inherently different (see Reid (1995), Diesendorf (2000), Langer & Schön (2003), and Lozano-Ros (2003)). For example ""*Sustainable Development" usually refers to the process "developing" in a sustainable way... and also to the "goal" of that process; "sustainability" refers to the concept of sustainable development, and also – confusingly- both to a state of sustainable resource use, not necessarily the same as sustainable development, as in "ecological sustainability" and to a state in which the goals of sustainable development have been*

achieved" (Reid, 1995, p. xiv). This indicates that sustainable development is the process, or road, to sustainability. As Martin (2003) avers, the difference lies in SD being the means to achieving Sustainability, an ideal dynamic state, *i.e.* the former is the path or process for getting there. Thus, sustainability is better understood as a dynamic goal, which needs to be continually re-assessed. It also means that SD is an ongoing journey, not a destination. Henceforth, the term Sustainability is used.

2.1.4 Sustainability perspectives

Sustainability discourses have emerged from different perspectives. Although different ones can be found, those that link to the Sustainability in corporations' discussion include: (1) central focus; (2) approach to engaging with the stakeholders (see Section 2.2.4.3); (3) constituency, proposed by Mebratu (1998); and (4) trends, proposed by Hopwood, Mellor & O'Brien (2005).

Within the central focus style it is possible to find those which focus on the human aspects, or anthropocentric (Langer & Schön, 2003); and the techno-centric (Hopwood, Mellor & O'Brien, 2005), which focuses on the transformation of sustainability goals into principles and guidelines with the help of technology that are adopted passively by people into their lifestyles to an imposed built environment (Nguyen Cam, 2004). Although technologies have contributed much to improving efficiencies and reducing pollution (Nguyen Cam, 2004), they reflect the moral, social, economic, and political orders at the time of their creation, and they are often the cause of the lack of Sustainability (Fokkema *et al.*, 2005). There is also an additional perspective, eco-centric (Hopwood, *et al.*, 2005), which is espoused by some and still customary for a small fraction of the world's inhabitants, mainly in inaccessible regions (such as the Amazon and Papua New Guinea). However, by relying on a narrow centre of focus this group of perspectives tend to neglect the relations to what is considered as marginal. This contradicts the arguments presented in the previous section, such as inter-connectedness of the SD aspects.

Within the approach to engaging with stakeholders it is possible to find Weak and Strong Sustainability. Weak Sustainability, which is usually preferred by corporations, takes a more functionalistic approach, where the physical resources can

be substituted with ease to make incremental economic, environmental and social improvements, while avoiding decreases in total wealth over time (Atkinson, 2000; Bartelmus, 1999b; Daly, 2002; Milne, Kearins, & Walton, 2003; Zadek, 1999).

Strong Sustainability tends to be more normative and radical. It proposes greater emphasis on the conservation of natural capital, *i.e.* keeping it constant, while rejecting the creation of economic value, both social and economic, from its use, where substitution of physical resources is not possible (Atkinson, 2000; Bartelmus, 1999b; Daly, 2002; Milne, Kearins, & Walton, 2003; Zadek, 1999). Strong Sustainability gives the environment priority over economic and social aspects, leaning towards the protection of nature. This is not a politically viable option for use throughout the entire world, rendering the ideological version of too limited applicability.

Strong Sustainability would be more feasible in an equitable World with low levels of illiteracy, little or no poverty, hunger, corruption and bribery, or gender inequalities. Since this is currently not the case, weak Sustainability presents a better option to reduce economic, environmental and social ailments. In certain countries, where social aspects are to a large extent properly addressed, such ailments can be better addressed through strong Sustainability. Both types of Sustainability require changes in activities, mental models and behaviours.

The third categorisation, Constituency, offered by Mebratu (1998), is divided into three dimensions (1) institutional, (2) ideological, and (3) academic.

The institutional dimension is based on need satisfaction and goal maximisation within three systems: economic, environmental and social. Representative definitions of this version are the ones offered by the Brundtland Report (WCED, 1987), the International Institute of Environment and Development (IIED), and the WBCSD (Mebratu, 1998).

The ideological dimension is based upon ideologies such as modern environmentalism, liberation theology, radical feminism, eco-feminism, eco-socialism, and Marxism. Some of its key concerns are: overpopulation and the

destruction of natural resources as threats to human survival, the assumption that an ecologically sound capitalist system is a contradiction in terms, human needs can be partly satisfied by non-material interactions with nature, humans behave greedily and corruptly because of the socio-economic system and not because they are inherently like that, and that nature cannot be dominated but planned and controlled (Mebratu, 1998). This dimension's position can bring conflict with stakeholders (*e.g.* investors, corporations and certain Western governments) who disagree with Marxist and feministic approaches.

The academic dimension is based mainly on ecological, sociological and economic (mainly neoclassical economics, more properly referred to as neo-liberal) disciplines (Dunphy *et al.*, 2003; Guillén, 2001; Mann, 1997; Rees, 2002). Sustainability is transformed into a commodity in two stages: (1) determining the price of environmental commodities by contstructing supply and demand curves to determine the appropriate or optimal level of environmental protection, and (2) transforming the calculated prices into full-cost prices, by taxing environmental damage, by subsidizing environmental improvement, or by creating markets for environmental goods by issuing permits that can then be traded among firms or consumers. Some examples include SO_x 'cap and trade', and more recently, CO_2 reduction through the Kyoto Protocol. Two implications are important in this perspective: (1) nature is self-organising, self-reproducing, organic, spatial-temporal and teleological as a system, and (2) humans seek to intervene to obtain their needed resources (Mebratu, 1998). This dimension's attempt to price and control the environment can bring rejection from stakeholders who disagree with neo-liberal economics, and it is also open to fraudulent machinations by cynical stakeholders.

Hopwood, Mellor & O'Brien (2005) offered a map of what they consider to be the three major trends for Sustainable Development (see Figure 2-1). The map is divided into three major stages: *status quo*, Reform, and Transformation.

In the *status quo* stage the need for change is recognized but the problems faced by the environment and society are not insuperable. Adjustments can be made without major changes. Development is considered to be a synonym of economic growth, and

this in turn as part of the solution. This view is the dominant of corporations and governments.

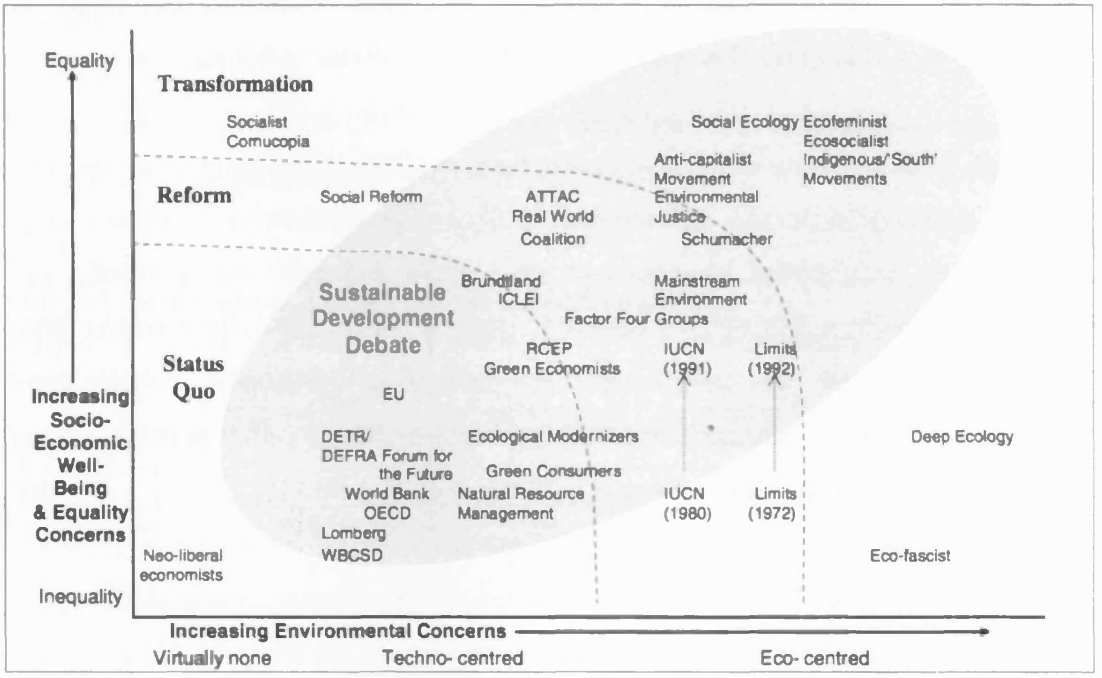


Figure 2-1 Hopwood, Mellor & O'Brien (2005) mapping of Sustainability perspectives

In the Reform approach there is acceptance that there are increasing problems, but there is no consideration that a collapse in ecological or social systems is likely or that fundamental change is necessary. The root of the problem is considered to be a lack of knowledge and information. Considerable changes in policies and lifestyles are recognized; however they can be achieved over time within the present socio-economic structures. The key to such changes is to persuade governments and international organizations to introduce major reforms.

The Transformation view considers that there are raising problems in the environment and society, and these are part of how society and humans inter-relate with the environment. The problems are considered to be inherent to the economic and power structures of society, because they are not primarily concerned with human well-being or environmental welfare. Major transformation is required to avoid crises and possible future collapse.

The Transformation view offers to radically modify current economic systems to make them more aligned with Sustainability. However the approaches proposed tend to fall into the 'Strong' Sustainability type, which may limit its application with certain aspects of society, such as corporations. This could be addressed by corporate efforts that would propose 'Transformation' but under 'Weak' Sustainability.

Although there are many alternative conceptions of SD, the predominant perspective is both anthropocentric and technocentric (rather than ecocentric), relatively weak (emphasising incremental change and negotiation amongst stakeholders), and institutional in the sense of focussing on meeting human needs and wants. Such perspectives indicate that corporations are central to the current debate about Sustainability, both as a causal factor behind many problems and challenges, and as potential contributors to future progress in responding to them.

In order to better understand how corporations have addressed Sustainability it is necessary to be familiar with their context, as presented in the following section.

2.2 Modern corporations

Modern corporations, hereon referred to as corporations, are considered to be institutions of associated individuals that, at least in Western countries, are legally, in power and liability, separated from their owners (Avi-Yonah, 2005; Diesendorf, 2000). Other terms used to refer to corporations include firms, enterprises, businesses, and companies. Traditionally, corporations have been defined as institutions dedicated to profitably producing and selling the goods and services that society demands (C.E.C., 2002; Demsetz, 1988; Freeman, 1984). Their main objective is to generate a satisfactory level of profit[6] for their legal owners (Argadoña, 1998; Boatright, 1996; Charreaux & Desbrières, 2001; Doppelt, 2003a; Farmer & Hogue, 1973; Friedman, 1970; Lee, 2005; Radin, 1932). The traditional definitions and objectives of corporations tend not to include or address Sustainability.

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[6] Profit is revenue minus cost (The Economist, 2005), where one of the key costs of corporations is labour, which can range from 10 to 85 per cent (Farmer & Hogue, 1973). Whatever the proportion of cost represented by labour, there are limits to reducing labour costs. In general without some humans a corporation cannot exist or operate.

2.2.1 Corporation typologies

Although there is large diversity in corporations' types, for this research the most relevant categories are according to (1) size and scope, and (2) ownership and governance.

The European Commission (2003) separates businesses into micro, small, medium-size, and large enterprises (see Table 2-2).

Table 2-2 Corporations categorisation according to size

Enterprise category	*Headcount: Annual Work Unit (AWU)*	*Annual turnover (million €)*	*or*	*Annual balance sheet total (million €)*
Micro	< 10	< 2		< 2
Small	< 50	< 10		< 10
Medium-sized	< 250	< 50		< 43
Large	≥ 250	≥ 50		≥ 43

Source: Adapted from (European Commission, 2003)

According to their scope in different countries, corporations can be divided into: (1) **national**, or domestic, corporations located and with activities (such as operating, manufacturing, marketing, and selling) within a single nation-state (UNCTAD, 1999); and (2) **international**, or global, corporations which have their base in one country but have operations, or trade, in others (McIntosh, Leipziger, Jones, & Coleman, 1998). Some authors subdivide the latter into multinational and global (Bartlett & Ghoshal, 1998, p. 18), while others into: international, multi national enterprises (MNEs), or multi-national corporations (MNCs), and trans-national corporations (TNCs) (McIntosh, Leipziger, Jones *et al.*, 1998).

The second categorisation separates corporations by ownership and governance:

- **Privately held (or private corporations)**: Corporations not owned by the state nor having shares traded in stock exchanges;
- **State-owned:** Corporations owned by the state; and
- **Publicly traded (or public corporations):** Corporations that issue shares that are traded in stock exchanges (Mascarenhas, 1989).

In privately held corporations the members are liable for the debts without limitation, whereas in publicly traded ones the members are only liable to the extent of their shares (Avi-Yonah, 2005). In private corporations the profits are reaped solely by the owners (Berle & Means, 1997; Jensen & Meckling, 1976; Mascarenhas, 1989), and they tend to have a narrow geographic scope (Mascarenhas, 1989).

State-owned corporations are mostly domestic. According to Mascarenhas (1989) profit is considered to be the maximisation of domestic votes. However, this may conflict with the purpose of generating revenues for the country and promoting public good, such as national health services.

Public corporations are "*...an awesome social invention*" (Jensen & Meckling, 1976, p. 71), where individuals voluntarily entrust their personal wealth to managers on the basis of complex contracted relationships (Jensen & Meckling, 1976). Public corporation owners are the shareholders, or stockholders (Freeman, Wicks, & Parmar, 2004). Such corporations usually have larger financial funds that allow them to embark on international activities more easily than private and state-owned corporations (Mascarenhas, 1989).

In publicly traded corporations, shareholders provide capital (Charreaux & Desbrières, 2001) by buying shares in exchange for maximising a return on their investment (ROI) on the short-term, mainly quarterly (Aftalion, 2001; Arora, Landau, & Rosenberg, 1998; Hill & Jones, 2001; Shearer, 2002). The returns include both dividend payments and any growth in the share price on the stock markets, an indication of the markets' expectation of the corporation's future performance (Hill & Jones, 2001). Such exchange gives shareholders property-owning claims over the corporation, and thus significant collective power and influence. Firms that fail to achieve their projected earnings and profit can be subject to the swift, and often severe, discipline of the market, requiring corrective action from the corporation (Hill & Jones, 2001; Lee, 2005; McIntosh, Leipziger, Jones, & Coleman, 1998; Shearer, 2002; L. Thomas, Evans, & Peattie, 2004). Corporations are also under ever-increasing competitive pressure to maintain market share, enhance product range, improve efficiency and reduce cost (Flynn, Dooley, O'Sullivan, & Cormican, 2003).

Maximum profitability for shareholders of public corporations in the market occurs when the stock price rises over long periods of time (Farmer & Hogue, 1973). Because of this many people, inside and outside the company, pay close attention to stock value trends (Aftalion, 2001). Shareholders of public corporations are usually interested in short-term results; which can hinder R&D programs and long-term growth (Aftalion, 2001; Arora *et al.*, 1998; Hill & Jones, 2001). Avi-Yonah (2005) argues that the short- and long-term argument is irrelevant because management is obliged to chart a course for the corporation's best interests without regard to a fixed investment horizon. However, management can be replaced by shareholder representatives if they are not satisfied. In addition to increasing their shares' value, within the business social and environment image and reputation are increasingly playing important roles (C.E.C., 2002).

Corporations can also be owned by **co-operatives** (Reiffers, Cartapanis, Experton, & Fuguet, 1982), or have **mixed** ownership (Brooks, 1987), *e.g.* owned partially by the state while other part being publicly traded.

According to their ownership and control (Berle & Means, 1997), known as governance (Cannon, 1994), corporations can be divided into:

- **Control through almost complete ownership**: Found in private corporations;
- **Majority control**: Involves ownership of a majority of the outstanding stock by an individual or a small group, giving it virtual control;
- **Control through a legal device without majority ownership**: Several legal devices to control a corporation without majority ownership have been developed. The most important being 'pyramiding', *i.e.* owning a majority of the stock of one corporation which in turn holds a majority of the stock of another, *e.g.* a holding company and its subsidiaries;
- **Minority control**: An individual or small group who hold sufficient stock to be in a position to dominate a corporation;
- **Management control**: Ownership is widely distributed. No individual or small group has a minority interest large enough to dominate the affairs of the company (Berle & Means, 1997).

Except for the first type, all others refer to public corporations. In the case of state-owned corporations, ownership and control remain within the government, whether democratically or not, becoming a variant of the first type.

2.2.2 Corporate power and internationalisation

During the last 20 years corporate economic power, particularly as represented by TNCs, has expanded, mainly through privatisation, deregulation, and liberalisation, factors that have reduced trade barriers and facilitated globalisation (Amoroso, 2003; Dunphy *et al.*, 2003; Korten, 2001; NGLS & UNRISD, 2002). Other phenomena that have helped increase corporate power have been the fall of the Iron Curtain, the opening of the Eastern European and Chinese markets (NGLS & UNRISD, 2002), and technological changes (Jensen, 1993).

Some of the benefits to corporations from this situation have been greater responsiveness to consumer preferences, and more efficient and socially optimal resource allocation (Korten, 2001). However, these have also led to corporations exploiting their market position, through their increased economic and political power, protection of their patents, tax avoidance, 'capturing' governmental regulations, and the raising of barriers to entry to competitors (Hansen, 1998).

It is argued that governments are able to control corporations (Farmer & Hogue, 1973; The Economist, 2005; White, 2004). However the last two decades privatisation and globalisation have reduced governmental control over corporations, especially on global economies with national governments (Behrman, 1981; Dunphy *et al.*, 2003; Guillén, 2001; Korten, 2001; MacLeod & Lewis, 2004; Mann, 1997; Shearer, 2002; Vagts, 2003)

Some of the reasons for such government loss of control over corporations include: governments hardly possess all the information needed to steer corporations in a particular direction (Bleischwitz, 2002); have a poor understanding of the dynamics of the current globalised economy (UNCTAD, 1999); are unable to control large organisations, such as MNEs and TNCs (Parkinson, 2000; UNCTAD, 1999); governmental regulations are impotent when corporations relocate (Behrman, 1981;

McIntosh, Leipziger, Jones *et al.*, 1998), and powerless over foreign subsidiaries; governments are becoming players instead of umpires (Levitt, 1958); governments interfere unduly with corporate affairs (Korten, 2001); developing countries lack the resources for effective regulation (Hanson & Song, 1998; Jensen, 1993; NGLS & UNRISD, 2002; WCED, 1987); some governments are plagued by corruption (Ite, 2004; Stephens, 2002); governmental actions and inactions have increased social and environmental problems (Monsen, 1972); governments are highly bureaucratic and incapable of responding (Korten, 2001; Monsen, 1972); and governments are slow to respond (Carson, 2000). Additionally, governments are lobbied by corporations, and their industry associations national and international, to create laws and policies that would be favourable for their operations and products (S. Anderson & Cavanagh, 2000; Diesendorf, 2000; Dunphy *et al.*, 2003; Korten, 2001; Parkinson, 2000; Rondinelli, 2002, 2003). This is predominantly done by large corporations. SMEs usually have fewer possibilities of moving to other countries, and tend to be more affected by governmental regulations.

Some neo-liberal economists argue that it is preferable for corporations to react to problems, *e.g.* environmental and social, when they occur than to bear governmental interference (Bartelmus, 1999a). However, government intervention is needed to correct market failures, and internalisation of costs (Korten, 2001; McIntosh, Leipziger, Jones *et al.*, 1998; The Economist, 2005), and help to avoid corporate impropriety and the abuse of the growing power that corporations have.

2.2.3 Corporate improprieties

Illegal and unethical behaviour amongst corporations varies from the commonplace and trivial to the unique and tragic. History provides examples stretching back to the earliest international corporations including the British South Africa Company, and the British and Dutch East India Companies, which obtained large economic profits in Asia, Africa, and the Americas, to the detriment of local people, mainly natives, through oppressive and unsafe working conditions, violations of human rights, political lobbying, slavery, genocide, and pollution and destruction of the environment (Litvin, 2003; Stephens, 2002). Other famous examples include: the United Fruit Company (currently Chiquita Brands International Inc.), and the International

Telephone and Telegraph (ITT), with behaviours such as: over- exploitation of natural resources, corruption of national governments, violent dissolution of labour strikes, and their involvement in overthrowing democratically elected governments in Guatemala and Chile (Litvin, 2003; D. Miller, 1990; Stephens, 2002).

Recent examples also evidence such corporate improprieties, which can be divided into economic, environmental, and social.

Economic impropriety includes the following illustrative examples: SGL Carbon Aktiengesellschaft (SGL AG) and its Chief Executive Officer (CEO), fined $135 million and $100 million respectively for international conspiracy to fix prices and allocate the volume of graphite electrodes (USDOJ, 1999a); the company collapse and subsequent indictment of Enron's top leaders, Kenneth Lay and Jeffrey Skilling, for fraud and conspiracy (Forbes, 2005b; Frehs, 2003); the company collapse and subsequent trial of Bernie Ebbers, former WorldCom executive, for accounting fraud and falsifying the company's books (Forbes, 2005a; Frehs, 2003); 44 companies did not pay full standard 35% of federal corporate tax, between 1996 and 1998; and 7 companies, Texaco, Chevron, PepsiCo, Enron, WorldCom, McKesson and General Motors, paid less than zero in 1998 because of rebates (S. Anderson & Cavanagh, 2000); and one third of UK's 700 biggest businesses not paying corporate tax in the 2005-2006 financial year, with 30% paying less than £10 million each (Houlder, 2007).

Some examples of environmental impropriety include: The fine of $18 million paid by Royal Caribbean Cruises Ltd. for routinely dumping waste oil and hazardous chemicals into U.S. harbours and coastal areas (U.S. E.P.A., 1999; USDOJ, 1999b); the fine of $2 million given to oil company ChevronTexaco by the Angolan government for causing environmental damage to beaches and damaging marine wildlife (Planet Ark, 2002); the fine of $8.8 million ($2.4 million penalty, $5.4 to reduce the generation of hazardous wastes, and $1 million for developing new air pollution technology) to Alcoa Inc. aluminium plant for polluting the Mississippi River Basin (Planet Ark, 2000); and the order from the Mexican government to Industrias Peñoles SA de CV to clean up a slag pile with high concentrations of lead, and to create a $6.4 million health-care fund for pollution victims (Planet Ark, 1999).

Some examples of social impropriety include: Dissolution of union contracts, firing of 3,400 workers, and wages cutting by 45 per cent by Ford Motor Company in one of its plants in Mexico in 1987 (Korten, 2001); Wal-Mart's union busting and widespread use of part-time workers to avoid paying benefits (S. Anderson & Cavanagh, 2000); the Indian government ban on Coca Cola Co. and PepsiCo selling their products after large quantities of pesticides and insecticides were found in them[7] (CorpWatch, 2004); the estimated 55 million children in India working as virtual slaves (Korten, 2001); accusations that Nike use and misuse child labour in developing countries (Wilenius, 2005); and the estimate that the labour cost in producing one pair of Nike shoes is only $3, yet these shoes may well sell for $100 or more in the USA (Marsland *et al.*, 2004).

Although some of the previous examples have been subjected to governmental fines, loss of market presence, and in some extremes even the dissolution of the corporation (Dunphy *et al.*, 2003; Korten, 2001; Litvin, 2003), they show how some corporations' quest for profit and short-term financial growth has detrimental environmental and social repercussions. These repercussions can both increase the perceived need to make our economics and societies more sustainable, and create direct pressure on the companies concerned to behave more responsibly.

2.2.4 Corporate responsibilities

For many decades authors have debated the responsibilities of corporations. Historically and culturally more corporate rights than responsibilities have been identified, at least in Western societies (McIntosh, Leipziger, Jones *et al.*, 1998), where the two most recognised expectations from corporations are wealth and job creation (C.E.C., 2002; Cannon, 1994). Three main positions can be found for corporate responsibilities: (1) to shareholders, (2) to society, and (3) to stakeholders. These repercussions can both increase the perceived need to make our economies and societies more sustainable, and create direct pressure on the companies concerned to behave more responsibly.

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[7] Althought the ruling has been revoked the damage on health and the compny's reputation provide a good example of corporate improprieties

2.2.4.1 Responsibilities to shareholders

The main proponents of a shareholder focus include Friedman (1970), Henderson (2005), Shearer (2002), McAleer (2003), Levitt (1958), Coelho, *et al.* (2003), and The Economist (2005). Their position is that corporations have only the responsibility to maximise the profits of their owners, or shareholders. Even though these authors consider the corporation's responsibility only to its shareholders, they state, most crucially, that the corporation must adhere to governmental legislation, along with the canons of "...*every-day face-to-face civility*..." (Levitt, 1958, p. 49), and follow economic cues to profitability.

Profit maximisation for the shareholders is explained by the stockholder, or shareholder, theory that posits that firms have a fiduciary duty only to their stockholders or owners. This theory is generally associated with utilitarism [sic] (Hasnas, 1998), where the firm's main purpose is to maximise returns to its stockholders, *i.e.* maximise the market value of the firm (Argadoña, 1998; Boatright, 1996; Freeman, 1984; Friedman, 1970; Hasnas, 1998). By providing capital in exchange for a ROI, stockholders gain a property-owning claim over the company, and generally have significant power and influence (McIntosh, Leipziger, Jones *et al.*, 1998; L. Thomas, Evans, & Peattie, 2004). For more details on ownership see Section 2.2. Stockholders' rights are *prima facie*, and cannot be used to justify limits to the freedoms of others without their consent (Freeman *et al.*, 2004).

The stockholder theory has been critiqued since it focuses on maximising stock value and profit for the shareholders, at the expense of, or detriment to, other groups (Brook, 2001; Charreaux & Desbrières, 2001; Hasnas, 1998), including the environment (Boatright, 1996).

2.2.4.2 Responsibilities to society

The authors in this group consider that the corporation has obligations to society inside and outside the firm. These relations can take place under formal contracts, as Coase (1937) explains in his contractual theory, or informal contracts granted by society that allow the corporation to operate ('licence-to-operate') (Hasnas, 1998). Firms have an ethical obligation to enhance society's welfare by satisfying consumer

and employees interests while keeping within the general canons of equitability. Managers have obligations to abide by social justice and contracts (Hasnas, 1998). Socially responsible actions are those that, when judged by society in the future, have provided goods and services that have been distributed equitably, at the minimum financial and social cost possible (Farmer & Hogue, 1973). Social responsibility is often used as a synonym for ethical obligations (Hasnas, 1998). In this respect the corporation is not, and cannot be, an insular entity. The corporation has responsibilities that "*...go beyond compliance with legislation, economic prudence, ethical behaviour and philanthropy.*" (McIntosh, Leipziger, Jones *et al.*, 1998)

Some of the critiques to this position include: the 'social contract' is not legally recognised; the contract is not transparent to firm founders, owners or managers (Hasnas, 1998); it is not clear how the social contract should or could be enforced, or what is its scope and extent; and it does not explicitly address the impacts of the corporation on the environment. An additional critique is that business is not about 'social conscience' but about defending free enterprise, and should not have responsibilities such as providing employment, eliminating discrimination, and avoiding pollution (Friedman, 1970).

This perspective underpins the Corporate Social Responsibility (CSR) concept, presented in Section 2.3.

2.2.4.3 Responsibilities to stakeholders

The responsibilities to society and to stakeholders' perspectives tend to be fairly close. However they have subtle differences. Some of the authors on the responsibilities to stakeholders group include: Cannon (1994), Freeman (1984; 2004), McIntosh *et al.* (1998), Farmer (1973), Salzmann *et al.* (2003), Waddock & Bodwell (2007) and Biscaccianti (2003). They consider that the corporation influences and is influenced by a diversity of stakeholders, individuals or groups that affect, or are affected by, the corporation's activities and operations (Argadoña, 1998; European Commission, 1998; Farmer & Hogue, 1973; Freeman, 1984; Freeman *et al.*, 2004; Hasnas, 1998; Hill & Jones, 2001). Stakeholders can be internal (*e.g.* stockholders and employees, including management) and external (*e.g.* customers, suppliers, banks,

environmentalists, and government) (Argadoña, 1998; Biscaccianti, 2003; Freeman, 1984; Freeman *et al.*, 2004; Hill & Jones, 2001; Verdeyen, Put, & van Buggenhout, 2004). Stakeholders can also be divided into primary and secondary (Lindfelt, 2002; McIntosh, Leipziger, Jones *et al.*, 1998). Table 2-3 shows some of the different stakeholders. Under this theory, the corporation's fundamental obligation is to ensure its own survival, and to thrive by benefiting and balancing the needs of multiple stakeholders, instead of purely maximising its financial success (Hasnas, 1998; Kaku, 2003).

Table *2-3* Examples of primary, secondary, social, and non-social stakeholders

	Primary Stakeholders	***Secondary Stakeholders***
Social	• Shareholders (stockholders) and investors • Employees and managers • Customers • Unions • Suppliers and other business partners • Local communities	• Government and regulators • Civic institutions • Social pressure groups • The media and academia • Trade bodies • Competitors • General public
Non-social	• The natural environment • Future generations • Non-human species	• Environmental pressure groups • Animal-welfare organisations

Source: Adapted from (Hill & Jones, 2001; Lindfelt, 2002; McIntosh, Leipziger, Jones *et al.*, 1998; Waddock & Bodwell, 2007)

Some of the critiques of the stakeholder theory include: it is difficult to recognise and differentiate stakeholders (Buchholz & Rosenthal, 2005; Langtry, 1994), and to meet the expectations of all stakeholder groups simultaneously (Argadoña, 1998; Dyllick & Hockerts, 2002); the challenge of including the natural environment as a stakeholder, which lacks many of the characteristics of conventional stakeholders, *e.g.* specific identity and conscious decision making capacities (Mitchel, Agle, & Wood, 1997); consideration of a large number of stakeholders, where the only ones to be considered as valid are the stockholders (Argadoña, 1998; Coelho *et al.*, 2003; Friedman, 1970; Henderson, 2004, 2005).

This perspective is taken by some of the Corporate Social Responsibility (CSR) concept, presented in Section 2.3.

2.2.5 Corporate perspectives

Corporations are complex organisations. To look upon all their activities, and relationships and responsibilities towards stakeholders is beyond the scope of a single PhD. Morgan (1997) offered eight organisation 'metaphors'[8] that facilitate their analysis by narrowing the focus on certain issues of the organisation, refer to Appendix A. I for more details. He indicates that although an organisation can be analysed through a predominant metaphor, there might be others supporting it:

1. **'Organisations as Machines'**, where organisations are considered as rational systems that operate as efficient as possible through routines. Individuals are expected to perform a predetermined set of activities during a set schedule. This type of organisations is usually called bureaucracies;
2. **'Organisations as Organisms'**, where organisations are considered to be 'open' to their environment[9] and must enter an appropriate relation with it to survive. This type of organisations adapt, through self-organisation, to stimuli from the environment;
3. **'Organisations as Brains'**, where organisations are considered to be information and communication systems. They must be able to detect significant deviations from the norms and initiate corrective action when discrepancies are detected. These organisations have to develop skills and mind-sets to challenge and change the basic rules of their strategic and operational levels to better respond to environmental stimuli;
4. **'Organisations as Cultures'**, where organisations are mini-societies with their own patterns of culture and sub-culture. They are sustained by belief systems that emphasise the importance of rationality. Their legitimacy depends on their ability to demonstrate rationality and objectivity in action;
5. **'Organisations as Political Systems'**, where organisations are political systems, where order and direction needs to be created among people with potentially diverse and conflicting interests;

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[8] Different individuals, whether inside the organisation or analysing it from the outside, might adopt different 'metaphors', which would result in different worldviews of the organisation.

[9] Environment here refers to the broader context of environment (society and nature), and not as in other sections of this thesis where environment refers to the natural environment.

6. **'Organisations as Psychic Prisons'**, where organisations are created and sustained by conscious and unconscious processes, with the notion that people can actually become imprisoned by favoured organisational illusions, perceptions, ideologies and behaviours. This is also described as 'group-thinking';
7. **'Organisations as Flux and Transformation'**, where organisations are closed, autonomous systems of interaction. Each element simultaneously combines the maintenance of itself with the maintenance of others. Organisations do not recognise how they are part of their environment. The role of managers is to create 'contexts' where self-organisation can occur. In this type of organisations transformational change involves the use of leverage and the creation of 'new contexts' that can break from the *status quo*; and
8. **'Organisations as Instruments of Domination'**, where organisations are considered to dominate society by imposing their will through corporate growth or increase profitability. They are divided societies that perpetuate class warfare in the workplace. Examples of this type of organisations include multi-nationals' negative impact on their employees and environment.

For this thesis the 'Organisations as Flux and Transformation' is adopted as predominant metaphor. The strengths of this metaphor are: (1) it seeks to fathom the nature and source of change so that its logic can be understood; (2) change management is a product of self-awareness; and (3) change is self-organising and an emergent phenomenon that cannot be predetermined or controlled. The main limitation is that the self-organisation of change is difficult to manage. In this metaphor change within the organisation, leadership, and management play important roles. The 'Cultures' metaphor supports 'Flux and Transformation' by focusing on changing skills, mind-sets, values, norms, and culture.

The 'Flux and transformation' metaphor's main limitation is that the self-organisation of change is difficult to manage. Another limitation of the metaphor is that it considers organisations as closed, autonomous systems of interaction, which could limit its adaptability in response to external stimuli. Another limitation is that it considers each element to simultaneously combine its maintenance with that of others; this implies a certain degree of collaboration (see Section 4.1.3), if the elements

engage in competitive and conflicting relations change might become difficult, or even impossible, to achieve. The metaphor considers managers to be crucial in creating and achieving change, however change might come from lower-levels of the organisation's hierarchy, or even from sources external to the organisation. In spite of the limitations, the choice of the 'Flux and transformation' metaphor appears to offer the best possibility to explore organisational changes for CS, especially those that have been voluntary and proactive.

Two mechnisms are key in shaping transformations in corporations: leadership and the institutional framework (Diesendorf, 2000; Doppelt, 2003a; Gill, 2003; Hart, 2000b; Langer & Schön, 2003).

2.2.6 Corporate leadership

Leadership has significant impact and influence on the organisation (Collins & Porras, 2002; Farmer & Hogue, 1973; Fullan, 2002; L. W. Porter, Lawler, & Hackman, 1975; Rogers, 1995). Leadership addresses the yearning for meaning with an organisation by defining and communicating its vision and purpose (Gill, 2003; Waddock & Bodwell, 2007). Leaders of an organisation have the influence to help establish the institutional framework (discussed in the following section) (Farmer & Hogue, 1973; Gill, 2003; Manimala, Jose, & Thomas, 2006); foster a sense of purpose and mission (Senge, 1999c); create and share knowledge (Fullan, 2002); design the setting which provide tools and stimulate constructive and productive individual actions (Kanter, 1999); drive change (Beer, Eisenstat, & Spector, 1990); support and encourage creativity (Flynn *et al.*, 2003); and reinforce organisational values on a constant basis (Garvin & Roberto, 2005); Leadership is most effective when they back up their words with actions, and motivate, inspire and empower people (DeSimone & Popoff, 2000; Gill, 2003; Manimala, Jose, & Thomas, 2006; Senge, 1999c).

The foundations of effective leadership are to identify and promote shared values, and communicate the organisation's vision (Garvin & Roberto, 2005; Gill, 2003); to manage the central building block of the organisations, its people (Freeman, 1984); and to maintain the stability of the organisation over the long-term (Collins & Porras, 2002).

Leadership is recognised to be one of the key elements to successfully introduce, implement and institutionalise changes (Dawson, 1994; Doppelt, 2003a; Fullan, 2002; Gill, 2003; Kotter, 1996).

Traditionally, leaders have been viewed as those who set up the direction of an organisation, make key decision, and energise the 'troops'[10]. A new style of leadership is proposed that envisages leaders as designers, stewards and teachers; where their influence is at four levels: events, patterns of behaviour, systemic structures, and a 'purpose story' (Senge, 1999c). This new leadership needs to integrate the cognitive (the perception and understanding of information); the spiritual (the need for meaning and worth in people's work and lives); the emotional (the emotions and feelings); and the behavioural (the volitional actions or behaviours), dimensions (Gill, 2003).

Leaders' nature and experiences shape their individual style (Cannon, 1994). Nonetheless, some broad types are recognised:

- Charismatic leaders, who deal with organisational processes mainly through visions and crises. They foster a lofty sense of purpose and mission by creating tremendous energy and enthusiasm (Senge, 1999c);
- Visionary leaders, who have a sense of vision and operate at the levels of change patterns and events (Senge, 1999c);
- Turnaround leaders, who gain trust and convince people that their plan for moving forward is correct by demonstrating it through word and deed (Garvin & Roberto, 2005).

2.2.7 Institutional framework

Corporate policies and practices can help to develop trust in the organisation's standards and norms (Andersson, Shivarajan, & Blau, 2005), and help to increase productivity (Hopkins, 2002). The organisation's institutional framework includes:

- **Vision**: A meaningful, ethical and inspiring picture of the future with some implicit or explicit commentary on why people should strive to create that

[10] This relates to the origins of strategic management and business leadership which followed a pseudo-militaristic model

future (Frehs, 2003; Gill, 2003; Kotter, 1996; Senge, 1999c; Stacey, 1993; Waddock & Bodwell, 2007). It helps to motivate people and efficiently co-ordinate their actions (Kotter, 1996);

- **Mission**: Concerned with the way an organisation purpose and management of the day to day (Frehs, 2003; Kotler & Armstrong, 2001; Senge, 1999c; Stacey, 1993);
- **Strategies and planning**: Concerned with the pattern of actions that are to be applied to the organisation to pursue the vision (Frehs, 2003; Gill, 2003; Stacey, 1993).

Sometimes vision and mission are used interchangeably, *e.g.* Hill & Jones (2001), but they are inherently different - the former being the ideal of what the organisation wishes to become, and the latter the necessary activities to get there.

According to Langer and Schön (2003) the institutional framework's structure has three corner-stones: Firstly, **System properties**, including integration of systems, temporal system boundaries, spatial system boundaries, dynamic change; secondly, **Capacities,** the material and immaterial basis of stocks to be sustained, including, levels and limits, and distribution; and thirdly, **Process** aspects, including participation and Governance; and reflexivity.

The institutional framework also sets the norms of behaviour and the shared values in the organisations (Kotter, 1996; Senge, 1999c), thus helping to maintain stability.

Some of the instruments for implementing policies may include:

- **Economic:** Taxes, charges, bounties, rebates, and targeted expenditure;
- **Regulatory**: Laws, codes, product certification and standards;
- **Education**: Communication, information and training; and
- **Institutional change:** A combination of regulatory and economic instruments. (Diesendorf, 2000)

2.3 *Corporate Social Responsibility (CSR)*

Various efforts have appeared to help corporations and their leaders deal with their responsibilities to their shareholders. Corporate Social Responsibility (CSR) was one of the first efforts to deal with SD issues, in the beginning focusing on social aspects, and then moving towards integrating the environmental ones.

There is no clear consensus in the literature as to when the Corporate Social Responsibility (CSR) concept originated. While CSR practices can be traced back almost as back as the French Revolution (Frankental, 2001), the origins of the 'modern' form of CSR are subject to discussion. Some argue that it began at the wake of the Great Depression, in the late 1920s (Carroll, 1999; Dodd, 1932; Lantos, 2001; Millon, 1990), others set its beginnings in the 1950s (Jenkins & Hines, 2003). One of the first academic articles to explicitly mention CSR was Dodd's (1932) article. Since then many CSR definitions have appeared, from which it is being indicated that:

- It is by nature voluntary (C.E.C., 2001);
- It aims at improving societal welfare and well-being (Farmer & Hogue, 1973; Frehs, 2003; Mintzberg, 1983);
- It goes beyond legal expectations and compliance, investing more into human capital, the environment, and stakeholder relations (C.E.C., 2001, 2002; Frehs, 2003);
- The corporation is responsible for its wider impact on society, regardless of how CSR is defined (Frankental, 2001);
- CSR is about the way businesses are managed, and not an optional 'add-on' (C.E.C., 2002);
- It integrates social and environmental concerns, and stakeholders interactions, into business' operations (C.E.C., 2001; Frehs, 2003);
- CSR is not a substitute for governmental regulations and legislation (C.E.C., 2001; Raynard & Forstater, 2002; Swift & Zadek, 2002);
- It is about the long-term prosperity of the corporation (Holme & Watts, 2000); and
- CSR is about ethical behaviours (Frehs, 2003; Mintzberg, 1983).

From the different factors it can be interpreted that CSR is: voluntary by nature, integral part of the company's management, about ethical behaviours and the long-term prosperity of the company, aimed at improving societal welfare and well-being (according to the C.E.C. (2001, 2002) CSR also needs to include the environment), goes beyond legal expectations, and is not intended as a substitute for governmental regulations and legislation.

Some of the most important issues, among the long list that CSR is aimed at addressing, include: monitoring child labour (MacLeod & Lewis, 2004; Zadek, 1999); stakeholder engagement and participation, including local communities, employees, shareholders, business partners, suppliers, customers, public authorities, and NGOs (C.E.C., 2001; Holme & Watts, 2000); stimulation of innovation (Frehs, 2003); lifelong learning, equal opportunities, and better management of natural resources (C.E.C., 2001); communication, reporting, disclosure, and transparency (Holme & Watts, 2000); product impact (Holme & Watts, 2000); health and safety (MacLeod & Lewis, 2004); dealing with corruption (Holme & Watts, 2000); human rights, freedom of association, vocational education, fair wages, equal opportunities, non-discrimination (Holme & Watts, 2000; MacLeod & Lewis, 2004; Welford, 2005; UNGC, 2008); local protection of suppliers, child labour, labour standards, ethics, indigenous people, and fair trade (Welford, 2005); and environmental protection (Holme & Watts, 2000), beyond pollution control (Elkington, 2002).

2.3.1 CSR typologies

There have been a range of definition of and approaches to CSR, which has led to several bases on which it can be categorised. In general, it is possible to group them in two overarching categories: (1) Duty, and (2) Shareholders-stakeholders (SS) pair.

The **Duty** category refers to the impact of the CSR activities. It is proposed by Lantos (2001), and is divided into:

- **Ethical**: Avoiding societal harms by fulfilling the corporation's ethical duties, *i.e.* the corporation is morally responsible to its stakeholders;
- **Altruistic**: Requiring corporations to help alleviate societal problems, even if it reduces profits to the shareholders. The corporation is not motivated by a

yield on return on investment, though this might be a by-product. This category is represented by corporate philanthropy. Even though this type is beneficial to society, it does not appealing to some corporations, unless they can deduct their contributions from taxes and levies. For a corporation to engage in altruistic activities it must have financial resources; and

- **Strategic**: Benefiting society through activities that will bring potential long-term benefits to the corporation. This might be more appealing to some corporations, since it promises to bring financial benefits.

This categorisation sees CSR mainly as administrative efforts. It fails to engage with the different stakeholders, see Section 2.2.4.3.

Several authors have offered different viewpoints of CSR in relation to shareholders and stakeholders. The following categorisation is aimed at integrating such viewpoints regarding the **Shareholders-stakeholders (SS)** pair:

- **Harmonic CSR:** Activities that clearly demonstrate benefit to shareholders in the long term and advance stakeholders', including society's, well-being (Avi-Yonah, 2005; Carroll, 1999; Laffer, Coors, & Winegarden, 2004; The Economist, 2005);
- **Mitigating CSR:** Activities that mitigate stakeholder harm that the corporation caused, even without legal responsibility or clear benefits to shareholders (Avi-Yonah, 2005; Laffer, Coors, & Winegarden, 2004);
- **Philanthropic CSR:** Activities for which the corporation is not responsible and do not benefit shareholders (M. E. Porter & Kramer, 2003; Smith, 2003)., *e.g.* AIDS prevention (Avi-Yonah, 2005);
- **Extrinsic CSR:** Activities that reduce profits but improve stakeholders' welfare (The Economist, 2005);
- **Pernicious CSR:** Activities that increase profits but reduce stakeholders' welfare (The Economist, 2005); and
- **Delusional CSR:** Activities that reduce both profits and stakeholder welfare (The Economist, 2005).

The harmonic type shows the most potential to benefit the company and its different stakeholders. The most deleterious is the delusional case, where the initiatives taken by the company incur a cost to the company but tackle the symptoms of environmental and social imbalances, not their causes. This fails to deliver ultimate improvements in stakeholder welfare, whilst giving the appearance that a company is engaged with CSR (The Economist (2005) argues that most CSR is of this type). In spite of this, many corporations worldwide still follow this approach, while many others have recognised that it is detrimental to their image and reputation (Jenkins & Hines, 2003; Lantos, 2001).

The mitigating and philanthropic CSR models might not bring immediate benefits to the shareholder, but the reputation gained through such CSR activities could mean that in the long term they are recognised and thanked by the community, so future business could be improved by today's actions. The extrinsic and pernicious CSR variants revolve around the discussion between benefits to shareholders against stakeholders and *vice versa* (see Section 2.2.4).

Farmer and Hogue (1973) remark that socially responsible actions, such as waste collection, transportation and processing, *i.e.* pollution control, have a cost, and reduce profitability (types 2, 3, 4, and 6), and thus present problems for the company.

The Shareholders-stakeholders (SS) categorisation provides a broader inclusion of different stakeholders than the Duty categorisation. However, it does not provide a detailed list, nor does it indicate what the motivations of the company might be to engage with CSR. It also fails to explicitly include the environment as a stakeholder.

A combination of the ethical and strategic types would result in harmonic CSR. Table 2-4 presents how the SS pair and duty categories relate and its impact on shareholders and stakeholders. It shows that the harmonic type is the most beneficial CSR for stakeholders and shareholders, by going beyond fulfilling a firm's economic and legal obligations through strategic consideration of the efforts. Note that the pernicious and the delusional types are not considered under Lantos's (2001) categorisation. These two categories do not explicitly consider the impacts to the environment, and it is doubtful if either altruism or ethics weigh heavily on the minds of the principals.

Table 2-4 Ethical and strategic CSR type relations

	Stakeholders	*Shareholders/ Profit*	***Duty category***		
			Ethical	*Altruistic*	*Strategic*
Harmonic	Benefits	Benefits	Included	Not included	Included
Mitigating	Benefits	No clear benefit or legal responsibility	Included	Included	Not included
Philanthropic	Mitigate harm but not caused by the corporation	No clear benefit	Included	Included	Not included
Extrinsic	Benefits	Reductions	Not included	Included	Not included
Pernicious	Reductions	Benefits	-	-	-
Delusional	Reductions	Reductions	-	-	-

Most of the CSR typology discussions focus mainly on social stakeholders (*e.g.* employees, shareholders, and community). They tend to be motivated by altruism, ethics, strategy, or a combination of them. Seldom do they explicitly incorporate the environmental aspects. The typologies proposed (see Section 2.3.1) suffer from a lack of inclusivity. When taken together, the four typologies proposed cover the majority of options in CSR; however, on their own, they tend to be fragmentary.

2.3.2 CSR interpretations and critiques

CSR is being interpreted differently in Europe and in the U.S.A. In Europe the mainstream corporate entity is more open and flexible towards CSR, encompassing, in general, environmental and social aspects (C.E.C., 2001, 2002; M. E. Porter & Kramer, 2003; Smith, 2003). In the U.S.A. CSR is more usually a synonym for corporate philanthropy (M. E. Porter & Kramer, 2003; Smith, 2003).

The concept of CSR has been critiqued by authors from different positions, as Mintzberg (1983) remarked some from the 'right' and some from the 'left', which can be understood as by some as 'it goes too far', while for the others as 'it does not go far enough'. Within the former, some of the most characteristic authors include Henderson (2004; 2005), Friedman (1970), The Economist (2005), Frankental (2001), and Farmer and Hogue (1973). In general, these authors consider development to be synonym for economic growth, being measured by GDP. These are two flawed conceptions (see Costanza, 1991). They formulate their arguments in five major critiques:

- The only responsibility of corporations is to make profits. This is discussed in Section 2.2.4.1;
- CSR increases cost and impairs performance (this is based on the delusional CSR). Under this critique corporations that are involved with CSR would attempt to lobby governments to pressure companies not involved, and which have lower costs and higher profits, to join the CSR movement (Farmer & Hogue, 1973; Henderson, 2004, 2005; The Economist, 2005);
- CSR attempts fundamental reform of capitalism in order to make it more humane, calling for anti-competitive practices, making it bad for the corporation and for society (The Economist, 2005). However, competition without limits, under the Social Darwinian precept of 'survival of the fittest' (Baskerville & O'Grady, 2001; Miesing, 1985), does not guarantee that the survivors would be the most ruthless, corrupt or unethical (Miesing, 1985);
- CSR distracts attention from genuine business ethical problems by taking into account stakeholders (Henderson, 2004, 2005; Mintzberg, 1983; The Economist, 2005). This is partially true since CSR brings into corporate discussions issues that are usually not considered to increase shareholder value explicitly, but which may pay dividends in the future (see Section 2.3.1). These increase the complexity of how the corporation creates and implements its strategies. Considering such issues can potentially damage the long-term profits of the corporation by reducing its access to resources and damaging its image; and
- CSR is merely a cosmetic exercise for Public Relations (PR) purposes (Frankental, 2001; Mintzberg, 1983; The Economist, 2005). This critique is only valid for companies that have CSR policies, while they and their leaders behave unethically and irresponsibly, *e.g.* Enron (Mardjono, 2005). CSR policies *per se* do not guarantee ethical and responsible behaviour from corporations, nor does an absence of CSR policies indicate that the corporations do not behave ethically and responsibly.

In general, the authors in this group have a narrow view of CSR; some even contradict themselves, *e.g.* Henderson (2004; 2005). They assume the CSR type is the delusional

one, while their definitions can be classified as being, in the main, social aspects and outward looking.

Among the 'does not go far enough' group it is possible to find eight major critiques:

- In general it is difficult to demonstrate positive correlations between CSR and 'the bottom line' (Avi-Yonah, 2005; Laffer *et al.*, 2004). This critique is a perennial argument. Some studies have demonstrated that CSR improves performance, growth, and profits (C.E.C., 2001; Dentchev, 2004; Husted & Salazar, 2006; Jenkins & Hines, 2003), others show no relation (Husted & Salazar, 2006; Laffer *et al.*, 2004), and yet others indicate negative relations (Dentchev, 2004; Husted & Salazar, 2006; Wright & Ferris, 1997). This poses a problem in demonstrating to corporations, not yet engaged with CSR, that it will bring them financial benefits;
- It becomes relatively difficult to evaluate the performance of the corporation against he issues required by CSR (Avi-Yonah, 2005). At the moment, CSR requires that corporations evaluate their performance upon many issues that they are not accustomed to. Nevertheless, these issues affect directly the corporation and may have the potential to damage its reputation (Lantos, 2001), or even to lead it into bankruptcy and closure, if not dealt with;
- CSR is considered a panacea for world problems, such as global poverty, social exclusion, and environmental degradation (van Marrewijk & Hardjono, 2003). CSR cannot, by itself, solve all the world's problems;
- CSR has not been well defined (Frankental, 2001; Frederick, 1994; Welford, 2005). There are many available definitions, and an even larger number of interpretations. Instead of helping the CSR movement, these have resulted in increasing confusion and rejection of the term and its implementation. This critique should instead read: It has been variously defined and redefined too many times;
- Only profitable companies can engage in CSR (Laffer *et al.*, 2004). In general, profitable corporations tend to buy into CSR because they have resources to spare, whereas less or not profitable corporations are usually focused in solving their immediate financial problems;

- By engaging with CSR the corporation might take on roles that belong to the government, for example building and running schools, hospitals, and roads (Levitt, 1958)(Ite, 2004). CSR efforts are not, and should not be, substitutes for governmental initiatives;
- The environment is not explicitly mentioned in the term 'Corporate Social Responsibility' (Fukukawa & Moon, 2004; Willard, 2002b). It may be considered that impacts on the environment would sooner or later impact societies, and thus bring the environment into consideration. However, this is neither clear nor explicit in the term. Willard (2002b) proposed to change the term into '*corporate social and environmental responsibility*'. However, this could lead to further confusion among academics and practitioners. This critique is one of the most crucial ones; and
- How to ground and make operational CSR definitions and principles among different stakeholders.

CSR has considerable commonalities with the concept of Sustainability. Both seek to address the concerns of stakeholders and the impacts and responsibilities of business that go beyond their conventional economic and legal responsibilities, and both are contested concepts subject to a variety of interpretations and definitions. It is not surprising therefore that some companies have sought to respond to emerging sustainability issues by integrating them into existing organisational processes geared towards CSR. A focus on CSR can be helpful in delivering some environmental and social improvements, and can provide some of the bases to contribute to Sustainability. However, as the critiques demonstrate, CSR has limitations that may render attempts to use it as a vehicle to promote Sustainability counterproductive. CSR was not originally created to deal with SD and the environment is not explicit in the term CSR that can lead to it being under-emphasised. The frequent use of CSR as a synonym for corporate philanthropy, and the growing cynicism about CSR related to examples of its use as primarily a public relations tool, can also make it potentially unsuitable as a means to deliver corporate sustainability in practice.

2.3.3 CSR drivers and motivations

Since its origins the CSR concept has been driven mainly by large corporations, with some complementary efforts by SMEs and co-operatives (C.E.C., 2001, 2002; Farmer & Hogue, 1973; Jenkins & Hines, 2003). Internally, one of the main drivers in large corporations has been ethical leadership (Szekely & Knirsch, 2005; The Economist, 2005). Other internal drivers include: risk management and protection of business reputation (Jenkins & Hines, 2003; Lantos, 2001), improvements in economic values (C.E.C., 2001; Carroll, 1999; Lantos, 2001), and enhancements in corporate image (Frehs, 2003).

Table 2-5 Motivations to engage in CSR

Overarching motivations	
• Meet and exceed stakeholder expectations • Behave ethically • A belief that corporations must earn their 'licence to operate' • Avoid fines and penalties	
Internal motivations	***External motivations***
• Attract and retain employees • Help improve trust within the company, *i.e.* stronger employee motivation and commitment • Have a more compliant workforce • Increase employee productivity • Help to increase product quality • Help boost innovation and innovative practices • Help manage risks, intangible assets, and internal processes • Improve performance and generate more profits and growth • Reduce costs while improving process efficiencies and reducing waste	• Help improve trust outside the company, *i.e.* with business partners, suppliers, consumers, and others • Improve relations with regulators and ease access to permits • Improve access to markets and customers • Improve customer satisfaction • Help to restore trust in corporations • Help enhance corporate and brand reputation • Reduce or eliminate pressures from NGOs

Sources: (C.E.C., 2001, 2002; Frankental, 2001; Frehs, 2003; Fukukawa & Moon, 2004; Laffer *et al.*, 2004; Lantos, 2001; The Economist, 2005)

National policies have played an important role in driving CSR, from outside the corporation, such as proactive measures within some European Union countries. The latter requiring all corporations listed on the French Stock Exchange to report on CSR issues (MacLeod & Lewis, 2004). In Japan CSR is driven by social action under administrative guidance (gyosei-shido), imperatives in Japanese society, business leadership, government, and universities (Fukukawa & Moon, 2004). Other external drivers are NGOs and stakeholder pressure (Frehs, 2003; The Economist, 2005;

Zadek, 1999). As it can be observed, CSR is being pushed by representatives of the three societal dimensions (civil society, corporations, and government).

Some of the most characteristic motivations for corporations to engage in CSR are presented in Table 2-5. They are divided into Overarching motivations (those that have effects inside and outside the corporation); Internal motivations (dealing with processes inside the corporation); and External motivations (relations with external stakeholders). Fukukawa & Moon (2004) indicate that latterly, motivations have shifted from internal concerns to more global and external ones.

2.3.4 CSR discussion

The CSR concept has been around for several decades now. Its different definitions, interpretations, and types have prompted arguments, critiques, and discussions both for and against it. In spite of this turmoil, during the last decade an increasing number of corporations and governments have shown interest in it (Welford, 2005), making CSR an industry and a flourishing profession (The Economist, 2005). However, many corporations are still reluctant to engage with CSR (Jenkins & Hines, 2003), and those engaged are not judged under CSR criteria by the critics (The Economist, 2005).

In general, it is possible to observe an evolution from corporate philanthropy (see M. E. Porter & Kramer, 2003, Smith, 2003); to a more broadly approach to stakeholder responsibilities from a social perspective (see Avi-Yonah, 2005, Dodd, 1932; Hopkins, 2002, Reinhardt, 2000); to more recent concerns that aim to integrate environmental concerns, (for more details refer to Carroll, 1999; C.E.C, 2001, 2002; Frehs, 2003; WBCSD, 2002).

Even though some CSR definitions call for the integration of environmental and social issues with the corporate culture, the sheer number of definitions has caused confusion, leading to CSR usually being referred to as 'corporate responsibilities to social aspects' (mainly stakeholders), with little or no explicit relation to the environment.

The majority of CSR advocates are passionate about Sustainable Development (SD) (The Economist, 2005), and often the two terms are used interchangeably; however in practice they tend to focus on different issues (Reinhardt, 2004). SD tends to be a broad concept to be relevant for an individual corporation. CSR has delivered some social and environmental improvements and can provide the bases to help to translate SD, and its, often, theoretical issues, to a meaningful corporate agenda. However, CSR was not originally created to deal with SD; its large number of definitions, confusion, and interpretations; the environment not being explicit in the term CSR; and its frequent use as a synonym for corporate philanthropy can make CSR a hindrance instead of a SD facilitator.

2.4 Chapter conclusion

This chapter sets the overall context for this thesis. It is divided into three sections. The first one discusses SD and Sustainability as alternatives to conventional economic paradigms that have neglected, or impacted negatively upon environmental and social aspects. This helps to provide an understanding of the overall SD context of this thesis, where Sustainability is to be understood as "A process in which societies continuously strive to improve their quality of life for this generation and future ones, while protecting and improving the natural environment; through changes in activities and attitudes".

The second section provides an overview of corporations, their types, the stakeholders that they might be responsible to, and the roles of leadership, and the institutional framework. This discussion provides the scope and the unit of analysis for this thesis, where the focus is on large corporations, and their responsibilities and contribution to SD, which go beyond profit generation for shareholders.

The third section discusses CSR, which is considered to be one of the first efforts to incorporate the principles of social, and later environmental, aspects, into the corporation's operations and management. However, the large number of CSR definitions have created confusion, the concept is often interpreted as referring mainly to social aspects, and in many cases equated to philanthropy. This can reduce its potential contributions to the overall aim of SD. The CSR discussion provides a

starting point for corporations to play their part and move towards SD by moving towards CS, as discussed in the following Chapter.

3. Corporate efforts to promote Sustainability

In recent years, with the increased levels of attention given to Sustainability, large corporations have become a key focus of attention in the Sustainability debate (Cannon, 1994; Elkington, 2002, 2005; Hart, 2000b), since they are perceived to be responsible for many negative impacts on the environment and on societies (Dunphy *et al.* 2003). This has come from a combination of different phenomena, such as: corporations, especially large ones, having acquired considerable economic and political power (see Section 2.2.2); a reaction to corporate impropriety (see Section 2.2.3); strained relations among corporations, governments, and civil society (see Section 2.2.2); and the negative effects that industrialisation has caused or exacerbated (see Section 2.1.1).

Corporations' traditional reliance on market-based solutions, and a resulting neglect of environmental and social impacts, is being challenged concerning its ability to move towards more Sustainable Societies (Dunphy *et al.*, 2003; Ehrenfeld, 2005; Elkington, 2002; Weymes, 2004). Nonetheless, corporations are also perceived as possessing the resources, technology, global reach, marketing skills, and, sometimes, the motivation to work towards more Sustainable Societies (DeSimone & Popoff, 2000; Hart, 2000b; Henriques & Richardson, 2005). Additionally, they can change their customers' behaviours to make them more consistent with Sustainability (DeSimone & Popoff, 2000). Therefore, on grounds of both ethical obligation and enlightened self-interest, the argument that corporations, and particularly large and powerful ones, should actively contribute to the pursuit of Sustainability, is increasingly being made and accepted.

According to some authors (*e.g.* Cairns, 2004; Magretta, 2000; K.-H. Robert *et al.*, 2002), currently no organisation or society is functioning in a sustainable way. Therefore engaging with Sustainability poses challenging questions for corporations concerning: their role, and how they can and should pursue and contribute to Sustainability (DeSimone & Popoff, 2000); the feasibility of pursuing Sustainability witin a society, economy, or industry that is not orientated towards Sustainability; Sustainability's long-term perspective, which usually exceeds, and conflicts with, corporations' relatively short-term planning horizon (Langer & Schön, 2003); and

Sustainability's broad categories and topics, which are difficult to translate, make operational, and assess (Hussey *et al.*, 2001). Andersson *et al.* (2005) indicate that corporations' progress towards Sustainability still remains under-researched, and in many cases poorly understood.

Despite the challenges, a school of thought has emerged positing that there are benefits to corporations from engaging in Sustainability efforts that can increase a corporation's competitive advantage (Doppelt, 2003a), credibility (Oskarsson & von Malmborg, 2005), profitability (Weymes, 2004), attract talented people, improve relationships with the local communities (Castro Laszlo, 2001), employees' benefits, community well-being (Doppelt, 2003a; Hopkins, 2002), and improve the natural world.

Increasingly corporations are recognising the relations and inter-dependences of economic, environmental and social aspects (C.E.C., 2001; Elkington, 2002) and the short-, long- and longer-term effects (Lozano, 2006c; 2008b). During the last three decades, there has been a switch away from purely 'end-of-pipe' solutions towards whole-system approaches, by changing products, processes and systems, so that waste is minimised, and resources used more efficiently and effectively, in almost closed-loops (McIntosh, Leipziger, & Jones, 1998), see Figure 3-1.

To help corporations move towards Sustainability different partnerships have been created to act as think-tanks and advisors, such as the World Business Council for Sustainable Development (WBCSD) and the European Partners for the Environment (C.E.C., 2002). Additionally, corporate voluntary efforts have been complemented by academic research into these initiatives, such as the seminal contributions to Sustainability within the organisational disciplines of the Academy of Management Review special issue on Sustainability in 1995, and The Academy of Management Journal "Special Research Forum: The Management of Organizations in the Natural Environment" in 1998 (Yang, 2002).

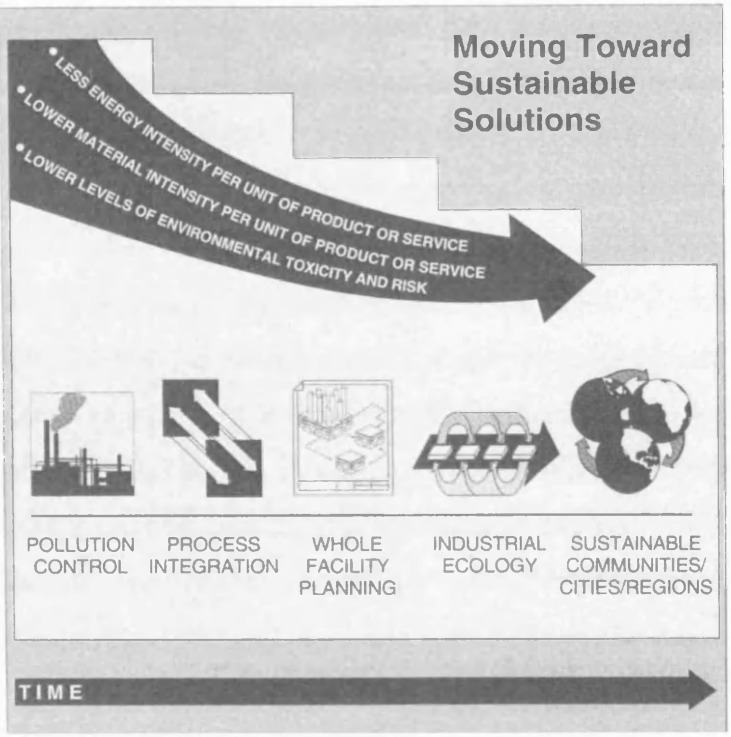

Figure 3-1 From pollution control to sustainable communities
Source: (DeSimone & Popoff, 2000)

Environmental and social concerns and costs (see DeSimone & Popoff (2000) for examples) have often served as catalysts for the development and rapid growth of voluntary initiatives, tools and approaches that go beyond compliance (Daily & Huang, 2001; K.-H. Robert *et al.*, 2002; Yang, 2002). These kinds of efforts are being increasingly planned and implemented by corporations' management boards, executives, managers, supervisors, and members of the workforce to engage with Sustainability (Dunphy *et al.*, 2003).

3.1 Voluntary corporate initiatives to promote Sustainability

Voluntary initiatives, efforts and standards appear to be gaining renewed favour with regard to corporate efforts to promote Sustainability (Dunphy *et al.*, 2003). Voluntary initiatives are perceived to be better than laws, since the latter appear to be often not-well adapted to business practices (Svedberg Nilsson, 2003), and because they allow governments to avoid the time-consuming and difficult process of negotiating internationally binding agreements (UNCTAD, 1999). However, voluntary initiatives can be abandoned at any time, often at a cost to the company, may be vulnerable to 'roll-back' at times of economic crisis, leadership change, or when they seek to move beyond harvesting 'low hanging fruits' (Shelton, 1994).

As yet, most corporate voluntary efforts to promote Sustainability have been relatively limited in their success in addressing and integrating the myriad Sustainability issues. Efforta have often involved using particular tools or approaches, but none of the tools has the breadth and scope to offer a complete solution for corporations to the challenge of pursuing and contributing to Sustainability. For example Dyllick and Hockerts (2002) remarked that eco-efficiency, as a sole concept, is insufficient to address all environmental and social concerns.

Many of the commonly used approaches and tools for promoting Sustainability are presented in Appendix A. II Each tool has a potential part to play, and each has particular strengths and weaknesses, such as encapsulated by Robert (2000) and Dyllick and Hockerts (2002). To provide three examples of the limitations of popular tools or approaches: (1) LCA is hampered by the complicated evaluations involved in assessing the impacts of products and services, the difficulty in drawing relevant strategic conclusions from such data (Korhonen, 2003; Robert, 2000), the difficulty of balancing the details and the aggregation, and the lack of clarity about how the evaluation of all aspects of a product are done, or for what purpose (Robert, 2000); (2) EF does not take into account intensive production, nor does it consider land degradation; it is limited when it comes to evaluating and comparing sub-systems against each other (Fiala, 2008); and (3) Environmental Management System implementation based on ISO standards may be limited in its effectiveness by the elevated costs of an ISO certification, which can range between US$5,000 and 20,000 for the first audit, and an annual cost between US$4,000-5,000 (NGLS & UNRISD, 2002).

The majority of the efforts described in the literature have focused on integrating economic and environmental aspects, and more specifically on 'hard' issues such as reducing impacts or improving efficiencies and effectiveness, often for individual processes or firms (Korhonen, 2003). There have been some calls for changes in 'soft issues, such as in philosophies and management practices (DeSimone & Popoff, 2000; Dobers & Wolff, 2000). Despite this, relatively few organisations have successfully adopted and institutionalised such changes (Doppelt, 2003). Some authors, *e.g.* Clarke and Roome's (1999), Yang (2002), Doppelt (2003), and the ECSF (2004), have

proposed the use of change theory, systems theory, and organisational theories (discussed in Chapter 4) to better address such 'soft' issues.

3.2 Corporate Sustainability

There have been different efforts to address the corporate responsibilities, impacts, impropriety, and relationships with the other society's dimensions. Such discussions have taken place under different names including Corporate Responsibility, CSR, Corporate Citizenship, Business Ethics, Stakeholder Relations Management, Corporate Environmental Management, Business and Society (Hopkins, 2002; Langer & Schön, 2003; Matten & Moon, 2004). However, these terms and concepts do not capture the full SD spectrum and its implications of and for corporations (Oskarsson & von Malmborg, 2005).

Recently, Corporate Sustainability (CS) has emerged as an alternative to the drawbacks of other initiatives and efforts. Dyllick & Hockerts (2002) consider it to be a precondition for doing business, as a 'business case'; while Dunphy *et al.* (2003) and Weymes (2004) indicate that it is the desirable path for organisations. However, the term, as with its parent concept SD, is sometimes not clearly defined (Weymes, 2004), or it is defined but interpreted in many different ways (Dunphy *et al.*, 2003; Elkington, 2002; Hopkins, 2002).

Although CS aims to solve the historical limitations and conceptual problems of corporate initiatives to contribute to Sustainability, it borrows much of their vocabulary and principles. This follows the ideas of Kuhn (1970) who indicates (respectively) that new paradigms retain much of the vocabulary, apparatus and semblance of the old one, even though they use borrowed elements in a different way and may be entirely different for the old one. In the case of CS these include issues that can be grouped into three categories.

Some of the issues addressed by the different definitions can be grouped into three categories. **Firstly**, as management activities and approaches, such as stakeholder engagement, participation and management (C.E.C., 2001; Doppelt, 2003b; European Commission, 1998; Hopkins, 2002; Langer & Schön, 2003); commitment to

organisational learning and human development of their people (Castro Laszlo, 2001); responsibility and accountability (Castro Laszlo, 2001); and transparency and ethics in corporate decision-making (Coelho *et al.*, 2003; K.-H. Robert *et al.*, 2002), and risk disclosures (products, operations, construction and resource utilisation) (Cannon, 1994).

Secondly, from systems or ecologically derived principles, such as: the systems perspective (Doppelt, 2003a, 2003b; Dunphy *et al.*, 2003; S. Martin, 2003; Zadek, 1999); increased consideration and understanding of complexity and multi-dimensional issues (Langer & Schön, 2003); ecological sustainability, *i.e.* environmental aspects (energy and matter) management, life cycle thinking, zero-waste, natural resource consumption rates below natural reproduction and emissions generations lower than assimilation rates, and environmental accountability (Andersson *et al.*, 2005; Atkinson, 2000; Dunphy *et al.*, 2003; Henriques & Richardson, 2005; Quazi, 2001; K.-H. Robert *et al.*, 2002); the precautionary principle (K.-H. Robert *et al.*, 2002); and long-term vision of SD (Hopkins, 2002).

Finally, according to interactions and balance between business activities and Sustainability, including: intimately linked with business preoccupations, *e.g.* productivity, investment and profit (Dyllick & Hockerts, 2002; Hopkins, 2002; Reinhardt, 2000b; K.-H. Robert *et al.*, 2002); business behaviours that meet and go beyond strategic and community needs (Birch & Littlewood, 2004); TBL approach, *i.e.* managing and balancing the economic (financial capital, tangible capital, and intangible capital), natural, and social (skills, motivation and loyalty of employees and business partners) capitals, (Clarke & Roome, 1999; Dyllick & Hockerts, 2002; Frehs, 2003; Hopkins, 2002; Oskarsson & von Malmborg, 2005; K.-H. Robert *et al.*, 2002); actively contributing to SD in the political domain (Dyllick & Hockerts, 2002; Langer & Schön, 2003); engage in collaborative actions linking the business to environmental and social concerns (Clarke & Roome, 1999); and long-term preservation, competitiveness improvement, innovation, and responsibility for the environment and society (Langer & Schön, 2003). The UN Global Compact (UNGC, 2008) proposes the following ten principles divided in four categories to help corporations align their strategies and practices with Sustainability:

- ***"Human Rights:***
    - *Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights;*
    - *Principle 2: Businesses should make sure that they are not complicit in human rights abuses;*
- ***Labour Standards:***
    - *Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;*
    - *Principle 4: Businesses should eliminate of all forms of forced and compulsory labour;*
    - *Principle 5: Businesses should abolish child labour;*
    - *Principle 6: Businesses should eliminate discrimination in respect of employment and occupation;*
- ***Environment:***
    - *Principle 7: Businesses should support a precautionary approach to environmental challenges;*
    - *Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility;*
    - *Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies;*
- ***Anti-Corruption:***
    - *Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery."* (UNGC, 2008)

An analogy to the SD concept posits CS as: "*...meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc), without compromising its ability to meet the needs of future stakeholders as well.*" (Dyllick & Hockerts, 2002, p. 131) This definition, as the Brundtland one (WCED, 1987), has the advantages of being simple, powerful and appealing, but the disadvantages of being vague, having little focus on consumption, not specifying whether meeting stakeholders' needs is to be done based on competition between them, whether the needs of tomorrow would be different to the ones of today, and most important making no explicit reference to stakeholders feedback.

From the previous discussion, CS is to be henceforth understood as the definition presented in Box 3-1.

Box 3-1 Corporate Sustainability definition

Corporate Sustainability addresses the dynamic interactions among economic, environmental, and social impacts and interactions in the short, medium and long-term, through ethical, transparent, responsible and accountable operations, decision-making, and voluntary practices, which consider issues of competitiveness, ecological impact, and human development.

3.2.1 Corporate Sustainability discussions

Several debates and discussions pervade CS. The most common include:

- CS is confused with the term 'sustainable corporation', which refers to sustaining practices and corporations that are simply long-lived (Afuah, 2003; Hill & Jones, 2001), or with the term 'viable', but not necessarily integration of SD principles;
- CS is being considered not to add value and deviate the focus from the economic 'bottom-line' (Dobers & Wolff, 2000; Doppelt, 2003a; Hopkins, 2002; The Economist, 2005), or even that the efforts would incur costs that outweigh the benefits (Hopkins, 2002), as discussed in Sections 2.2.1 and 3.2;
- There is not enough evidence for corporations to engage in voluntary CS efforts (Reinhardt, 2004), where voluntary measures are considered to be weak, unenforceable and inappropriate (MacLeod & Lewis, 2004). This is discussed in the beginning of Chapter 3;
- CS has too broad a scope and is not properly defined (Dunphy *et al.*, 2003; Elkington, 2002), yet it is good for public relations (Rosner, 1995) (see Section 2.1.3). Some corporations have been at the forefront in helping define Sustainability and CS (Elkington, 2002), while those corporations that use Sustainability only as a PR risk being accused of hypocrisy which results in tainting their reputation (Birch & Littlewood, 2004);

- Stakeholder engagement is broad and not clearly linked to Sustainability. The scope of stakeholder engagement is addressed in Section 2.2.4.3. Nevertheless, its link to Sustainability is still under-researched (Langer & Schön, 2003);
- Environmental and social links to economic performance tend to be complex and disappointing (Reinhardt, 2004). Many companies therefore still consider CS as a concept that only the rich companies can afford (Magretta, 2000); and
- CS does not go beyond defining a set of pragmatic guidelines (Atkinson, 2000). This has been addressed by the Sustainability tools, presented in the beginning of the Chapter 3. However, there is still a need to explain and understand the incorporation and institutionalization phenomena, from theory and practice.

The role of corporations in the road towards more Sustainable Societies needs to be reconsidered (DeSimone & Popoff, 2000), where their actions, models, and organisational structures need to be changed (Dunphy *et al.*, 2003; Henriques & Richardson, 2005; Kotter, 1996).

3.2.2 Articulating Sustainability

The results from Corporate Sustainability efforts are being articulated to stakeholders through Sustainability Reporting (SR), a voluntary activity with two general purposes: (1) to assess the current state of an organisation's economic, environmental and social dimensions, and (2) to communicate these efforts and their progress to stakeholders (Dalal-Clayton & Bass, 2002; GRI, 2007; Hamann, 2003).

According to the seminal work of Dalal-Clayton & Bass (2002) there are three approaches to assess and report Sustainability that may be used independently or in combination:

1. Accounts: construction of raw data that are then converted to a common unit, *e.g.* monetary, area or energy;

2. Narrative assessments: combinations of text, maps, graphics and tabular data. Narrative assessments might use indicators, but they are not a cornerstone; and

3. Indicator-based: these may include texts, maps, graphics and tabular data, like the narrative assessment, but they are organized around indicators.

Each type of report offers advantages and disadvantages over the others, as presented in Table 3-5.

Table 3-1 Three main approaches to measure and analyse Sustainability

Approach	*Accounts*	*Narrative assessments*	*Indicator-based assessments*
Examples	Index of Sustainable Economic Welfare Genuine Progress Indicator	State of environment reports World Development Report	Well-being Assessment Dashboard of Sustainability
1. Potential for transparency	Low	Medium	High
2. Potential for consistency	High	Low	High
3. Potential for participation	Low	High	Medium
4. Usefulness for decision-making	Medium	Medium	High

Source: (Dalal-Clayton & Bass, 2002).

Reporting has the following disadvantages: once started, the process becomes difficult to stop; stakeholders tend to demand more from the corporation/institution; keeping up the balance between details and core information is challenging; and extra resources and time are needed to gather all the data to fulfil the indicators and to engage the stakeholders, especially for Indicator based reporting (Lozano, 2006e).

Dalal-Clayton and Bass (2002), and Cole (2003) offer comprehensive SR tools and guideline lists, with their advantages and disadvantages. The most widely used include: the ISO14000 series and EMAS, though they do not focus on the entire Sustainability spectrum; the Social Accountability 8000 standard (SAI, 2007); and the GRI Sustainability Guidelines (GRI, 2006). The GRI being one of the best options available (Hussey *et al.*, 2001).

Recently the number of companies, mainly TNCs (Ball, Owen, & Gray, 2000), reporting on Sustainability has been increasing (Andersson *et al.*, 2005; GRI, 2007).

The surveys conducted by KPMG show a steady increase in reporting, from 13% in 1993 to 41% in 2005 (KPMG, 2005). Similarly the data from CorporateRegister (2008, 2009) shows an increase of global report output from 26 in 1992 to approximately 3011 in 2008, partly facilitated by the use of web-based reporting (Fukukawa & Moon, 2004). However, many fall short in their reports with respect to what is asked for in the SR guidelines (Andersson *et al.*, 2005; Hussey *et al.*, 2001; Wilenius, 2005).

In spite of the increasing acceptance and publishing of Sustainability reports and reporting guidelines, they generally suffer from several shortcomings such as: considering each aspect, and sometimes issues, independently of the others, *i.e.* they neglect possible synergies; they tend to neglect the time perspective; and they offer little or no details on organisational change processes.

If reporting was the focus of this thesis, then understanding organisations from Morgan's (1997) 'Brain' metaphor would be more helpful, but since the focus in on CS from a change management perspective, the 'Flux and Transformation' metaphor is more enlightening.

3.2.3 CS Drivers

In spite of the critiques, CS is being driven by many factors (Hopkins, 2002; Oskarsson & von Malmborg, 2005), such as climate and population changes, and economic factors (Cannon, 1994). These can be divided into: (1) External, which according to DeSimone & Popoff 2000) tend to result in reactive measures, being less likely to help move towards Sustainability (for a discussion on external factors see Section 4.2), and (2) Internal, which are more proactive. Figure 3-2 is designed to pull together and illustrate the full range of potential external and internal drivers. Doppelt (2003b) remarks that leaders of organisations that have made the most progress towards Sustainability understand that it requires the involvement of all their internal members and external stakeholders.

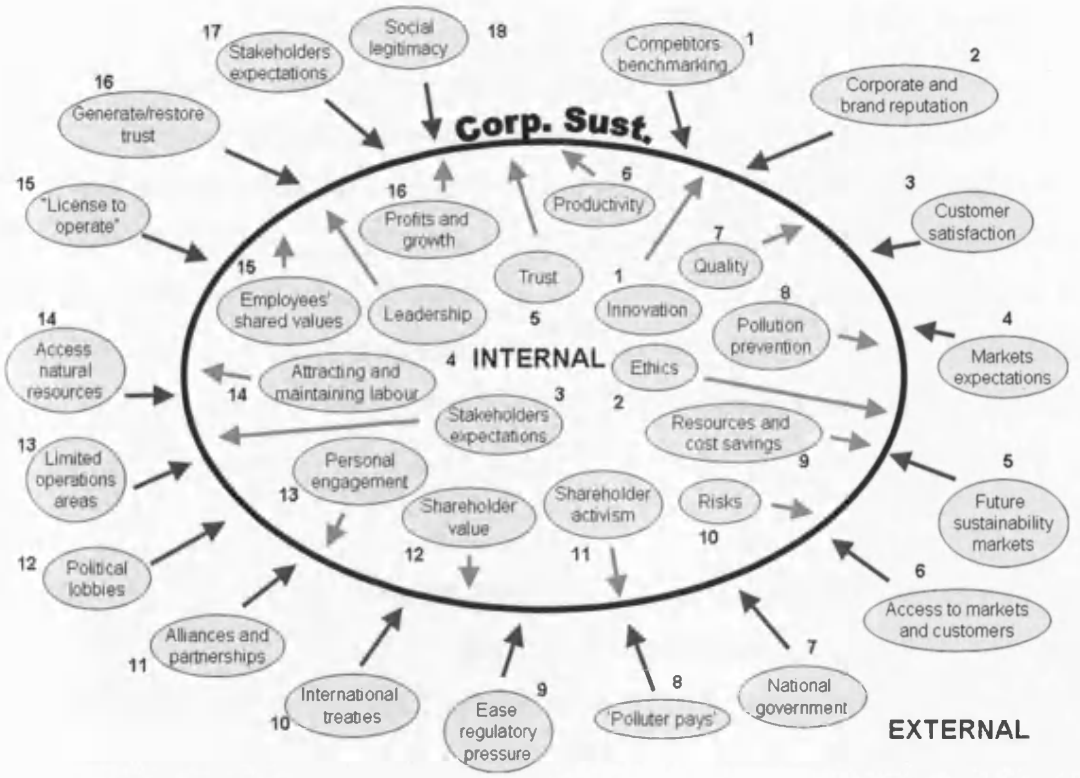

Figure 3-2 Corporate Sustainability internal and external drivers

Sources: **Internal**: **1** (C.E.C., 2002; Frehs, 2003); **2** (C.E.C., 2001; Frankental, 2001; Frehs, 2003; Lantos, 2001; The Economist, 2005); **3** (Busse, 2004); **4** (Gill, 2003; M. E. Porter & van der Linde, 2000); **5** and **10** (C.E.C., 2002); **6** (Laffer *et al.*, 2004); **7** (Laffer *et al.*, 2004; Quazi, 2001); **8** (Hart, 2000b); **9** (Henriques & Richardson, 2005; Lovins, Lovins, & Hawken, 2000; Quazi, 2001); **11** (Doppelt, 2003a); **12** (Weymes, 2004) **13** (Oskarsson & von Malmborg, 2005); **14** (Quazi, 2001); **15** (Frankental, 2001; Frehs, 2003; Quazi, 2001); **16** (C.E.C., 2001; Frehs, 2003; Laffer *et al.*, 2004)
External: **1** (McIntosh, Leipziger, & Jones, 1998; Quazi, 2001); **2** (Dunphy *et al.*, 2003; Frehs, 2003; Hamann, 2003; Hopkins, 2002; Oskarsson & von Malmborg, 2005; Quazi, 2001); **3** (Frankental, 2001; Laffer *et al.*, 2004); **4** (Biscaccianti, 2003; Dunphy *et al.*, 2003; McIntosh, Leipziger, & Jones, 1998) **5** and **18** (DeSimone & Popoff, 2000); **6** (Frehs, 2003; Quazi, 2001); **7** (Atkinson, 2000; Dunphy *et al.*, 2003; McIntosh, Leipziger, & Jones, 1998); **8** (Cannon, 1994); **9** (Cannon, 1994; Frankental, 2001; Frehs, 2003); **10** and **11** (Dunphy *et al.*, 2003); **12** (Biscaccianti, 2003); **13** (Cannon, 1994); **14** (Busse, 2004); **15** (C.E.C., 2002; Fukukawa & Moon, 2004); **16** (C.E.C., 2001; Frankental, 2001; Frehs, 2003; The Economist, 2005); **17** (Busse, 2004).

Though there are many CS driving forces, CS is still an unknown, or poorly understood, concept for many corporations in the world (Holliday *et al.*, 2002). Few corporations have successfully adopted Sustainability measures, and by their own accounts, they have just started the journey (Doppelt, 2003a, 2003b). However, it is not yet clear what the content is or how companies integrate CS into their management activities (Oskarsson & von Malmborg, 2005; Quazi, 2001; Walley & Whitehead, 2000). This is indicated by the following questions:

- *"Why have so few organisations successfully adopted more sustainable policies or practices?*

- *When they do get launched, why do so many efforts plateau after a short time and fail to ascend to the next level of excellence?*
- *What are the fundamentals of organisational change towards sustainability that lie beneath the scientific and technical information provided by frameworks such as The Natural Step, Zero Waste and Eco-efficiency?"* (Doppelt, 2003a, p.16)

These questions and CS integration and institutionalization can be explained with the help of change theory, presented in Chapter 4.

3.3 Chapter conclusion

This chapter provides an overview of various corporate efforts that have been developed to contribute to Sustainability. Although many can be found, the majority have focused on integrating environmental aspects into operations, mainly through 'hard' techno-centric activities.

Some initiatives have called for changes in 'soft' issues, such as philosophies, paradigms, and management practices and systems. However, in general (as illustrated in Tables 3-1, 3-2, 3-3, and 3-4), these approaches have focused on reforming or defending the *status quo*, rather than making a transformational change, as proposed by Hopwood *et al.* (2005) (see Section 2.1.4).

Corporate Sustainability (CS) has emerged as an alternative that aims to overcome such drawbacks, by addressing the dynamic interactions among the economic, environmental, and social, and interactions in the short, medium, and long term. Its effectivenss is bound by its integration into operations, decision-making, and practices. The chapter also provides also a discussion on how corporations are articulating sustainability, mainly through reporting, and the factors driving CS.

As Andersson *et al.* (2005) indicate, the process of moving towards Sustainability in corporations is still under-researched. Many of the efforts discussed have not benefited from the insights that change theory can bring to the understanding of CS incorporation and institutionalization. The following chapter offers a review of change management theory, relevant when addressing CS change.

4. A review of organisational change management

Incorporating CS into a company's culture presents significant challenges for organisations embarking on it. General change management aspects, and specific ones for CS, are needed to understand this process. This chapter focuses on the former, with examples to link to CS. It begins by providing an overview on organisations as complex systems, then discussing about organisational change drivers, barriers to change, strategies to overcome them, and shaping mechanisms.

4.1 Organisations as social systems

Organisations are complex social systems with sets of inter-related units engaged in joint problem-solving to accomplish a goal (Rogers, 1995). They are sub-systems of a larger environmental system (L. W. Porter, Lawler, & Hackman, 1975; Stacey, 1993), with inextricably multiple, non-linear, connected processes, units, values, norms, behaviours, groups and individuals, affecting, and being affected by, each other, with myriad balancing feedback processes (Cyert & March, 1963; Kotter, 1996; Morgan (1997); L. W. Porter *et al.*, 1975; Senge, 1999c).

The study of systems, or systems thinking, can help to tackle complex organisational systems by (1) seeing wholes, their inter-relations instead of linear cause-effect chains; and (2) understanding patterns of change, where there is 'no right answer' for dealing with complexity (Senge, 1999c). In particular, for organisations, systems theory helps to understand the interdependences, interactions and the interconnectedness of an organisation, and among organisations; the importance of boundaries between parts of an organisations and between organisations; and the roles of individuals within and across the boundaries (Stacey, 1993). It also helps to understand certain elements of the change process, such as **leverage** (Maurer, 1996; Morgan (1997); Senge, 1999c), and **state of the system**, which is explained by **equilibrium** (when the forces acting within and on the system are in balance (Chin, 1969; Ludwig, Walker, & Holling, 1997)), and **stability or 'steady state'**, referring to the capability of a system to return or remain in equilibrium after perturbations (Chin, 1969; Ludwig *et al.*, 1997; McCann, 2000; Senge, 1999c).

Some authors consider organisations as open systems[11], (*e.g.* Kanter, 1999; Luthans, 2002; D. Miller, 1990; L. W. Porter *et al.*, 1975; Senge, 1999c; Stacey, 1993; Weymes, 2004). Others have considered organisations, such as corporations, as stand-alone units or islands (*e.g.* Drury & Farhoomand, 1999), or closed systems[12]. In some cases organisations have considered themselves as closed-systems (Litvin, 2003). However, they could be better understood as semi-open (or semi-closed) systems, where there are resources that enter (*e.g.* employees when they arrive to work, raw materials, and energy); resources that exit (*e.g.* emissions and effluents, waste energy, products and by-products, employees when their work is finished); and resources that stay in the system (*e.g.* patents, organisation secrets, intellectual property, and organisational routines and behaviours). Morgan (1997) proposes that by looking at organisations using the 'Flux and Transformation' metaphor organisations are to be considered as closed, autonomous systems of interactions, as has been done for this thesis.

Systems do not necessarily behave as the sum of their individual parts, nor do the parts' behaviours necessarily follow the predicted behaviour of the whole (Hodge *et al.*, 1999). However, in social systems, such as organisations, the structures, norms and interactions mould, through the sharing of mental models, the behavioural patterns of its members, tending to produce similar results, even from different individuals (Rogers, 1995; Senge, 1999c; Stacey, 1993). In some cases, this can lead to what Collins & Porras (2002) named 'cult-like cultures', *i.e.* shared and bought-in core values and behaviours throughout the system.

The organisational system is composed of groups that are, in turn, composed of individuals (Luthans, 2002; L. W. Porter *et al.*, 1975; Stacey, 1993), see Figure 4-1. In small organisations, groups and their influence to the organisation tend to be diffused. As Morgan's (1987) 'Cultures' metaphor indicates changes in organisational systems

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[11] Open systems are those that are open to other systems in regards to exchanging, importing and exporting, resources (*e.g.* energy, materials, labour, money, and information) (Chin, 1969; Daly, 1991; Stacey, 1993).

[12] Closed systems do not exchange any resources with other systems. The resources are subjected to tight materials cycles and immediate feedbacks, (Chin, 1969; Daly, 1991).

are dependent on changing skills, mind-sets, values, norms, and culture, within the 'mini-societies' of the organisation.

Porter *et al.* (1975) indicated that organisations are oriented to goals and objectives; and has differentiated functions (the hierarchy and labour division). In large organisations, these are generally divided into top management, middle management, lower management, and rank-and-file positions. These are rationally co-ordinated[13] (*i.e.* the structure is put together such that it makes sense, and seems logical, and directed).

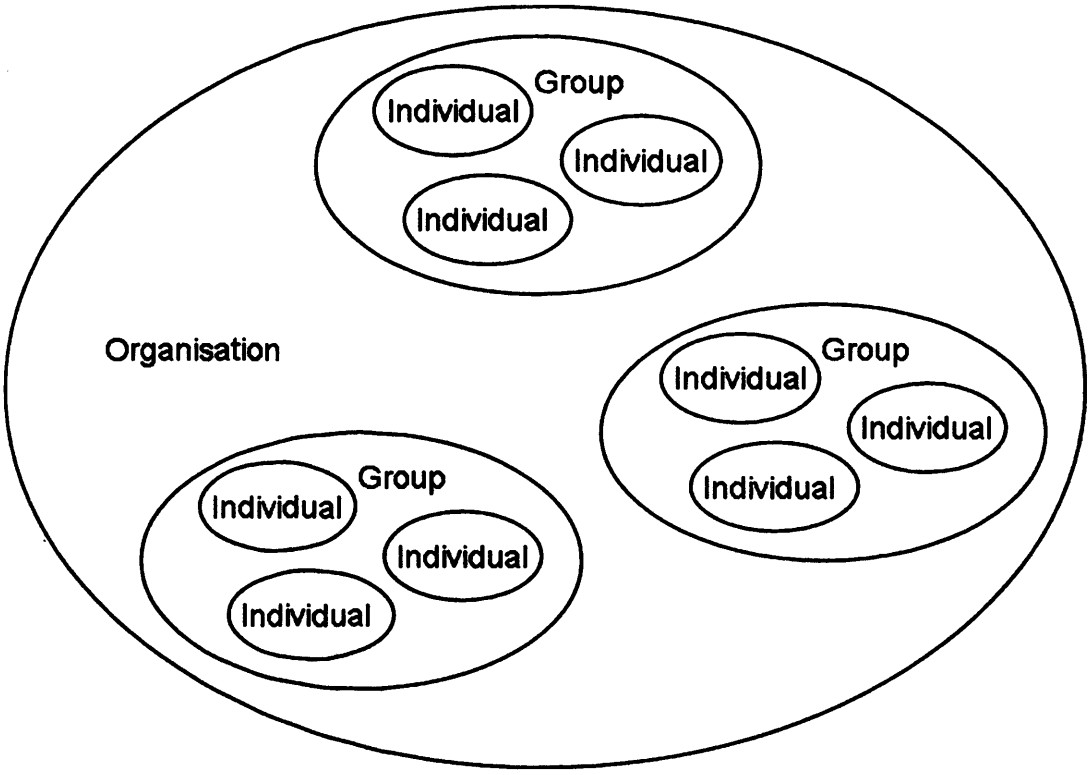

Figure 4-1 The organisation as a social system

[13] Carr (2001) remarked that focusing on rationality, and eliminating emotionality, has created the most pervasive organisational form, bureaucracy, which is a social invention, used to organise and direct the activities and behaviour of organisations (Bennis, 1969a; Weymes, 2004). But, it tends to be unable to handle ambiguity and uncertainty (Stacey, 1993), which limits any attempted changes. Morgan's (1997) 'Organisations as Machines' offers a better perspective to focus on bureaucracy in organisations.

4.1.1 Groups

Groups are a key element of organisations. They consist of a limited number of individuals who interact, share values and norms to some degree, and perceive themselves as a group (Luthans, 2002; L. W. Porter *et al.*, 1975; Stacey, 1993). Groups exist for a reason, and not just as arbitrary partitions of the system. They have access to resources from which members of other groups are excluded (Dasgupta & Kanbur, 2003). According to Stacey (1993) groups can:

- Accomplish complex interdependent tasks beyond the ability of individuals working alone;
- Solve complex problems that require many inputs;
- Provide a means of coordinating activities;
- Facilitate implementation through generating participation and commitment;
- Generate new ideas and creative solutions within the paradigm; and
- Provide the opportunity for social interaction that improves morale and motivation.

Groups can be classified according to: (1) method of formation, (2) by their maturity. According to **method of formation**, groups can be sub-divided into: (1) those specifically created by the organisation, commonly referred to as formal groups; and (2) those that occur naturally through homophily (the degree to which interacting individuals share certain attributes) (Rogers, 1995), and propinquity (spatial proximity) (Luthans, 2002), commonly referred to as informal groups (Dent & Galloway Goldberg, 1999; L. W. Porter *et al.*, 1975).

The last classification '**maturity**' is divided into: (1) already established, old groups, and (2) recently formed groups, or those in process of formation. Organisations also follow this categorisation. Such a classification is important since old groups have, to a large degree, established their interactions, routines and behaviours, while new groups in many cases are in a transition period, where the interactions, routines and behaviour are being established. Whereas in an old group the members know each other's fashion of working and personal differences, in a new group the members need to spend time adjusting to the others (Luthans, 2002). In many cases manageable conflicts appear from personal differences, once these have been resolved and each of

the members knows how to deal with the others, the group is on the road to becoming an established group (Lozano, 2006b, 2008a). A group's maturity can play an important role for the Sustainability agenda. Thus, changes towards Sustainability would be easier in a new group, than for an old group that is set in its routines, especially, and therefore more likely to resist implementation of Sustainability changes.

4.1.2 Individuals

Organisations and groups would not be such without their basic building block; individuals (Freeman, 1984). By joining a group or organisation the individual surrenders, consciously or unconsciously, part of their individuality to fit in with the group's or organisation's culture (Carr, 2001), especially when they feel part of a community within the group or organisation (Kanter, 1999). Individuals are a unique, and difficult to manage, resource (L. W. Porter *et al.*, 1975). Nevertheless, they develop new ideas, creative responses, and push for change before opportunities disappear, or minor problems become catastrophes. Such cumulative accomplishments can result in improved performance for the organisation (Kanter, 1999). In an organisation it is possible to divide individuals into two broad categories: (1) Hierarchy: top management, middle management, lower management, and rank-and-file positions (L. W. Porter *et al.*, 1975); and (2) Maturity, as with groups (Lozano, 2006b, 2008a; L. W. Porter *et al.*, 1975). Views on, and explanations of, individuals are extensive. Porter *et al.* (1975) propose four of the most common dichotomies to explain individuals' behaviours:

- **Rational versus Emotional**: Whether individuals are ruled by rationality, or they are controlled by emotions;
- **Behaviouristic versus Phenomenological**: Whether individuals can be described according to their behaviours; or if behaviours are dictated by a social setting;
- **Economic versus Self-actualising man**: Whether individuals are expected to perform most effectively when functions are highly specialised and standardised. Individuals are considered to be utility maximisers (Phillips, 1996). Or if they are motivated to increase their competence, and develop and grow as individuals;

- **Theory X versus Theory Y**: Whether individuals dislike and avoid work if they can, hence they need to be coerced, controlled, directed and threatened, to achieve organisational objectives; or if individuals treat work as natural as play or rest, hence external control can sometimes be supplemented by commitment through learning and responsibility seeking, where individuals are willing to exercise a relatively high degree of imagination, ingenuity, and creativity.

It can be observed that Porter et al.'s (1975) dichotomies tend to present individuals as binary. Yet, individuals are more complex than any of the attempted dichotomies, *e.g.* they fear and seek change (Senge, 1999c). Explanations of individuals and their views tend to be limited when addressed through only one dichotomy.

4.1.3 Organisational system interactions

In social systems, such as organisations, there are different interactions that can take place, some within the system and some with the external environment. Different disciplines have focused on the latter (*e.g.* economics, and marketing); others on the former (*e.g.* organisational disciplines); while others link both (*e.g.* strategic management). Such interactions can be formal (prescribed or specified relationships), and informal (non-prescribed and non-specified) (L. W. Porter *et al.*, 1975).

Interactions can be of the following forms: (1) reciprocal interactions between the individual and the organisation, exchanging values and cultural substance (Andersson *et al.*, 2005; Carr, 2001; L. W. Porter *et al.*, 1975); (2) between individuals and groups, which is characteristic of leaders and groups, but it is also true of relations among members of the group (Stacey, 1993); (3) between groups, as presented by Freeman (1984) in Section 4.1.1, supported by Porter *et al.* (1975); and (4) between individuals from the same or different groups (Luthans, 2002). Additionally, there can also be interactions between groups and the organisation, and between organisations (Lozano, 2006b, 2008a). These interactions are presented in Table 4-1.

As Morgan's (1987) 'Flux and transformation' metaphor proposes, understanding the system's elements and their interactions can help to better address changes within the

organisation, recognise the places in which to apply leverage, and to create 'new contexts' to break from the *status quo*.

Table 4-1 Interactions in the organisational system, among individuals, groups and organisations

	Individuals	***Groups***	***Organisation***
Individuals	Inter-personal: among individuals within the same group, or different groups in the organisation (Luthans, 2002)	Intra-group (I-G): the individual serving as an agent to interact with another group (Stacey, 1993)	Intra-organisational (I-O): from the individuals to the organisation (Andersson *et al.*, 2005; Carr, 2001; L. W. Porter *et al.*, 1975)
Groups	Intra-group (G-I): the group serving as an agent to interact with a particular individual (Stacey, 1993)	Inter-group: from groups within the same organisation (Freeman, 1984; L. W. Porter *et al.*, 1975)	Intra-organisational (G-O): from the groups to the organisation (Lozano, 2006b, 2008a)
Organisation	Intra-organisational (O-I): from the organisations to individuals (Andersson *et al.*, 2005; Carr, 2001; L. W. Porter *et al.*, 1975)	Intra-organisational (O-G): from the organisation to groups (Lozano, 2006b, 2008a)	Inter-organisational: interaction with the external environment (Lozano, 2006b, 2008a)

Interactions in organisations, as in other systems, range from extreme competition to full collaboration. Paradoxically, organisations that compete against each other, also tend to collaborate. For example, competition helps industries to become more efficient (Friedman, 1970; Hill & Jones, 2001; Hunt & Duhan, 2002); yet they collaborate, especially in current global times, to take initiatives and make changes that create new models and ways of thinking to improve their sector (Kaku, 2003; Kanter, 1999; Lozano, 2008a).

Competition, whether direct (power seeking), indirect (resource accumulation), or a mixture of both, can help improve efficiency, effectiveness, and performance (Friedman, 1970; Hill & Jones, 2001). However, if pursued to the extreme, competition can lead to excessive resource accumulation, waste, inefficiencies,

ineffectiveness, poor performance, and creation of monopolies and oligopolies (Arora *et al.*, 1998; Parente & Prescott, 1999). Such extremes, or pure forms, affect all types of interactions. In some cases it appears only as inter-individual competition, with intra-group or inter-group collaboration (Kanter, 1999). Porter *et al.* (1975) remarked that competition often works against the best interests of the organisation in the long term. It can lead to conflicts, in many cases latent, which need to be recognised and addressed. For a review on conflict and organisational responses to it, refer to Carley and Christie (2000).

On the other hand, collaboration brings benefits from differences in knowledge and perspectives, natural learning, working in cross-functional or inter-organisational teams, developing new understandings, designing new products, and solving problems while, at the same time, offering benefits to all those involved in the process (Denise, 1999; Fadeeva, 2004; Flynn *et al.*, 2003; Kaku, 2003; Lozano, 2006a, 2006b, 2007; Tunstall, 2005). Collaboration can optimise financial and human capital, ease access to markets and knowledge, enrich creativity, and avoid confrontation (Fadeeva, 2004). It can help to catalyse innovation, research and development, policy development and implementation, and reduce conflicts (Langer & Schön, 2003), and help organisations to survive, and go beyond mere survival, in the long-term (Lozano, 2006b, 2008a). According to Bennis *et al.* (1969) collaboration is the *sine qua non* of effective, planned change.

Collaboration is used interchangeably with communication, co-ordination, and co-operation (Dawson, 1994; Denise, 1999; Lozano, 2006a, 2007). However, these terms are inherently different, as the following list shows:

- **Co-ordination** refers to activities carried out by different individuals in order to make them compatible for a common purpose or result (Chilosi, 2003; Denise, 1999);
- **Co-operation** refers to engaging in work on monitoring and evaluation, learning from each other, and sharing experiences (Tunstall, 2005); and
- **Collaboration** refers to using information to create something new, seeking divergent insights and spontaneity, jointly developing proposals, sharing information, planning joint workshops, and raising funds together, among

other activities. Collaboration thrives on differences and dissent (Denise, 1999; Tunstall, 2005).

A key concept in collaboration is alignment. Alignment is when key organisational performance influence-factors (*e.g.* understanding, common orientation, values and shared priorities, goals strategies, and employees) are shared and send the same message (Bovey & Hede, 2001; Collins & Porras, 2002; Gill, 2003). Alignment helps ease interactions within the system, reducing conflicts and instability (Lozano, 2006b, 2008a).

Collaboration is not without costs or difficulties (Chilosi, 2003; Genefke, 2000). These elements can be: (1) *co-ordination, i.e.* operational dependencies among the activities of the different actors; and (2) *vulnerability, i.e.* the problems of safeguarding important and unique resources (Genefke, 2000). Practical difficulties include: information, referring to who gets the real, or the hidden, agenda; bargaining (how to split the gains); free riding, those who choose not to participate but still get the benefits (Chilosi, 2003), and transactions costs.

Two additional collaboration difficulties include conflicts arising from incompatible or conflicting needs (Lozano, 2006a, 2007), and being held back by co-ordination problems in complex and inter-dependent organisations.

4.2 Organisational change management

Philosophical discussions on change have taken place since ancient times. One of the first documented comes from Heraclitus, who stated that "*Everything flows and nothing stands still.*" (Kahn, 1979, p. 25; Wheelwright, 1959, p. 53), which is an integral part of Morgan's (1997) 'Flux and Transformation' metaphor. Lewin (1947), Judson (1966) and Maurer (1996) indicated that change is always present, differing in amount and type.

According to Kotter (1996) major organisational changes take time, therefore a sense of urgency and importance needs to be attached to starting points of successful change processes. Machiavelli (1966) wrote that: major change, within a political context,

needs to at least retain some semblance of the old forms, so that it appears as if there had been no change in the institutions, even though they are inherently different. Gill recollected a Nepalese Buddhist mantra that says "*Open your arms to change, but don't let go of your values.*" (Gill, 2003, p. 313), while Collins and Porras (2002) stated that even although the world changes continuously and at an accelerated pace, the fundamental concepts that stand the test of time should not be abandoned.

Any change will impinge on vested interests and violate territorial rights (Shephard, 1969), disrupting and unsettling status (Maurer, 1996), where making the initiation of a new order of things very difficult or dangerous to handle (Machiavelli, 1966). People tend to be reluctant to change their habits (Garvin & Roberto, 2005); as Bennis, *et al.* (1969) recollected, Max Frisch wrote in one of his plays that man tends to fear change more than disaster.

In the corporate and organisational contexts, the study and management of change is most relevant. Organisational change aims to move from the current state to one more desirable (Ragsdell, 2000), ranging from minor to radical changes (Dawson, 1994). Change represents an opportunity (European Commission, 1998). Failure to change and respond to new opportunities, processes or technologies can result in economic loses, making economic benefits a primary justification for change in organisations (Cannon, 1994). Companies that refuse to change, even with a meaningful core ideology, run the risk of being sidelined by external events (Collins & Porras, 2002), for example changes in government regulations, technologies, products, workforce, and competition. Such external events are forcing companies to make moderate organisational changes at least once a year, and major changes every four or five years (Kotter & Schlesinger, 1979). Benne and Birnbaum (1969) stated that it is fairly easy to identify organisational changes once they have occurred, more difficult to analyse them whilst they are on-going, and even more difficult to predict their direction and tempo. Changes in organisations tend to be **complex** (Dawson, 1994), **continuous**, **iterative** and **uncertain** (Pettigrew & Whipp, 1991).

From the aforementioned discussions, it is possible to observe that there have been different perspectives on change, which some times they may even appear to be paradoxical. For example, some authors remark that change is perennially in flux

(Kahn, 1979; Wheelwright, 1959), while others argue that the essence of the changing body remains (Gill, 2003; Collins and Porras, 2002). Another apparent paradox is that even when urgency is imprinted into changes (Kotter, 1996), these may yet take time to agree and implement (Kotter & Schlesinger, 1979). Lastly, everything changes and is in need of change (Cannon, 1994; Collins & Porras, 2002), but change is usually feared and resisted (Garvin & Roberto, 2005; Machievelli, 1966; Maurer, 1996). From this it can be concluded that long lasting change is neither simple nor impossible to attain, it is like a journey where each step takes the traveller closer to the destination.

Organisational change generally requires more than changes in technology or management systems; it requires changes in organisational culture (Cannon, 1994; Doppelt, 2003a, Morgan, 1997), *e.g.* through self-awareness (Morgan, 1997). Culture change programmes require 'changing the hearts, minds and souls' of the organisation's members, which commonly takes a long time and requires some luck (Gill, 2003), and skill, as Morgan's 'Culture' metaphor indicates. Often those affected by change are reluctant to accept it (Cannon, 1994; Garvin & Roberto, 2005). Collins and Porras (2002) concluded from their research that visionary companies[14] are open to change, but seldom, if ever, change their core ideology, *i.e.* they maintain their principles and values while being responsive to external stimuli. At the same time change is self-organising and cannot be predetermined or controlled, but it can be fathomed (Morgan, 1997), and, to a large extent, planned (Bennis, *et al.*, 1969).

4.2.1 Change typologies

The literature on change offers different typologies. These can be divided into: (1) rate, (2) stakeholder focus, (3) intervention, (4) predictability, and (5) organisational focus.

The **rate** typology divides change into two forms. Firstly, ***incremental*** or ***evolutionary***, where gentle, small and slow improvements or adjustments take place through adaptation. It can lead to broad and lasting shifts without much upheaval or

[14] Visionary companies are premier institutions in their industries, widely admired by their peers and with a long track record of positive impacts on their milieu (Collins & Porras, 2002).

resistance (Doppelt, 2003a; Gill, 2003; Meyerson, 2001; Stacey, 1993), and there is relative stability. Secondly, ***radical***, referring to drastic actions, which are often discontinuous and involve significant distress. The more radical the change, the more difficult the shift (Maurer, 1996; McGahan, 2004; Meyerson, 2001). In some cases, radical changes, where new mental models are needed (Doppelt, 2003a), are necessary to survive and thrive (Garvin & Roberto, 2005). Radical changes create high levels of resistance, and may cause instability if not managed properly. Radical changes are useful when the system cannot evolve further in response to external stimuli, or when engaging with proactive changes.

Freeman (1984) recognised two types of change according to **stakeholder** focus (for details on stakeholders see Section 2.2.4.3):

1. ***Internal change***: Constantly reassessing objectives and policies that affect or are affected by primary stakeholders; and
2. ***External change***: Change that happens on the outskirts of the company's sphere of influence, the secondary stakeholders. This can take different forms, *e.g.* political or economic change.

Usually, organisations have a higher degree of control over **internal** changes, which allows them to be proactive. **External** changes, unless properly foreseen, lead to the organisation being reactive, which can reduce the window of opportunity or, in extreme circumstances, lead to the organisation's disappearance.

Bennis, *et al.* (1969) observed three types of change, according to **intervention**. Firstly, ***non-intervention***, in accordance with the laissez-faire doctrine of the 'invisible-hand'. It relies on serendipitous change, where there is little or no direction or guidance. Secondly, ***radical*** intervention, emphasising conflict and class struggle, which may restrict the freedom of individuals or groups Thirdly, ***planned change***: "*...a method which self-consciously and experimentally employs social technology to help solve the problems of men and societies*" (Bennis *et al.*, 1969, p. 2). Planned change offers the advantage of some type of guidance, without being too constrictive or too serendipitous. Planned change rests on criticised values, evaluated practical experience, and research knowledge (Chin & Benne, 1969).

Planned change is concerned with (1) the identification of mission and values, (2) collaboration and conflict, (3) control and leadership, (4) resistance and adaptation to change, (5) utilization of human resources, (6) communication, and (7) management development (Bennis *et al.*, 1969). Planned change needs to consider the content, context and process of change (Pettigrew & Whipp, 1991). The effectiveness of planned change is often related to the participation of members, at all levels of an organisation, in assessing and diagnosing needful change, and in formulating its goals and objectives (Benne & Birnbaum, 1969). Hereon, when referring to change, it is of the form of **Planned change**.

Instigating change does not imply that all possible outcomes are known, or could be predicted. This is clear from Stacey's (1993) change categorisation according to its **predictability**, *i.e.* the further the system is from equilibrium, the less easy it is to forecast the effects of change. Under this three types are recognised:

1) ***Closed change***: Where the future behaviour of the system is perfectly predictable;
2) ***Contained change***: Future behaviour can be predicted with the help of probability;
3) ***Open-ended change***: Future behaviour is impossible to predict.

Open-ended changes are flexible and dynamic, which allows embracing behaviours and stimuli not anticipated or expected..

Lorenzi and Riley (2000) proposed four types of change in the **organisational** focus, in some cases they overlap: (1) ***operational*** changes, affecting the way the ongoing operations of the business are conducted; (2) ***strategic*** changes, impacting business direction; (3) ***cultural*** changes, affecting the basic organisational philosophies by which the business is conducted; and (4) ***political*** changes in staffing, occurring primarily for political reasons of various types. Additionally, these changes can be *First-order*, *i.e.* when there are variations in processes and procedures, but the system is relatively unchanged; or *Second-order*, *i.e.* when there are changes in strategies,

perhaps due to a crisis or threat (Lorenzi & Riley, 2000). A *Third-order* could be added, *i.e.* when the organisation is proactive[15].

Although CS changes need to take place in the four types of organisational focus changes, this thesis, based Morgan's (1997) 'Flux and transformation' metaphor, emphasis is on strategic and cultural changes.

4.2.2 Change drivers

Due to the heterogeneity of organisations, there are myriad possible change drivers and hindrances. A full discussion of all the possibilities is beyond the scope of this thesis. For convenience, however, some generally common influences can be identified from the literature and are presented in the following list. Some of the factors that drive changes include:

- Proactive leadership, or management (Dawson, 1994);
- Economic benefits, or a failure to obtain them (Cannon, 1994);
- Fear, which produces extraordinary short term changes, but with negative vision; and aspiration, which produces continuous learning and growth, and has positive vision (Senge, 1999c);
- External factors, such as political and financial upheaval, new technologies, regulatory change, worldwide competition and consumer preferences (Dawson, 1994; European Commission, 1998);
- Diagnosis of something being wrong in the organisation and needing to be changed (Carr, 2001); and
- The upsurge of visible crises that can attract attention and push up urgency levels (Kotter, 1996).

Anderson and Ackerman Anderson (2001) proposed a model of drivers of change. The model portrays a sequence to these triggers, with one trigger calling forth change in the next, starting with changes in the environment, followed by changes in the marketplace, then business imperatives, organisational imperatives, cultural ones,

[15] Although similarr to the learning typology, see Section , this categorisation refers to strategic and tactical cahnges, while the learning typology refers to the different levels on which an individual or organisation learns.

followed by leader and employees behaviour, and finished by changing the leader and employees mindsets. However, the model is externally focused, and is limited when explaining changes that are internally triggered, such as proactive leadership as proposed by Morgan's (1997) 'Flux and transformation' metaphor.

4.2.3 Pathways to facilitate change

Different authors have developed strategies and approaches for facilitating and managing change (see Appendix A. III) the ones that are central to this thesis are presented next.

Lewin's (1947) work is seminal within the pathway strategies. He proposed a three-step strategy or **pathway** for change: (1) unfreezing the present level or situation, (2) moving to the new level, and (3) freezing at the new level. This is one of the most recognised strategies for change. The strategy indicates that first it is necessary to break away from the *status quo* (SQ), *i.e.* current paradigms, mental models, routines and practices. On some occasions this might require catharsis to remove prejudices (Lewin, 1947), on others, a need to focus on the points of the system where stress and strain exist, which increases dissatisfaction with the SQ and facilitates change (Benne & Birnbaum, 1969). Second, to start the process of moving towards a new situation, where there is a period of relative instability. Finally to resettle at the new level, *i.e.* establish the new stability. Although Lewin's strategy is of great value, it neither specifies how change is influenced, nor does it outline the processes for each of the steps. Some authors have improved on Lewin's strategy, such as Huse (1980) who proposes seven stages, with two feedback loops, and Dawson (1994) who proposes a three step approach, *i.e.* conception, transition, and operation, affected by the substance, politics and context of the change (see Figure 4-2). However, Dawson and Huse do not include the strategic orientation of the intervention, the potential role of consultants, or techniques needed to effect the change (King & Anderson, 2001).

Anderson and Ackerman Anderson (2001) expanded on Lewin's (1947) by proposing three types of **pathways** for change: developmental, transitional, which is the closest to Lewin's (1947) model, (Figure 4-3), and transformational (Figure 4-4).

Developmental change represents the improvement of an existing skill, method, performance standard, or condition. It is the simplest of the three types of change, where the new state is a prescribed enhancement of the old one, rather than a radical change. There are two primary assumptions: (1) people are capable of growing, and (2) they will improve if provided the appropriate reasons, resources, motivation, and training.

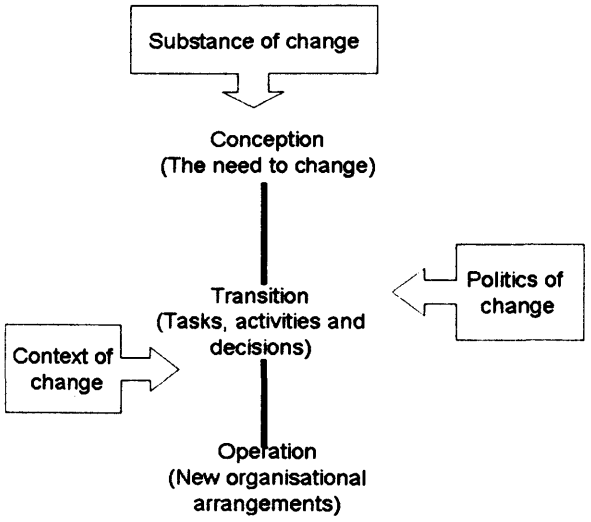

Figure 4-2 Organisational change: a processual framework
Source: (Dawson, 1994)

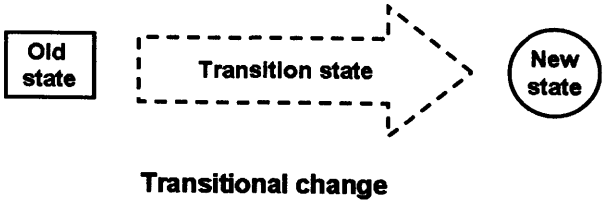

Figure 4-3 Transitional change
Source: (D. Anderson & Ackerman Anderson, 2001, p. 32)

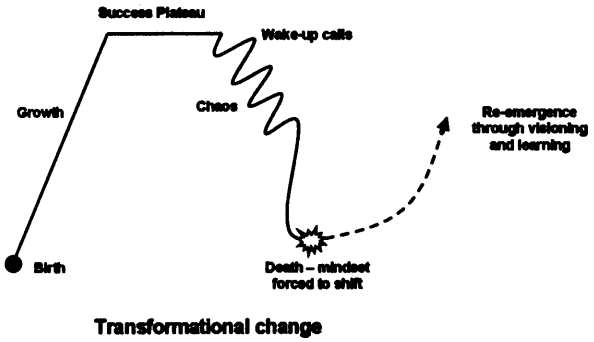

Figure 4-4 Transformational change
Source: (D. Anderson & Ackerman Anderson, 2001, p. 32)

Transitional change is more complex. Instead of improving the state, it replaces it with an entirely different one. Transitional change begins when leaders recognise the existence of a problem or an opportunity. This leads to a plan to create a more desirable future state. Transitional changes usually have a specific start date and end date. The degree of focus on human components is higher than in developmental change.

Transformational change is more complex than the previous two. It is based on a radical shift from one state to another. In transformational change a new order arises out of existing crisis or chaos. It occurs when the organisation's leaders finally listen to the 'wake-up calls', which catalyses a breakthrough in their awareness and beliefs.

The term 'Transformational change' used by Anderson & Ackerman Anderson (2001) contradicts Morgan's (1997) transformation concept, see Section 2.2.5, and the process proposed by Hopwood, Mellor & O'Brien (2005), see Section 2.1.4. For this thesis, transformational changes follow the latter two, where transformation is to be understood as breaking away from the SQ, and reaching and stabilising in a new level.

A common theme in these strategies is the need for an overarching framework (discussed in Section 2.2.7 and 4.2.5) that helps set up the change guidelines and scope. The types of strategies focus on different perspectives to engage and achieve change strategies presented may complement each other, especially when planned changes need to move through trust and influence, and be frozen at the new level. Internal and external agents need to link up to take advantage of each other's expertise.

Organisational change requires changes in two steering mechanisms: leadership and the institutional framework (Doppelt, 2003a).

4.2.4 Leadership's role in change processes

Leadership is recognised to be one of the key elements to successfully introduce, implement and institutionalise changes (Dawson, 1994; DeSimone & Popoff, 2000; Doppelt, 2003a; Fullan, 2002; Garvin & Roberto, 2005; Gill, 2003; Kotter, 1996; Waddel, 2005). However, an organisation cannot change, or even flourish (Fullan, 2002), based only on the efforts of the leadership (Kotter, 1996). Leadership needs to collaborate with other employees to achieve long-lasting planned.

While attempting changes the leaders will face resistance to change (Senge, 1999c), see Section 4.5, and may face different dilemmas. Walton (1969) posited the following: overstatement of objectives versus deemphasizing differences and stereotyping: internal cohesion versus accurate differentiation, emphasis on power to coerce versus trust, information (ambiguity versus predictability), threat versus conciliation, hostility management (impact versus catharsis), and coalition versus inclusion.

Argyris (1977) proposed the following leadership challenges: how to behave openly yet not be controlling, how to advocate and encourage confrontation of different views, how to respond effectively to subordinates' anxieties in spite of their own, how to manage the feat and become more open, and hot to gain credibility for attempts to change their leadership style. Additionally, Collins & Porras (2002) and Senge (1999c) asked how to balance change without losing the core. To cope with these, leaders can use the strategies presented in Section 4.5, complemented by setting the

stage for acceptance by designing and running effective persuasion campaigns, and delegating responsibilities and empowering people (Garvin & Roberto, 2005).

Even though leaders are *sine qua non* in change efforts, they need to be aided by an individual or group, henceforth referred to as champion or champions, who are responsible and committed to driving the day to day change efforts' activities and routines (Kanter, 1999; Rogers, 1995). Champions in turn need to have full support from the leaders (Rogers, 1995).

According to Rogers (1995) champions usually are people in high positions of authority that legitimise the change efforts and have high levels of influence. A champion's success is dependent on the ability to persuade others (King & Anderson, 2001). Some authors consider the best change champions to be the human resource executive, the quality officer, or the head of strategic planning (Kotter, 1996). Some championing activities include: persuasion, team building, seeking inputs from others, and providing rewards and recognition (Kanter, 1999). Additionally, champions can induce and ease the spread of the change by detecting, training and educating those who are affected by the change so that they become agents for the change; this is known as the multiplier effect.

4.2.5 Institutional framework's role in change processes

As discussed in Section 2.2.7, the organisation's institutional framework allows for co-ordinated collective action to support change and decision-making (Diesendorf, 2000; Hart, 2000b; Langer & Schön, 2003), providing the greatest overall leverage for change and helping to institutionalise it (Diesendorf, 2000; Lozano, 2006d). However, policies or strategies that cannot be implemented because they are not understood or agreed with have little effect (Senge, 1999c). To overcome this it is important that all levels of the system and of management are involved in the institutional frameworks formulation (Freeman, 1984), especially in large organisations, such as publicly traded corporations, where top and lower levels will have only limited contact.

The institutional framework also sets the norms of behaviour and the shared values in the organisations (Kotter, 1996; Senge, 1999c), thus helping to maintain stability, and

helping to institutionalise the changes (Diesendorf, 2000; Lozano, 2006d; van de Ven *et al.*, 1999).

4.3 Change institutionalization, making it part of the organisation's ethos

Planned organisational changes that are aimed at taking the organisation from the *status quo* (SQ) to a new stage or equilibrium point, *status quo novus* (SQN), or Lewin's (1947) new level (see Section 4.2.3). This process corresponds to transitional changes (D. Anderson & Ackerman Anderson, 2001). The system's inertia needs to be temporarily disrupted by applying leverage in the right places. This would bring the system to a temporary transition period where the changed balance of forces adjust to each other and reach the SQN. Once the balance of forces is adjusted, the new structure and goals are set, the SQN then starts becoming the SQ. This process is shown in Figure 4-5. If the system is unstable the leverage will upset it, and the transition period will become perennial and thus the SQN would not be reached.

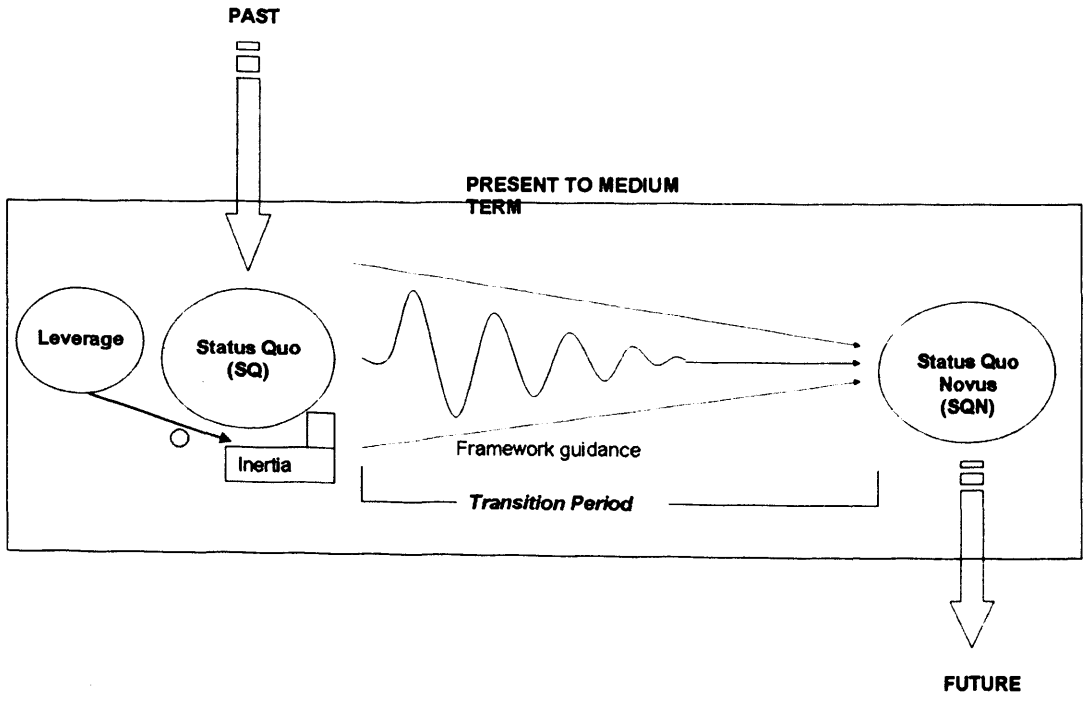

Figure 4-5 Organisational changes, moving from the *Status Quo* (SQ) to the *Status Quo Novus* (SQN)

To initiate and achieve long-lasting organisational change, Doppelt (2003a) proposes seven steps, which take into consideration the structure, feedback processes, non-linearity, leverage points, and the state of organisation:

1. Change the dominant mind-set, out of which the current system arose;
2. Rearrange the parts of the system;
3. Alter the goals of the system;
4. Restructure the rules of engagement of the system;
5. Shift the flow of information and communication in the system;
6. Correct the feedback loops of the system; and
7. Adjust the parameters of the system.

Although Doppelt's (2003a) proposal aims at achieving long-lasting changes, if these are not made part of the norms and values of the organisation they can come undone, even years after the change was initiated (Kotter, 1996). For example, as much as three-quarters of the most popular approaches to organisational change, *e.g.* Total Quality Management (TQM), strategic planning, re-engineering, and downsizing, achieve no success because they fail to change underlying patterns, employees' behaviours, and modifying the structure, thinking and perspectives of the system could be clearer (Senge, 1999c). Another weakness of such approaches is that they manage organisational changes from a technical viewpoint, neglecting the human element, leading to employee resistance (Bovey & Hede, 2001). However, when changes are adopted and put into practice for long enough, and increasingly, by different members of the institution, until widespread implementation and stabilization is achieved, they become part of the culture (Rogers, 1995; van de Ven *et al.*, 1999).

Institutionalization can be accelerated by interpersonal communication from a near-peer who has adopted the change (Rogers, 1995). Sherry (2003) proposed two stages prior to institutionalization: (1) initiation, or diffusion, and (2) implementation. Institutionalization, thus, is the maintenance of the new stable state (Lewin's (1947) new level, or Anderson and Ackerman Anderson (2001) new state), see Section 4.2.3.

Change institutionalization provides a new perspective on the pathways of change (see Section 4.2.3), where developmental changes could be integrated to transitional

ones. Thus resulting in Figure 4-6, where change is iterative with alternating transition and institutionalization periods.

Change institutionalization can also be made more relevant and consistent by modifying the attitudes within the system (Senge, 1999c).

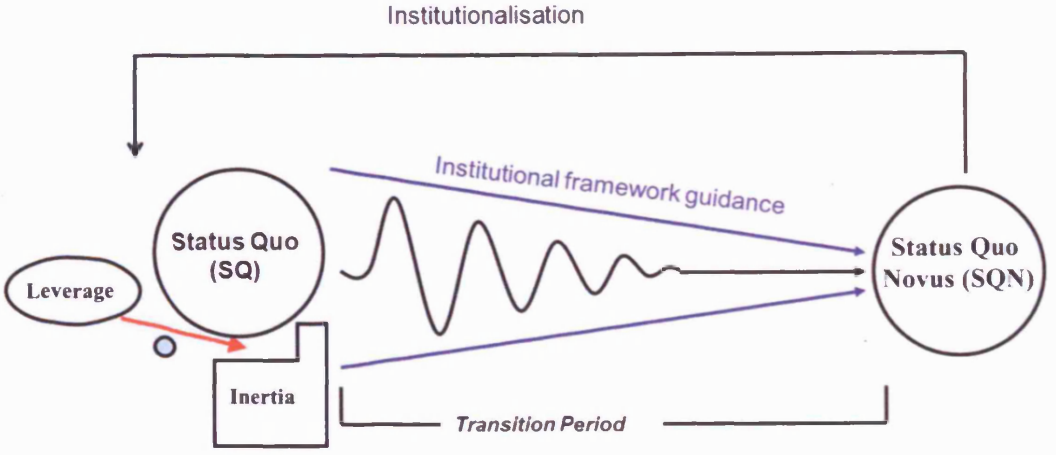

Figure 4-6 Iterative organisational changes

4.4 Attitudinal changes

Any changes, for example towards CS, in an organisation need to take into consideration changes in attitudes (Rogers, 1995; Senge, 1999c), which are directly linked to willingness to change (Kilbourne, Beckmann, & Thelen, 2002). The term 'attitude' is used to explain an individual's evaluations, feelings, tendencies, and behaviour towards some object or ideas (Kotler & Armstrong, 2001; Luthans, 2002; Rogers, 1995). An attitude differs from a 'belief', which is a descriptive thought that an individual has about something (Kotler & Armstrong, 2001). Senge (1999c) uses the term 'Mental models', referring to deeply ingrained assumptions, generalizations, or even pictures or images that influence the individual's understanding of the world and how these shape actions, referring to attitudes.

According to Luthans (2002) attitudes: (1) tend to persist unless something is done to change them, (2) can fall anywhere along a continuum from very favourable to very unfavourable, and (3) are directed towards some object about which a person has feelings and beliefs. Attitudes are formed, and changed through: a process of having a

concrete experience, making observations and reflecting on that experience, then forming abstract concepts and generalisations based on those reflections, which are then tested in a new situation (Lewin, 1947; Dobes, 2003). Until an individual knows about a new idea, she/he cannot begin to form an attitude towards it.

Luthans (2002) mapped the processes involved in moving from knowledge to action, by stating that attitudes can be broken into three basic components:

1) **Informational**: the beliefs and information that the individual has about the object;
2) **Emotional**: the person's feelings or affect, positive, neutral or negative, about the object or idea; and
3) **Behavioural:** the person's tendencies to behave in a particular way toward the object or idea.

Whereas Rogers (1995) makes a clear distinction between attitude forming and behaviour, or actions, Luthans (2002) holds that they are all part of attitudes, where information (knowledge) is linked to feelings (mental models) and to behaviours (actions). When the informational, emotional, and behavioural attitudes are consistent with each other, they are congruent (Lozano, 2006b, 2008a), but when they are discrepant, the knowledge-attitude-practice (KAP) gap appears (Rogers, 1995). However, as indicated, attitudes are informational, emotional and behavioural, thus the KAP gap could be renamed the knowledge-emotions-practice (KEP), or the information-emotions-behaviour (IEB) gap.

4.4.1 Informational attitudes and learning

Changing informational attitudes is directly dictated by learning, which starts with the individual. Individual learning may aid group and organisational learning, and this is influenced by alignment (see Section 4.1.3).

Learning is the process of acquiring knowledge, then creating and refining mental models (Penrose, 1959; Rosner, 1995; Schein, 1969). It comes from formal teaching or by experience (Penrose, 1959). Rosner (1995) complemented these modalities by stating that it can also come from theory. Lessard and Amsden (1996) indicated that

learning is contingent rather than deterministic, *i.e.* it depends not only on opportunities to learn, but also on costly investments to exploit such opportunities. Senge (1999c) indicated that learning takes time.

Learning is different from training. Training refers to the inculcation of rote habits (which according to Orr (1992) is how one instructs an animal) and the acquisition of skills (Lessard & Amsden, 1996; Rosner, 1995); while learning refers to an increase in knowledge through teaching, forming theories, and life's experiences, involving the cognitive, emotional, and physical dimensions, for those who are willing to risk it (Lessard & Amsden, 1996; Orr, 1992; Rosner, 1995). Learning is increased when the individual asks intelligent questions about the observed world, and then looks for answers – testing of hypotheses and theory forming. It should be noted that there is not an unbridgeable dichotomy between the two.

Posch and Steiner (2006) propose an alternative to linear-learning (Figure 4-7), called circular-learning (Figure 4-8). Although this concept promises to break away from traditional learning, it suffers from two drawbacks. Firstly of terminology (knowing, understanding and applying), which mixes learning with other types of attitudes. This can be solved by separating them according to Luthans' (2002) attitudes types. Secondly, by not considering bi- and multi-directional influences, which are addressed by Lozano (2006b; 2008a), see Section 5.6.

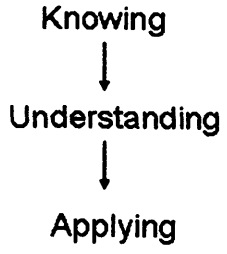

Figure 4-7 Linear learning
Source: (Posch & Steiner, 2006)

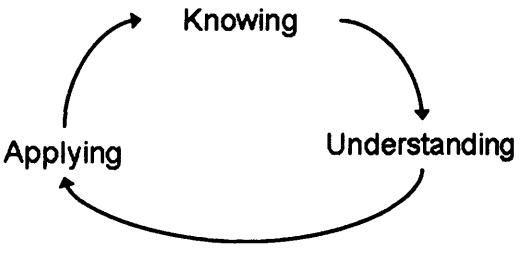

Figure 4-8 Circular learning
Source: (Posch & Steiner, 2006)

Learning can take place in different organisational units. These have been addressed by different authors:

- **Individual learning** (Argyris, 1977; Lessard & Amsden, 1996; Rosner, 1995; Senge, 1999c);
- **Group learning** (Lewin, 1947; Senge, 1999c);
- **Organisational learning** (Argyris, 1977; Lessard & Amsden, 1996; McIntosh, Leipziger, Jones *et al.*, 1998; Senge, 1999c; van de Ven *et al.*, 1999; Zadek, 2004).

Individual learning includes managing mental models by passing through a temporal process to expose assumptions, examining their consistency and accuracy, and seeing how different models can be brought together. In some cases, individual learning induces organisational learning, while in others it does not. However when groups learn, they become a microcosm for learning throughout the organisation (Senge, 1999c).

Organisational learning is the experiential process of acquiring knowledge about action-outcome relationships, and the effects of the environment upon these (van de Ven *et al.*, 1999). Organisational learning is complex and iterative (Zadek, 2004). Organisations need to learn from both their successes and mistakes (McIntosh, Leipziger, Jones *et al.*, 1998). Even though organisations learn all the time (Lessard & Amsden, 1996), learning can be hindered by bureaucracy[16] (Gill, 2003).

Senge (1999c) offered a broad revision and explanation of organisational learning and its characteristics: (1) organisations learn through individuals; (2) learning new skills and implementing institutional innovations help develop the organisation's capacity to work with mental models; (3) the boundaries between personal and organisational are intentionally blurred; and (4) learning organisations make key decisions based on shared understandings of inter-relationships and patterns of change.

[16] Although learning in bureaucratic organisations is an interesting subject; it can be better addressed by looking at 'Organisations as Machines' metaphor (Morgan, 1997), and thus changing the focus of this thesis.

Though many categories of learning, and the learning process, can be found, only the ones relevant to the context of this research (corporations and Sustainability) are presented here. The first typology is offered by Argyris (1977), who divided learning into single-, double-loop, and triple-loop learning. **Single-loop** refers to organisations detecting and correcting errors, to carry on with present policies, or to achieve objectives, *i.e.* comparing their performance to a set of pre-established standards, and making adjustments accordingly (Argyris, 1977; D. Miller, 1990). Many organisations have excelled at single-loop learning. This has led people to protect primary loops that inhibit learning, reinforcing each other. Single-loop learning usually focuses on solving present problems, but not querying whether the standard to be attained is appropriate or not (Argyris, 1977). **Double-loop** learning occurs when the underlying assumptions, norms, objectives, policies, goals and programmes are questioned, opened to confrontation, and submitted to comprehensive periodic reassessment against established standards, to ensure they remain relevant (Argyris, 1977; D. Miller, 1990). It focuses on immediate problems, but delves deeper into the structure of the system to identify root causes, and it allows questioning of mental models and facilitates responses and changes with respect to the environment (Argyris, 1977). **Triple-loop** learning entails developing new processes, or methodologies, for arriving at such re-framings (Argyris, 1977; Nguyen Cam, 2004; Senge, 1999c; Waddel, 2005).

Dobes (2003) offered another typology, where he separates learning into: lower level learning (know-how), learning by trail and error leading to gaining new skills without implications for the conceptual level; and higher level learning (know-why), involving questioning and changes of norms, strategies and conceptual frameworks, rather than specific activities or behaviours. The former is equivalent to single-loop learning (Doppelt, 2003a), and the latter to double-loop.

Doppelt (2003a) offered a third typology of learning, as follows:

- **Adaptive learning**: Reactive, coping form of learning. Usually involves the search for direct solutions to immediate problems;

- **Anticipatory learning**: Focusing on avoiding future problems, by identifying potential events and searching for the best ways to prepare for them. It is more creative than adaptive learning;
- **Action learning**: Involving turning real problems or tasks into a learning laboratory. Teams seek to simultaneously resolve the problems and learn from their experiences.

Learning in organisations takes place throughout the entire system, including individuals and groups. Learning is an important step in organisational change, especially when it done through triple-loop, higher-level, anticipatory, and action). Alternatively, single-loop, low level, and adaptive learning does not question the underlying principles of the organisation, increases bureaucracy, and curtails response to internal and external stimuli. Triple-loop learning challenges mental models, which allows for easier and faster adaptation to changing situations (Rosner, 1995). A term that describes this phenomenon in learning organisations is 'metanoia', *i.e.* a shift of mindset (Senge, 1999c). Developing organisations as interdependent networks allows learning to be transferred quickly and multi-directionally among units (Arthaud-Day, 2005). Although learning is an important part of any change process, it cannot be expected that individuals, groups, or the organisation would change their habits after a few days of education (Kotter, 1996), instead learning needs to be continuous to facilitate changes in the other types of mental attitude, discussed next.

4.4.2 Behavioural attitudes

Some authors have attempted to reduce behaviour to a function of certain characteristics (*e.g.* a function of aptitude multiplied by learning); or of the person and her/his environment (L. W. Porter *et al.*, 1975). However, behaviour is dependent on the person's aptitudes, learning, and environmental stimuli (within, and external to, the group or organisation) but also on the current context and past experiences, including emotions and emotionality. Yu (1999) stated that in a stable environment human behaviour displays little variation, but this is dependent on whether the individual agrees with the *status quo*.

There are many different types of behaviour, for example:

- **Cognitive versus Affective**: The former refers to the though processes of individuals, and emphasizes rationality, logic, and use of the mind. The latter refers to the feeling of individuals, and emphasizes emotions (L. W. Porter *et al.*, 1975);
- **Competition versus Collaboration**: Competitive and divergent behaviours hinder change, while collaboration and convergence facilitate it, as presented in Section 4.1.3;
- **Divergent versus Convergent**: The former refers to behaviours that branch and expand in different directions. The latter to those that integrate and converge in a given direction (van de Ven *et al.*, 1999)

Cognitive and affective behaviours are better labelled as attitudes. The former as informational attitudes, while the latter as emotional ones.

4.4.2.1 Behavioural attitudes' implications for organisational change

The norms and shared values among individuals in a group or organisation shape its culture (Hill & Jones, 2001; Kotter, 1996). Norms denote established behaviour patterns for the members of a social system (Judson, 1966; Rogers, 1995). They are part of the system's structure, which if changed, can produce different patterns of behaviour (Andersson *et al.*, 2005; Rogers, 1995; Senge, 1999c; Stacey, 1993).

Behaviours create routines that in turn govern behaviour (Hölzl, 2005; Nelson & Winter, 1982). Dysfunctional routines limit and constrain change (Garvin & Roberto, 2005). To change behaviour and routines it is necessary to achieve complementary and reinforcing changes at all levels of the system (Benne & Birnbaum, 1969), supported by a core ideology (Collins & Porras, 2002), using leverage and by creating 'new contexts' that can break from the *status quo* (Morgan, 1987). Behavioural change can be encouraged by several factors, such as gaining commitment, participation, incentives, and shared values (Freeman, 1984), and by focusing on changing skills, mind-sets, and cultures (Morgan, 1987).

New behaviours need to be maintained through effective leadership, coaching and support (Garvin & Roberto, 2005; Morgan, 1987). However, an inconsistent vision,

inflexibility during the change, lack of alignment within the system, and lack of congruence among attitudes, undermines change (Kotter, 1996).

4.4.2.2 Organisation-individuals relations

Organisational behaviour research usually is separated into macro (organisation), and micro (individual) perspectives (L. W. Porter *et al.*, 1975). In the CS context, both need to be considered. Some authors consider that the behaviour of an organisation is reducible to the behaviour of its individuals (*e.g.* Nelson and Winter, 1982); however, this does not consider a systems perspective, where the organisation's culture, including its norms, influences its individuals' beliefs and behaviours (Andersson *et al.*, 2005; Rupp, Ganapathi, Aguilera, & Williams, 2006; Strebel, 1998); and the individual also influence the organisation's culture[17] (Lozano, 2006b, 2008a; L. W. Porter *et al.*, 1975).

Individual attitudes are influenced by other individuals and groups (Lozano, 2006b, 2008a; L. W. Porter *et al.*, 1975), and by socialisation, which stresses the broader and more informal influences at work (Tansey & Jackson, 2008). According to Kelman (1969), three phenomena affect such influences: Firstly, **Compliance**, when an individual is willingly influenced by another individual or group in order to achieve a favourable reaction; secondly **Identification**, when an individual adopts behaviour derived from another individual or group, because the behaviour is associated with a self-defining relationship; and thirdly **Internalisation**, when an individual accepts influence because the induced behaviour is congruent with her/his beliefs.

4.4.2.3 Group behaviour

Group behaviour is influenced by its individuals and the organisation (Lozano, 2006b, 2008a). Groups can directly influence the behaviour of its members by making group-controlled rewards to engage the members in the desired behaviour. Group norms also shape the behaviour of the members by providing discretionary stimuli to coerce the members towards the desired behaviour, increasing group cohesiveness (L. W. Porter *et al.*, 1975). The group can act in four different ways:

[17] This interaction is bound to the organisation being interested in the individual's opinions

1. **Dependence**: Behave as if the group has come to depend on some leader;
2. **Fight/Flight**: Behave as if the purpose of the group were to fight, or flee from, an enemy;
3. **Pairing**: By joining forces with another group to solve a problem;
4. **Oneness**: Behave as if the group has joined in a powerful union with some powerful force that provides safety in numbers. (Stacey, 1993)

4.4.2.4 Individuals' behaviour

Individuals adopt behaviours according to the particular groups and the organisation they belong to (Beer *et al.*, 1990; Lozano, 2006b, 2008a; L. W. Porter *et al.*, 1975). Influential individuals, *i.e.* those with leverage, can also modify the norms and behaviours of groups and organisations. Thus, individuals' behaviours play an important role in changes to the organisation. A more detailed explanation on individuals is presented in Section 4.1.2. Three major types of individuals' behaviours, in regards to their relation to the system, have been recognised:

1. **Rebellion**: When the individual rejects all the organisation's values and norms;
2. **Creative individualism**: When a person's accepts the pivotal or absolutely essential organisation's norms and values, but rejects many of the relevant or peripheral ones;
3. **Conformity**: When the individual accepts all the organisation's norms and values, even the most peripheral. (L. W. Porter *et al.*, 1975)

Individuals' behaviours are easier to change when they are under the influence of receptive environments (Garvin & Roberto, 2005).

A challenge that arises in the individuals' behaviour change process is that of how to achieve it without giving in to brainwashing (Bartelmus, 1999a).

4.4.3 Attitudinal changes discussion

Two concepts permeate through the previous sections: (1) Alignment, along the system, and (2) Congruence, among informational, emotional, and behavioural

attitudes. Changes, for example towards Sustainability, in an organisation need to be done through the entire system, including individuals, groups, and the organisation, as well as in the three types of attitudes (Lozano, 2006b, 2008a). Change efforts that are directed at changing one or the other without considering all the complex interactions are bound to face the system's resilience to depart from the SQ. They also need to address the components for change offered by Kilbourne *et al.* (2002): institutional structures, value systems, general environmental beliefs, specific beliefs and attitudes, behavioural commitments, and behaviour itself. Changes in organisations need to, by using leverage points, move the system away from its equilibrium, maintain the system stable through the transition period with the help of the institutional framework, and make congruent and aligned changes throughout the system.

4.5 Resistance to change

Organisational changes that threaten the SQ, such as moving away from unsustainable practices towards more sustainable ones, are bound to face resistance at some level, the individual, groups, organisations, sectors and society (Bovey & Hede, 2001; Gill, 2003; Kotter & Schlesinger, 1979; Lorenzi & Riley, 2000; Maurer, 1996; Senge, 1999c; Waddel, 2005). Resistance to change is a common phenomenon to planned changes, (Gill, 2003; Lorenzi & Riley, 2000). It arises when passing from the known to the unknown (Bovey & Hede, 2001; Kotter & Schlesinger, 1979; Martin, 1998) and slows or stops movement (Maurer, 1996). The major constraint in such processes is the ability of people to accommodate change (Dent & Galloway Goldberg, 1999; Garvin & Roberto, 2005; Maurer, 1996), *i.e.* their social habits (Lewin, 1947), where the larger the change the stronger the resistance (Maurer, 1996).

Resistance can be covert and below the surface; or explicit with blatant struggles over resources, expression of doubts, and unwillingness to commit to the change efforts (Lewin, 1947). Resistance is shaped by defensive routines that protect the mental models and fend off anguish. However, they also reduce the capacity to learn about the causes of such distress (Senge, 1999c). It comes also from different perspectives towards the change, *e.g.* viewed as an opportunity by managers and leaders but as a threat by employees (Strebel, 1998). Balancing feedback loops create the resistance of a system to depart from its equilibrium or SQ (Senge, 1999c), especially when

individuals' resistance can give rise to organisational resistance in a self-reinforcing loop (Lorenzi & Riley, 2000).

Resistance follows a cyclic path, where its exploration can be difficult and dangerous (Maurer, 1996). However, it is easier to attend to it when the cycle is young and there are many possibilities, rather than later when the resistance is firmly entrenched, which relates to maturity of groups and individuals (see Sections 4.1.1 and 4.1.2). The depth of resistance does not become apparent until action is taken. Yet, it "*...is not an impenetrable wall.*" (Maurer, 1996, p. 43) Senge (1999c) indicated that it is more effective to look for the source of resistance than to attend to the resistance itself.

Dent and Galloway Goldberg (1999) challenge the foregoing positions by indicating that the universally accepted model of resistance to change in organisational life is monolithic and flawed. They propose that people do not resist change, but instead they resist the unknown, loss of status, pay, or comfort. Labelling these issues as resistance to change impedes the change effort. This is typical in non-intervention change. In radical intervention change individuals have no control over their fate. Planned change has the potential to reduce most of the undesired consequences of change; however some consequences may not have been anticipated. For more details on the three types of change refer to Section 4.2.1. In other words, individuals resist the unknown consequences of change, and resistance to change can be better understood as a barrier to change. Nevertheless, these two terms are henceforth used interchangeably.

Different authors have recognised myriad of barriers to change that affect the different organisational levels and strategies and approaches to overcome them. Many of these affect only one of the levels. However, it is possible to find some that affect or can be applied to more than one. Most of the literature has focused on individual or organisational barriers, while few authors have focused on groups, and fewer on offering a clear panorama of the entire system.

4.5.1 Individuals' resistance to change and strategies to overcome it

Different authors have focused on individuals' the barriers that appear and how these could be overcome. In general, they offer long lists of the barriers, but most do not group them, with the exception of Maurer (1996) who offered the following categorisation:

> **Level 1. Resistance to idea itself:** Produced when the individuals question, disagree, or oppose the idea. It includes issues such as lack of information, dislike of the idea, surprise, lack of training, lack of perceived relevance, among others;
>
> **Level 2. Resistance involving deeper issues:** Usually produced by feelings of loss of control or power, status, respect or separation of the individual from the others. It usually causes feelings of incompetence, of being deserted, of high levels of pressure and stress, and that change is too difficult;
>
> **Level 3. Deeply embedded resistance:** This level marks a serious conflict with the organisation. It is the most entrenched form of resistance. The individual might be in accord with the idea of change, but nevertheless takes the situation to a personal level. It emanates from a combination of different Level 2 factors, together with historic animosity, and conflicting values and vision. It includes factors such as cultural differences, race, religion, sex, amongst others. It is generally produced by: history or lack of trust, differences of sex, race, culture or ethnic background and significant disagreement towards the values being encountered. (Maurer, 1996)

The most powerful forces of resistance to change are at the deeper emotional level (Gill, 2003).

Table 4-2 presents a synthesis of the barriers to change literature grouped by Maurer's (1996) hierarchy. Although the barriers to change have been developed for change management in general, they are also relevant for helping organisations change towards CS. Two complementary aspects are proposed by Lozano (2006d), which can appear in any of the levels, can be found: **Aspect 1. Procrastination:** When the individual considers the change to be too complicated; therefore he/she finds ways to delay action upon the new idea. It can also be due to inherent laziness and in some

cases to negligence; and **Aspect 2. Power struggles:** The struggle for power between people with opposing views or the desire for a more public position often consumes precious abilities, energy and time that otherwise could be used positively, as in the case of the implementation of CS.

Another effect of the power struggle is the creation of sides or groups that seek to snatch the resources and eliminate the competition of other groups (Lozano, 2006d), see Section 4.1.3.

Different reactions and effects can appear from resistance to change, as presented in Table 4-3.

Resistance to change is most easily overcome when it can be foreseen and neutralised in advance, *e.g.* by educating individuals about the change beforehand (Kahn, 1979). Individuals, especially those change-averse, must be convinced that the organisation is on its deathbed, or at least that radical changes are required to survive and thrive (Garvin & Roberto, 2005). Such resistance can be overcome with the help of multiplier effects (see Section 4.2.4) and with selected strategies and approaches.

The strategies and approaches offered are not prescriptive against each of the barriers, rather they must be understood as a 'Toolkit', where the strategies of a particular level are applied to barriers of the same level. No single approach to overcome the barriers will work in all circumstances.

Table 4-2 Synthesis of barriers to change grouped by Maurer's (1996) hierarchy

Levels	*Causes of Resistance*	*Kotter & Schlesinger (1979)*	*Kreitner (1992)*	*Griffin (1993); Aldag & Sterns (1991); Schermerhorn (1989)*	*Dubrin & Ireland (1993)*	*Spence (1994)*	*Maurer (1996)*	*Dent & Galloway Goldberg (1999)*	*Senge (1999c)*	*Gill (2003)*
Level 1: The idea itself	Surprise		X							X
	Inertia		X							
	Misunderstanding/Lack of communication	X	X	X			X	X		
	Poor training	X	X			X				
	Fear of poor outcome				X			X		
	Faults of change				X					
	Lack of time or bad timing						X		X	
	Lack of help and support								X	X
	Lack of relevance						X		X	
	Lack of "walking the talk"								X	
	Lack of empowerment towards the change							X		
	Dislike of the change						X			X
Level 2: Deeper issues	Believe on status quo	X				X				X
	Emotional side effects		X	X						
	Lack of trust	X	X	X			X			X
	Lack of commitment									X
	Fear of failure/Loss of respect		X		X	X	X		X	X
	Threat to job status/Security	X	X	X	X	X	X		X	X
	Work group break-up		X	X		X				
	Peer pressure	X								
	Uncertainty			X				X		
	Bureaucratic culture						X			
	Punishment and rewards						X			
Level 3: Deeply embedded	Personality conflicts		X	X		X				
	Historic animosity						X			
	Conflicting values and vision						X			

Source: Adapted and improved from (Dent & Galloway Goldberg, 1999)

Table 4-3 Reactions and effects that arise from resistance to change

	(Maurer, 1996)	*(Kanter, 1999)*	*(Judson, 1966)*
Confusion	X		
Denial	X		
Malicious compliance	X		X
Sabotage	X		X
Easy agreement	X		X
Deflection	X		X
Blaming others	X		
Silence	X		X
Criticism (direct or indirect)	X	X	X
Foot-dragging		X	X
Low response to requests		X	X
Unavailability		X	
Arguments for preferential allocation of scarce time and resources		X	
Committing 'errors'			X
Doing only what is ordered			X

Luthans (2002) proposed five approaches to overcome resistance to change:

1. **Providing new information:** By providing new information the person will change his or her attitudes towards the innovation;
2. **Use of fear:** Fear can be used to change people's attitudes. The degree used is highly important, low levels tend to be ignored while high levels tend to be rejected;
3. **Resolving discrepancies:** Change can be obtained by solving the discrepancies between attitudes and behaviours;
4. **Influence of friends or peers:** Persuasion of friends or peers can also accelerate change;
5. **Co-opting approach:** Change is achieved by involving the people dissatisfied in the process and making them understand its benefits.

Alternatively, Chin & Benne (1969) offered three strategies to overcome resistance to change:

- **Empirical-rational:** Assumes that people are guided by reason and will calculate whether it is in their best interest to change. If people understand the logic for change and see themselves as benefiting from it, they will be more likely to change. Resistance comes primarily from ignorance and superstition.

To counter this resistance, individuals must be educated about the logic and benefits of change.

- **Power-coercive:** Focuses on forcing people to change through the use of external sanctions. It emphasizes political and economic power. The power-coercive strategy usually evokes anger, resistance, and damage to the fundamental relationships of those involved in the change. It is not likely to result in the kind of voluntary commitment that is necessary in most adaptive solutions. Coercive power is less durable than are other kinds of power, except under conditions of vigilant surveillance.
- **Normative-re-educative:** Involves a more collaborative change process. Individuals are still guided by a rational calculus; however, this calculus extends beyond self-interest to incorporate the meanings, norms, and institutional policies that contribute to the formation of human culture. This strategy welcomes the input of individuals into the change process. Change does not come by simply providing information, as in the empirical-rational strategy. Rather, it requires the focus on the clarification and reconstruction of values. The emphasis is on communication with the followers rather than their manipulation. (Chin & Benne, 1969)

These strategies and approaches can be combined with those collected by Dent & Galloway Goldberg (1999) and applied to the barriers presented in Table 4-2 to create Table 4-4. Some of the strategies, *e.g.* Normative-re-educative, can be used for different levels or aspects. Strategies and approaches need to be adapted to each situation combined, if needed, and complemented with emotional support (Kotter & Schlesinger, 1979). Levels 3 barriers require tremendous determination and persistence (Maurer, 1996). Note that Aspect 2, Power struggles, is not possible to overcome with any of the presented strategies or approaches.

Table 4-4 Strategies and approaches to overcome barriers to change

	Strategies and approaches to overcome barriers to change	***Kreitner (1992)***	***Griffin (1993); Aldag & Sterns (1991); Schermerhorn (1989)***	***Dubrin & Ireland (1993)***	***Luthans (1947)***	***Chin & Benne (1969)***
Level 1: The idea itself	Education/Providing new information		X		X	
	Facilitation		X			
	Empirical-rational					X
	Discussion			X		
	Financial benefits			X		
	Political support			X		
Level 2: Deeper issues	Negotiation	X	X	X		
	Manipulation	X	X	X		
	Normative-re-educative					X
	Co-opting approach				X	
	Resolving discrepancies				X	
Level 3: Deeply embedded	Normative-re-educative					X
	Participation	X	X	X		X
	Use of fear				X	
	Influence of peers and friends				X	
	Power-Coercive					X
Aspect 1: Procrastination	Co-opting approach				X	
	Influence of peers and friends				X	
	Normative-re-educative					X
	Facilitation		X			
	Discussion			X		
	Participation	X	X	X		X
	Use of fear				X	
*Aspect 2:Power**	-					

* None of the presented approaches and strategies can be used to reduce or eliminate the power struggles.

Source: Adapted from (Dent & Galloway Goldberg, 1999) and (Lozano, 2006d)

4.5.2 Groups' resistance to change and strategies to overcome it

Few authors have dealt with groups' barriers to change. Table 4-5 presents some of the most influential along with the barriers and how to overcome them.

Table 4-5 Groups' barriers to change and Strategies and approaches to overcome them

	Lewin (1947)	*Coch & French (1948)*	*Kotter & Schlesinger (1979)*	*Dent & Galloway Goldberg (1999)*
Barriers to change				
Ignoring institutions in the group				X
Individual – Group conflict	X			
Group culture	X		X	
Overcoming group barriers				
Group participation in the change design and development		X		
Individual – Group interactions	X			
Reducing group standards/Changing group values	X			
Group meetings and communication		X		

4.5.3 Organisational resistance to change and strategies to overcome it

As with individuals, several authors have recognised organisational barriers to change and how to overcome them. Table 4-6 presents some of the most characteristic barriers, while Table 4-7 presents some of the strategies and approaches to overcome them. Each is divided into five groups:

- **Managerial**: Related to managerial issues, such as leadership, departmentalism, strategy and planning, and empowerment;
- **Organisational (Org. in both tables)**: Related to how the organisation is structured and aligned, and measurement and assessment;
- **Supportive**: Related to the support given or lacking to the employees;
- **Historical**: Related to the evolution of the organisation or the changes attempted within;
- **External**: Barriers that come from outside the organisation, where control is limited.

Another group that could be added are the technological barriers. These affect the product, processes and operations, and not directly the organisations as social systems.

Stone (2000) considers only three groups: Firstly, organisational (*e.g.* non-involvement of employees; vested decision-making powers; emphasis on production; high staff turnover; lack of recognition); secondly, systemic, mainly referring to managerial (*e.g.* poor record keeping & reporting; inadequate & ineffective

management systems; lack of systems for professional development; *ad hoc* production planning), and thirdly attitudinal (*e.g.* lack of good housekeeping culture; resistance to change; lack of leadership; lack of effective supervision; job insecurity; fear of failure). This approach mixes some organisational and managerial barriers with individual barriers, such as job insecurity, and fear of failure. The Levels and Aspects presented in Section 4.5.1, and the five groups presented above provide a more complete explanation and categorisation on barriers to change.

Organisational changes are most successful when they fit into the existing culture (Maurer, 1996), and are evolutionary changes. When they do not they may be subject to regression (Kotter, 1996). However, fitting into the culture can bring the problem of in-breeding, encouraging changes that build upon a deficient or dying system.

Table 4-6 Organisational barriers to change

		Kotter & Schlesinger (1979)	*Freeman (1984)*	*Stacey (1993)*	*Kotter (1996)*	*Maurer (1996)*	*Senge (1999c)*	*Senge & Kaeufer (2000)*	*Doppelt (2000)*	*Gill (2003)*	*Jansen (2003)*	*Kanter (2003)*	*R. L. Martin (2003)*	*Zadek (2004)*	*Garvin & Roberto (2005)*
Managerial	Lack of top management commitment/walking the talk				X			X	X	X		X	X		
	Lack of champions										X				
	Status quo											X			
	Failing to have short term wins				X							X			
	Failing to institutionalise changes				X			X	X						
	Departmentalism							X	X						
	Cause - effect confusion								X						
	Lack of communication				X				X						
	Lack of employee engagement/empowerment		X		X										
	Lack of strategy/long term plans				X			X	X		X				
	Purely economic focus										X				
Org.	Purely managerial change efforts									X		X			
	Bureaucracy/Patriarchal models			X				X	X		X				
	Politics	X		X											
	Lack of alignment						X								
	Lack of measurement							X							
Supportive	Lack of organisational knowledge and skills								X		X	X			
	Inappropriate technology								X						
	Lack of support (managerial and financial)					X						X			
	Lack of resources			X											
	Lack of incentives												X		
Historical	Employees "retired on the job"		X									X			
	Too many failed changes														X
	Complacency				X										
	Too much or little compliance						X							X	
	Lack of responsibility and accountability													X	
External	Competitors strength			X											
	Timing related to ext. events			X											

Table 4-7 Strategies and approaches to overcome organisational barriers to change

		Senge & Kaeufer (2000)	*Zadek (2004)*	*Stacey (1993)*	*Kotter & Schlesinger (1979)*	*Kotter (1996)*	*Doppelt (1996)*	*Kanter (1999)*	*Maurer (1996)*	*Luthans (2002)*	*Senge (1999c)*	*Hodge, Hardi, & Bell (1999)*	*Lozano (2006a)*	*Lozano (2006d)*	*Elton (2003)*
Managerial	Give managers responsibility		X												
	Developing new strategies, policies and frameworks	X	X	X			X								
	Leadership					X	X								
	Identifying champions			X		X								X	X
	Sharing a common vision					X					X				
	Transparency											X			
	Engage top levels and obtain support				X									X	
	Set goals and objectives													X	
	Walk the talk	X													
Org.	Challenging politics			X											
	Changing organisational paradigms						X				X				
	Aggregation/Collaboration		X								X	X	X		
	Game theory								X				X		
	New metrics for assessment and reporting	X													
	Improvements and renewals of systems						X				X				
Supportive	Peer pressure							X		X					
	Multiplier effect			X											X
	Changing mental models										X				
	Providing new information and skills				X					X				X	
	Create and make support	X			X										
	Build awareness	X													
	Give incentives							X							
Historical	Increase sense of urgency					X									

4.5.4 Resistance to change discussion

From Tables 4-2, 4-4, 4-5, 4-6, and 4-7 it can be observed that certain barriers and strategies are mentioned by most of the authors, these are collected in Table 4-8.

Table 4-8 Most commonly recognised barriers to change and strategies to overcome the barriers

	System level		
	Individuals	***Groups***	***Organisational***
Barrier to change	• Misunderstanding/Lack of communication (Level 1) • Lack of trust (Level 2) • Threat to job status/Security (Level 2)	• Group culture	• Lack of strategy/long term plans (Managerial) • Bureaucracy/Patriarchal models (Organisational) • Lack of top management commitment/walking the talk (Managerial)
Strategy	• Negotiation (Level 2) • Manipulation (Level 2) • Participation (Level 3 and Aspect 1)	• Group participation • Individual – Group interactions • Reducing groups standards/Changing group values • Group meetings and communication	• Developing new strategies, policies and frameworks (Managerial) • Identifying champions (Managerial) • Aggregation/Collaboration (Organisational)

Resistance to change slows and sometimes stops change efforts. The barriers to change that may appear in any of the system's levels need to be recognised and overcome; the strategies and approaches offered can help in this. Sometimes these may be used independently, other times combined. While most strategies can be used solely for one level, some can be used throughout different levels. In this process the norms, standards and culture of the system need to be modified to embrace the change efforts.

Overcoming barriers to change is both radical an incremental. It is radical because it involves a complete change of the system; yet, incremental because the operational transition is a step-by-step process (DeSimone & Popoff, 2000). Using leverage (Lozano, 2006b, 2008a; Senge, 1999c), and multiplier effects (Lozano, 2006d; Rogers, 1995) can help to communicate the changes, and convince others that have not yet adopted them.

The barriers to change and strategies to overcome them need to be complemented with the support of a credible guiding framework that holds the system structure

together and helps avoid regression to previous organisational levels and thereby institutionalises the change (Elton, 2003).

4.6 Chapter conclusion

This chapter provides a discussion on organisational change and resistance to change. It discusses how changing an organisation to make it more CS oriented presents significant challenges. Organisational changes towards CS tend to be complex, continuous, and in many cases uncertain. Such changes are affected by external and internal factors. The former tend to generate reactive responses, while the latter generate more proactive responses. From the different types of changes, planned change can help organisations adjust their systems and cultures to move more proactively towards CS, by offering guidance, and without being too restrictive or controlling. Such changes need to take place throughout the organisation, including its units and their respective attitudes. Planned changes also help to move the organisation from the SQ to a SQN, in an iterative process, where the SQN becomes the SQ.

Two steering mechanisms play an important role in this process: leadership, which helps to manage the planned changes and recognise the barriers; and the institutional framework, which helps keep the system stable whilst in a state of flux.

The discussion on resistance to change focuses on barriers to change and strategies to overcome them. These important in helping to make CS part of a corporation's culture.

From the discussion in the chapter, it is possible to create Figure 4-9, which proposes an iterative model of the elements that affect progress from the SQ to the SQN in organisations, and how they are effected over time. It shows how the change drivers try to push the organisation from the SQ, but this is hindered by the barriers to change. The strategies to overcome the barriers serve as leverage to move the organisation to the transition period, where the institutional framework maintains stability. Once the SQN is reached, the changes need to be institutionalised before the process can be repeated.

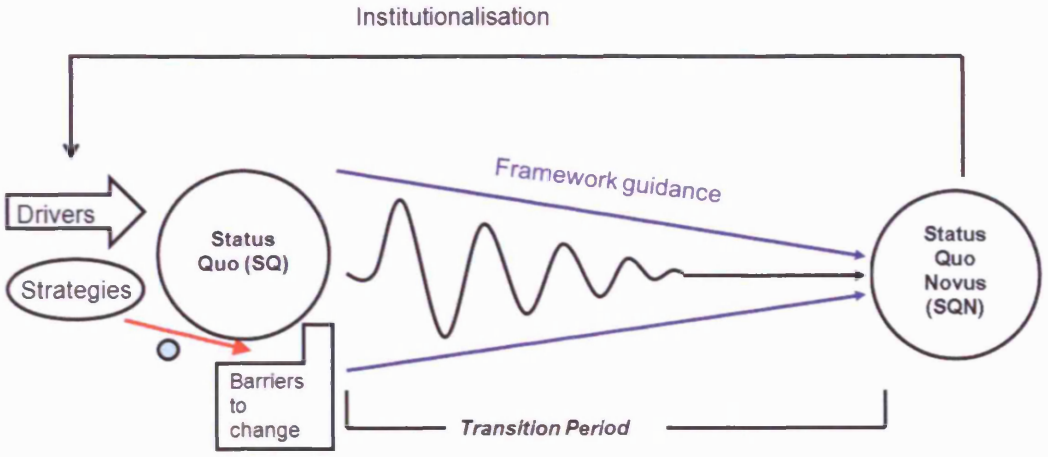

Figure 4-9 Iterative model of the elements that affect organisational changes

5. Theoretical framework: Change strategies for Corporate Sustainability (CS)

This chapter presents the specific aspects of change management for CS. It integrates the discussions from Chapters 2, 3, and 4 to create the theoretical framework for this thesis.

5.1 Organisational changes towards CS

Improvements to the environment and societies depend on changes and actions that have positive outcomes (Hodge *et al.*, 1999). Implementing such changes within corporations, represents significant theoretical and practical challenges, where the corporation's ability to change in the following is crucial (Dobes, 2001):

1. **Operations and production:** Technologies, materials, energy sources, and product development (DeSimone & Popoff, 2000; Doppelt, 2003a), with closed-loop manufacturing combined with resource efficiency and effectiveness (Lorenzi & Riley, 2000; Lovins *et al.*, 2000). Different efforts addressing operations and production are presented in Chapter 3;
2. **Management and strategy:** Business values and attitudes, objective, strategies, products and programmes (DeSimone & Popoff, 2000; Frehs, 2003; Lorenzi & Riley, 2000; Quazi, 2001);
3. **Organisational systems:** People, culture, leadership styles, management skills and learning, problem-solving approaches, structures, systems (Doppelt, 2003a; Lorenzi & Riley, 2000); and
4. **Procurement and marketing** (DeSimone & Popoff, 2000).

Long-lasting changes to and for CS require that a corporation's 'business-as-usual' cultures and engrained mental models (Korhonen, 2002b) are replaced or complemented with other more Sustainability oriented ones (Doppelt, 2003a; Rosner, 1995). Cultures are deeply rooted, and simple technological or managerial systems changes are unlikely to alter them (Doppelt, 2003a).

Three different approaches are proposed to change mental models. The first, according to Rosner (1995) is about two **types of learning**: (1) Sophisticated

scientific theories that show the consequences of human activities, but which are generally not understood by managers; and (2) Providing managers with different mind-sets to support them moral or philosophical thinking about Sustainability. As discussed in Section 4.4.1, there are other types of learning, where it is argued that the triple-loop, and higher-level, anticipatory, and action learning are more suited to changing mental models.

The second, changes vary in the **direction that they flow through the hierarchy**, where it is common to separate it into top-down and bottom-up (Doppelt, 2003a). As discussed in Section 4.2.3 senior management approaches, through power, could help to ensure that CS is incorporated faster. However, institutionalization might take longer if there is a lack of understanding or acceptance, if conflicts appear, and if the inputs from the difference hierarchy levels are not integrated into the change process and the entire system. If leadership is changed before institutionalization is complete the system may revert to the SQ. Incorporation through bottom-up approaches typically takes longer, because the different stakeholders need to be engaged and empowered. Understanding and acceptance tend to be higher, reducing conflicts that make the institutionalizations smoother. However, bottom-up initiatives can be blocked by senior management (Kanter, 1999).

Finally, there is the control over the process that can be: (1) **Top-down**[18], emphasising management, measurement, and control. This path sticks to current structures and systems, where the efforts are easily controlled and result might be predictable, but they may not be enough; and (2) **Inside-out**, stressing the importance of change and innovation. This path allows trials of new structures and systems that may facilitate quantum leaps towards Sustainability. The efforts might not be entirely predictable. (Henriques & Richardson, 2005)

The top-down approach is usually through senior management. Henceforth, top-down refers to a combination of Control and of Hierarchy.

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[18] Although Henriques & Richardson (2005) use Top-down as a term for control change process, for this thesis Top-down refers to management change process

Most of the efforts found in the literature take the Top-down route (*e.g.* DeSimone & Popoff, 2000; Harvard Business Review, 2000; Henriques & Richardson, 2005; Hitchcock & Willard, 2006; Holliday *et al.*, 2002; Willard, 2002a). Only a few deal with the Inside-out path (*e.g.* Doppelt, 2003a; Doppelt, 2003b; Dunphy *et al.*, 2003), where the emphasis is on internal changes (*i.e.* processes, assumptions and behaviours), to embrace new tools and techniques (Doppelt, 2003a).

Whichever approach is taken, if an organisation is supportive of CS change can be accelerated with the help of learning (Section 4.4.1), and as discussed in Section 4.4 by addressing emotional and behavioural attitudes. To achieve such changes the SQ needs to be momentarily destabilised through leverage (Section 4.3). During this process it is vital to understand the end goals to avoid failure from lack of rationale and purpose clarity (Doppelt, 2003a), while balancing and taking consideration the interests of stakeholders (C.E.C., 2001). In the case of CS, this includes internal and external stakeholders, and the economic, environmental, and social aspects in the short-, long-, and longer-term (Lozano, 2006b, 2008a).

Long-lasting CS changes require, in addition to changes in mental models, incremental changes in the organisational structure, operations (Diesendorf, 2000), management (Doppelt, 2003a), developing Sustainability visions of the future (Doppelt, 2003a), and proposing how to achieve these (Hodge *et al.*, 1999; K.-H. Robert *et al.*, 2002).

5.2 Alternative approaches to the pursuit of Corporate Sustainability

Different authors have proposed alternative ways in which to pursue CS, some of these include: moving towards clean technology (Hart, 2000a, 200b); switching from providing products to services, framed by environmentally friendly practices (McIntosh, *et al.*, 1998), so called, '*solutions-based*' business models (Lovins *et al.*, 2000); integrating social costs, environmental externalities, and resource data into financial accounts (Reinhardt, 2004); and integrating structural elements when planning strategic behaviour (Quazi, 2001). In general, the proposals tend to focus on environmental aspects. Those that address social issues tend to do so shallowly. Most of them, with the exception of Doppelt (2003a) and Dunphy *et al.* (2003), do not

examine how to apply organisational change theory to CS. They do not indicate how to incorporate or institutionalise CS into the corporation's culture.

Clarke and Roome (1999) offered six propositions that complement the different paths towards CS through internal phenomena:

1. Context and organisational pre-conditions influence corporate effectiveness to mutual learning and change;
2. Openness and responsiveness to multiple perspectives help acquire new knowledge and take actions;
3. Acquired knowledge contributes to effective management facilitating networking and changes through it;
4. Networks help inform, confirm and validate the approaches to CS;
5. Networks are involved for learning and action;
6. Highly developed skills facilitate inputs from different stakeholders networks at all levels of the company. (Clarke & Roome, 1999)

Leadership and the institutional framework are two key mechanisms to help steer and operationalise alternative approaches and change towards CS (Doppelt, 2003a).

5.3 Leadership's role for CS change

Leadership plays a key role, if not the most important, in organisational changes towards CS (Birch & Littlewood, 2004; Coelho *et al.*, 2003; DeSimone & Popoff, 2000; Doppelt, 2003a). In addition to the discussion about leadership and change presented in Section 4.2.4, in regards to CS, leadership is vital in communicating to staff the long-term challenges of CS, by going beyond the emphasis on environmental, health and safety efforts through the incorporation of social issues, creation and communication of shared values, motivation and empowerment of people to take action, demonstrating that it is about day-to-day behaviour, and establishing and supporting champions (DeSimone & Popoff, 2000). Doppelt (2003a) argues that leaders who understand that each person, area, function in the company must be integrated with all other corporate facets, have made the most progress towards Sustainability. While some commentators (e.g. Elkington, 2002) suggest that

leadership that follows conventional mental models can be damaging to the prospects of successful CS.

It is important that, to make progress towards CS, leaders commit to a long-term vision and negotiate difficult trade-offs (Holliday *et al.*, 2002), by 'practicing what they preach' (Andersson *et al.*, 2005), the so-called 'walking the talk' (Holliday *et al.*, 2002). They need to be aware and accept their responsibilities to environmental and social issues (Cannon, 1994; Doppelt, 2003a; Fullan, 2002), send and reinforce the sustainability message (Holliday *et al.*, 2002) and integrate CS into the vision and the way they conduct business (Frehs, 2003).

Embracing CS might require a leap of faith from leaders, especially when risks are perceived to be higher than potential benefits when investing in unstable and unfamiliar market. Hart (2000a) argues that recognising CS positive mission can allow them to galvanise people in their organisation.

Leadership may order employees to adopt CS, but the reliance on power and authority usually provokes intense resistance, and insurmountable obstacles. Instead they need to make sure that vision, goals, structures, strategies, tactics, communication, learning, rewards, compensation, hiring, promotion, accounting, decision-making, information and employee involvement mechanisms are all aligned towards CS (Doppelt, 2003a).

Reinforcing the discussion presented in Section 4.2.4, and internal champion or champions can support leadership in co-ordinating the efforts and solidifying the Sustainability initiatives (Doppelt, 2003a). Champions may be board members, CEOs, executives, managers, and supervisors (Dunphy *et al.*, 2003).

5.4 Institutional framework

The institutional framework can help to evaluate the corporation's scope and depth regarding Sustainability, its qualitative levels of implementation, aspects that have been neglected, and the ones that by including them could enhance CS (Langer & Schön, 2003). Especially if CS is an integral part of the strategies of the corporation (Oskarsson & von Malmborg, 2005), be included or based upon value systems,

management philosophies, methodologies, business concepts and related sets of tools and measurement practices (van Marrewijk & Hardjono, 2003), and embedded as a 'Golden Thread' in the institutional framework (Lozano, 2006d). Following the music theme of this thesis, '**Leitmotiv**' is used instead 'Golden Thread'.

According to Hamman (2003) this framework should contain at least: a set of principles and policies implementing international standards (*e.g.* the Universal Declaration of Human Rights); a set of targets linked to measurable performance indicators developed and audited with stakeholder participation; and clear management, accounting and reporting structures to ensure implementation.

As with other changes (see Section 4.2.5), the institutional framework can help to maintain the stability of the system during the transition period and institutionalise CS.

5.5 Barriers to change and Strategies to overcome them specifically affecting CS

CS incorporation and institutionalization is bound to face barriers to change (Langer & Schön, 2003), throughout the system. In addition to the barriers to change presented in Sections 4.5.1, 4.5.2 and 4.5.3 there are specific ones affecting CS.

Table 5-1 presents the barriers affecting individuals. The only barrier to change that could clearly belong to the group category is: the '*Not invented here*' syndrome. The organisational barriers are presented in Table 5-2, while the External ones are presented in Table 5-3. In the tables a column is added that refers to attitudes (see Section 4.4). The attitudes are complemented by a systemic label, referring to structures or actions that affect the entire system. The MuSIC memework could be used as a way to illustrate barriers to change.

Table 5-1 Individuals' barriers to change that affect Corporate Sustainability

Level or Aspect	*Barrier to change*	*Author(s)*	*Attitude*
Level 1	Lack of awareness	(C.E.C., 2002; Clarke & Roome, 1999; DeSimone & Popoff, 2000; Doppelt, 2003a; Langer & Schön, 2003; Rosner, 1995)	Informational
	Unwillingness to change	(Lozano, 2006d)	Emotional
	Denial about operations' effects to the environment and societies	(Frankental, 2001)	Emotional
Level 2	Linear thinking	(Doppelt, 2003a)	Informational/ Emotional
	Fear/despair about needed changes and how to deal with them	(DeSimone & Popoff, 2000)	Emotional
	Extra work added to day to day activities	(Lozano, 2006d)	Behavioural

Table 5-2 Organisational barriers to change that affect Corporate Sustainability

	Barrier to change	**Author(s)**	**Attitude**
Managerial	Short-term and discounting perspectives focusing on economic aspects	(DeSimone & Popoff, 2000; K.-H. Robert *et al.*, 2002; Rosner, 1995; Wilenius, 2005)	Informational
	No clear business case	(C.E.C., 2002; Doppelt, 2003a)	Informational
	Narrow focus of Sustainability, *i.e.* confusing it with pollution prevention, recycling, waste management, or eco-efficiency	(Doppelt, 2003a; Dyllick & Hockerts, 2002)	Informational
	Economic assumptions of free goods, *i.e.* goods that are not yet scarce or valued by the market are free	(Rosner, 1995)	Informational/ Emotional
	Linear thinking	(Doppelt, 2003a; K.-H. Robert *et al.*, 2002)	Informational/ Emotional
	Lack of systems thinking	(Doppelt, 2003a; Wilenius, 2005)	Emotional
	Patriarchal thinking and structures	(Doppelt, 2003a)	Emotional
	Lack of rationale and purpose clarity	(Currie-Alder, 1997; Doppelt, 2003a)	Emotional
	Faith on technological solutions	(Rosner, 1995)	Emotional
	Lack of management commitment	(Currie-Alder, 1997; DeSimone & Popoff, 2000)	Emotional
	Lack of motivation of middle- and lower-level staff	(DeSimone & Popoff, 2000)	Emotional
	Faith on market solutions	(Rosner, 1995)	Emotional
	Reticence or fear of transparency and reporting	(Atkinson, 2000; C.E.C., 2002)	Emotional
	Insular thinking and acting	(Litvin, 2003)	Emotional/ Behavioural
	Costs externalisation	(Atkinson, 2000)	Behavioural
	Economic focus that disregards or consider environmental and social aspects as costs	(DeSimone & Popoff, 2000; Dunphy *et al.*, 2003)	Informational/ Emotional/ Behavioural
Org.	Insufficient mechanisms for learning	(Doppelt, 2003a)	Informational

	Lack of trans-disciplinarity	(Lozano, 2006d; Roorda, 2001)	Emotional/ Behavioural
	Failing to alter cultural traits	(Doppelt, 2003a)	Behavioural
	Failure to institutionalise Sustainability, *i.e.* not changing the culture and mental models	(Doppelt, 2003a)	Behavioural
	Organisational structures inhibiting collaboration	(DeSimone & Popoff, 2000)	Systemic
Supportive	Lack of trained employees, *i.e.* universities not yet preparing them in SD and trans-disciplinarity	(C.E.C., 2002)	Informational
	No clear vision of Sustainability that leads to mere compliance with regulations	(Doppelt, 2003a)	Emotional
	Lack of communication	(C.E.C., 2002; Currie-Alder, 1997)	Systemic
	Lack of systems, tools and instruments for operationalisation and implementation	(DeSimone & Popoff, 2000; Langer & Schön, 2003)	Systemic
	Lack of incorporating Sustainability in core policies and procedures	(C.E.C., 2002; Doppelt, 2003b)	Systemic
Historical	Unsuccessful incorporation attempts	(Doppelt, 2003a)	Behavioural

Table 5-3 External barriers that affect Corporate Sustainability

Barrier to change	Author(s)
Pressure from competitors	(Magretta, 2000; Rosner, 1995)
Excessive or impossible to meet regulations and legislations imposed by government	(DeSimone & Popoff, 2000; Magretta, 2000)
Lack of knowledge about impacts to and from suppliers and customers	(DeSimone & Popoff, 2000; Rosner, 1995)
Lack of consumers' interest	(C.E.C., 2002)
Lack of investors' interest	(C.E.C., 2002)
Lack of coherence in public policies and regulations	(C.E.C., 2002)

Engaging and overcoming the barriers to change can help to better incorporate and institutionalise CS. According to DeSimone and Popoff (2000), this is both a radical and incremental process. It is radical because it involves a complete change from the *status quo*; and incremental because it is a step-by-step process, this can be underlined by the idea of '*Tempus fugit sed festina lente*' (Time flies, but make haste slow). The external barriers are better addressed by concerted collaborative actions by governments, financial institutions, businesses, and other parties (DeSimone & Popoff, 2000). Corporations can address the internal ones by changing their attitudes and systems.

In addition to the strategies and approaches used for overcoming the generic barriers to change mentioned in Sections 4.5.1, 4.5.2 and 4.5.3, different authors have proposed specific ones to overcome CS barriers, which tend to be mainly organisational. Table 5-4 shows these following the four internal groups for barriers to change. An additional category is used for a non-social strategy (focused on technology). According to Doppelt (2003a) the strategy with the highest leverage is 'Changes in governance'. Note that 'Using power and authority' may help to incorporate CS but may create a high level of internal resistance (see Section 4.2.1).

Table 5-4 Strategies to overcome CS organisational barriers to change

	Strategy or approach	***Author(s)***	***Attitude***
Managerial	Considering future expectations, *i.e.* internalisation of environmental and social costs	(Rosner, 1995)	Emotional
	Better work-life balance	(C.E.C., 2001)	Behavioural
	Greater work force diversity	(C.E.C., 2001)	Behavioural
	Equal pay for equal jobs	(C.E.C., 2001)	Behavioural
	Profit sharing and share ownership schemes	(C.E.C., 2001)	Behavioural
	Applying know-how	(DeSimone & Popoff, 2000; Lozano, 2006b, 2008a)	Behavioural
	Changes in governance	(Doppelt, 2003a)	Behavioural
	Using power and authority	(Doppelt, 2003a)	Behavioural
Org.	Empowerment of employees	(C.E.C., 2001)	Behavioural
	Collaboration and shared values among individuals, groups and society	(Lozano, 2006a, 2006b, 2007, 2008; Rosner, 1995)	Systemic
	Alignment in all key factors, *e.g.* leadership, vision, attitudes, and the system	(Doppelt, 2003a; Lozano, 2006b, 2008)	Systemic
	Changing attitudes	(DeSimone & Popoff, 2000; Lozano, 2006b, 2008a)	Systemic
Supportive	Life long learning	(C.E.C., 2001)	Informational
	Better information through the company	(C.E.C., 2001)	Informational
	Educated workers	(Hart, 2000a)	Informational
Historical	Job security	(C.E.C., 2001)	Behavioural
Non-social	Improving technology	(DeSimone & Popoff, 2000)	Behavioural

5.6 Corporate Sustainability Institutionalization

Doppelt (2003a) claims that the ultimate success of changes towards CS falls into place when they are incorporated into the everyday operating procedures and culture of the organisation.

Dobes (2003) proposed a model (see Figure 5-1) to help understand Cleaner Production institutionalization. His model focused on organisational transformation, facilitated through the identification of the inter-relations between individual skill improvement and changes in their insights, *i.e.* mental models. Increases in individual skills help transform the skills of the organisation, and changes in individual insights modify the organisational insights. However, the model has the following drawbacks:

1. Changes in the organisations are considered as stemming directly from individuals. This might be accurate in small organisations, but in large ones groups tend to have more pivotal roles;
2. As discussed in Section 4.4, Luthans (2002) explanation of attitudes provides a more complete perspective on attitudes;
3. The concept of skills needs revision to go beyond training into theoretical and empirical learning (see Section 4.4.1);
4. The transfer of skills and insights is considered to be accomplished from the individuals to the organisation, without considering groups (Lozano, 2006b, 2008a).

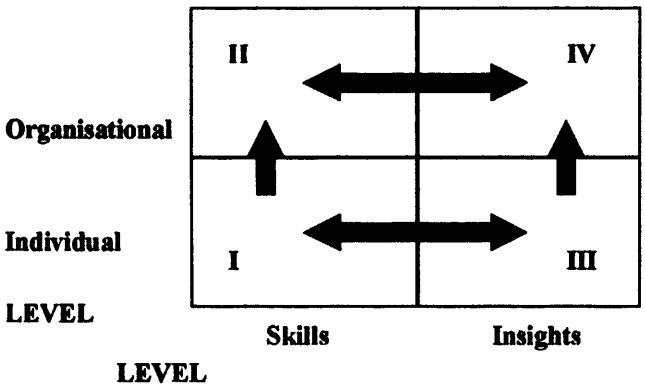

Figure 5-1 Mental models structures flow
Source: (Dobes, 2003)

Such drawbacks have been addressed by the Multi-dimensional Sustainability Influence Change (MuSIC) memework (Lozano, 2006b, 2008a), presented in Figure 5-2. The progress companies and other types of organisation make towards becoming more sustainable will be influenced by the inter-relations among individuals, groups, and the organisation as a whole (as indicated in the WCED (1987) and Agenda 21 (UN, 1992)) and their respective attitudes (Lozano, 2006b, 2008a), as discussed in Sections 4.1 and 4.4. It is also potentially influenced by a range of factors such as learning within the organisation, (Fokkema, Jansen, & Mulder, 2005); systems thinking (Fullan, 2002); change management (Hodge et al., 1999; Schütz, 2000; Zadek, 1999); and attitudinal change efforts (Nguyen Cam, 2004). The MuSIC memework provides a framework that can help to map and understand the process of CS institutionalisation in terms of the inter-relations between different 'levels' of the organisation, and the different types of attitude towards Sustainability. As such it has the potential to help to generate insights into how CS strategies may evolve and progress within organisations, and where efforts to promote learning, change management or attitudinal change might need to be focused.

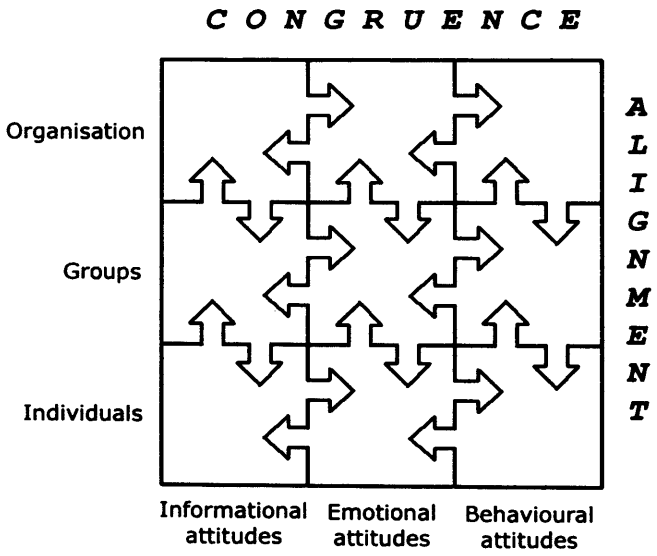

Figure 5-2 MuSIC memework
Source: (Lozano, 2006b, 2008a)

The purposes of the MuSIC memework are: (1) to illustrate the organisation's multi-dimensional inter-relatedness and the implications that decisions and actions taken at

any level can positively or negatively affect individuals at the same or at other levels, and (2) to promote collaborative approaches among individuals, groups, and the organisation in their journey towards Sustainability.

The MuSIC memework is built on two axes. The horizontal axis focusing on the internalisation of Sustainability in passing from a change in informational attitudes, mainly through learning, to emotional attitudes, and to behavioural attitudes (*i.e.* to know what 'sustainable' refers to, to think in sustainable ways, and then to act in sustainable ways). These individual internalisation steps, as in the organisational learning process, are mutually dependent. Informational attitudes are interlinked with emotional ones, and emotional attitudes are interlinked with behavioural ones. An important point to note is that there has to be congruence amongst the three, without which there will be no transformation. Congruence refers to consistency among informational (what is learnt), emotional (what is thought), and behavioural attitudes (what is done). In many cases lack of congruence among the three attitudinal types results in frustration, dissatisfaction, loss of control, and even to sabotage of the Sustainability initiatives (Lozano, 2006b, 2008a)

The vertical axes focus upon the alignment among the different levels (the congruence of each and every attitude within and throughout the system). Without alignment, the efforts may become disconcerted, and as with rowing a boat, however, many and strong the oarsmen are, little progress toward their destination can be made unless they all row in the same direction and with the same rhythm. A lack of alignment can create misunderstandings and even conflicts (Lozano, 2006b, 2008a).

Note that at the group level, two processes come into play: (1) internalisation, congruent changes in the group's informational, emotional, and behavioural attitudes; and (2) inter-relatedness among the group and its individual members, connecting, with the help of alignment, individuals' internalisation with the group's internalisation. Figure 5-2 presents these processes. Collaboration amongst the individual members of the team can help to consolidate this change and make the group a better and stronger champion to help multiply the Sustainability efforts within the organisation (Lozano, 2006b, 2008a).

The squares in the MuSIC memework are used to present a particular dimension (*e.g.* groups' emotional attitudes or individuals' informational attitudes). They do not depict equal size, influence, or power in the organisation. The arrows in the memework represent the different dimensions' relative influences and relations to the others. Congruence and alignment can help to better balance and calibrate the dimensions. Certain individuals or groups have more leverage than others in the organisation through having power perhaps derived from legitimacy, expertise or association; such characteristics can, for that particular individual or group, show bigger arrows towards other individuals, groups and the organisation, along the alignment axis. Less influential individuals or groups would have smaller arrows. In a similar way, certain attitudes could have more leverage on the system than others, along the congruence axis. For example, actions that show positive results may induce more learning and changes in mental models. The MuSIC memework is not designed to address each of the elements, individuals, groups, the organisation, or any of the attitudes, as separated from the group. It is designed to address the entire system, thus the depiction of individuals and groups instead of individual and group (Lozano, 2006b, 2008a).

Change process towards CS becomes most effective when it happens at the same time in the different dimensions of the MuSIC memework, with support of concerted leadership and institutional frameworks.

5.7 Findings

From the literature review on change and on CS it emerged that: **Firstly**, there is currently little or no use of organisational group theory, little or no focus on triple-loop, higher-level, anticipatory, and action learning; little or no consideration to the interactions and synergies throughout the system, and little focus upon collaboration. **Secondly**, there is inadequate explanation on the CS institutionalization, and the focus upon systemic changes, is either addressed upon individuals or the organisation. **Thirdly**, there is a lack of clarity about the barriers to change; the majority of those mentioned refer to emotional attitudes. **Finally**, only a small number of strategies or approaches are offered to overcome the barriers to change, most of which address behavioural attitudes.

5.8 Chapter conclusion

This chapter provides the theoretical framework used for the collection and further analysis of the empirical data. It discusses how although some corporate leaders and staffs are recognising their roles and engaging in voluntary actions to contribute to SD; nonetheless, CS is still little known or is not fully understood by leaders of most corporations. The few corporations that have started addressing it recognise that they have just begun the journey and that most have not even started.

The chapter discusses different organisational efforts that companies have engaged in to pursue Sustainability and make it part of their systems and culture. Such changes require that the entire system (*i.e.* individual, groups, the organisation, as well as values, attitudes, goals and procedures) be addressed. Thus, helping to break from the *status quo* (SQ). When CS is put into practice long enough and increasingly by more individuals, it will become institutionalised, and thus make the *status quo novus* (SQN) more CS oriented, which, in turn, becomes the SQ and the process starts again. Leadership and institutional framework play key roles in this process, by driving CS and maintaining stability during the changes, respectively.

The chapter also discusses resistance to change specific for CS in the form on barriers to change. These barriers need to be recognised and addressed by leadership in order to manage the changes, to utilise strategies to help overcome them, and to reduce the time taken to institutionalise CS.

The strategies and approaches offered are not prescriptive against each of the barriers, rather they must be understood as a 'Toolkit', where the strategies of a particular level are applied to barriers of the same level. No single approach to overcome the barriers will work in all circumstances.

From the discussion in the chapter it is possible to modify Figure 4-10 to create Figure 5-3, which incorporates the perspective of the MuSIC memework on organisational units and their respective attitudes.

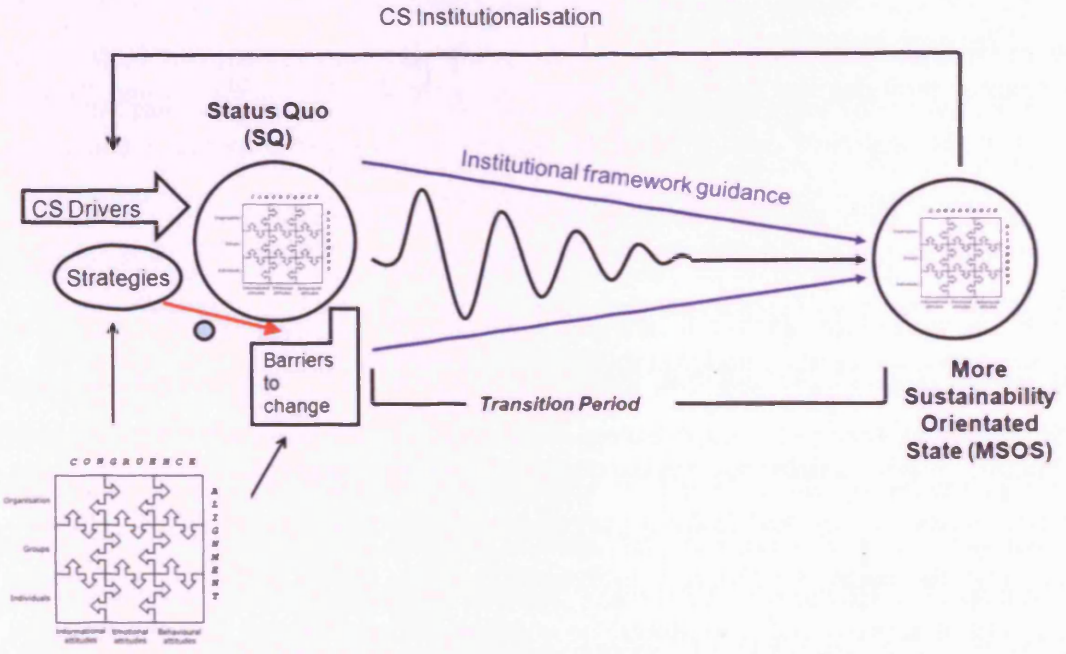

Figure 5-3 Corporate Sustainability organisational change model

6. Methodology

This chapter presents the methodology followed for this thesis. First it offers a brief overview of methodology, followed by this thesis' research questions, the choice of research design to help answer them, the research methods used to collect the empirical data, the methods and tools used to analyse the data, and finally the limitations of the methodology.

Methodology refers to the philosophy of methods (Jupp, 2006; Saunders, Lewis, & Thornhill, 2007), *i.e.* the different perspectives, positions, strategies to collect data, and analysis methods and tools taken and used while doing research. Saunders, Lewis, & Thornhill (2007) proposed a model, called the research 'onion', to aid understanding of possible methodologies. The model presents the different types of research philosophies including the epistemologies (positivism, realism and interpretivism), the ontologies (objectivism, subjectivism and pragmatism), the axiologies (functionalism, interpretivism, radical humanism and radical structuralism), the approaches (deductive and inductive), the strategies or research designs, the time horizons, and the data collection and data analysis strategies.

Figure 6-1 shows the 'onion' highlighting the positions taken for this thesis: a combination of realist and pragmatism philosophies, applied through case studies and Grounded Theory (GT) strategies.

Traditional positivist and interpretivist positions rely on reductionist approaches tend to be limited in their potential to address this thesis' questions and challenges. Realism offers better alternative in this case. It is usually divided into direct (the experiences from the senses portray the world accurately), and critical (the experiences from sensations or images of the real world processed through mental models, not the things directly) (Jupp, 2006; Saunders *et al.*, 2007). This thesis' research is addressed through the latter, since it is better suited to multi-level, change focused, and mental models bound research. Critical realism is complemented by pragmatism, where the most important determinant of the research philosophy is the research questions, and practice making it difficult to choose between positivist or interpretivist philosophies (Saunders *et al.*, 2007).

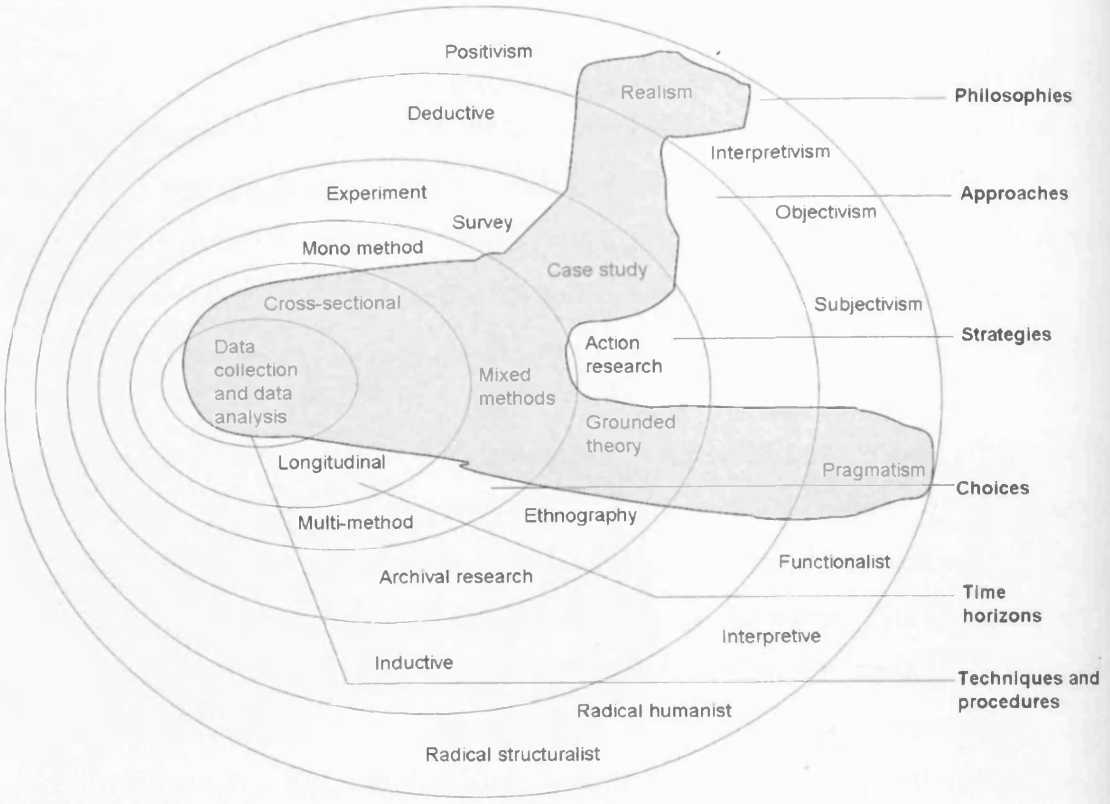

Figure 6-1 The research 'onion'
Source: Saunders *et al.* (2007, p. 132)

Research strategies, also called research designs, provide a framework for collection and analysis of data (Bryman, 2004; Jupp, 2006; Saunders, Lewis, & Thornhill, 2003). They reflect the logic, structure and the principles of the research methodology and methods and how these relate to the questions and hypotheses. Thus, helping to produce valid and credible conclusions that flow logically from the evidence. They also facilitate the generalisation within the broader knowledge disciplines (Jupp, 2006). A research design has five components:

1. "*a study's questions,*
2. *its proposition, if any,*
3. *its unit(s) of analysis,*
4. *the logic linking the data to the propositions, and*
5. *the criteria for interpreting the findings*" (Remenyi, Williams, Money, & Swatz, 2000, p. 45)

In this research, the first four points are addressed in the following section; the last point in Section 6.4.

6.1 Research questions, and unit of analysis

The research questions are a vital component of the research design. They set the type of research design and methodology to be used (Strauss & Corbin, 1998; van Maanen, Dabbs, & Faulkner, 1982). Their nature establishes the methodological approach, where qualitative approaches are used to answer what and why questions, and quantitative approaches for how much (Yin, 1984).

In the literature review different questions emerged. These include, from Section 3.2.3:

- *"Why have so few organisations successfully adopted more sustainable policies or practices?*
- *When they do get launched, why do so many efforts plateau after a short time and fail to ascend to the next level of excellence?*
- *What are the fundamentals of organisational change towards sustainability that lie beneath the scientific and technical information provided by frameworks such as The Natural Step, Zero Waste and Eco-efficiency?"* (Doppelt, 2003a, p.16)

To address the foregoing questions, the findings from the literature review (see Section 5.6), and the recognition that progress towards Sustainability has been slow (Doppelt, 2003a; Dyllick & Hockerts, 2002; Fokkema *et al.*, 2005), this thesis' questions are:

1. What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?
2. What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?
3. For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?
4. What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?

5. Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?

As presented in the literature review (see Chapters 2, 3, and 4, and 5), although there is some pre-existing literature addressing these research questions, it tends to be fragmented and often relatively shallow. Thus, there is a need for a more thorough integration of change management and Corporate Sustainability into a company's culture and throughout its organisational system. This points to a need for both exploratory research (that aims to clarify the understanding of a problem or assess phenomena through a new perspective), and explanatory research (that aims to establish causal relationships between variables) (Saunders *et al.*, 2007) to provide some control and predictability (Strauss & Corbin, 1998). The actual methods used for this thesis are discussed in more detail in Section 6.3.

The unit of analysis chosen for this research is large corporations as self-contained systems. This has a key advantage in that it allows for a focus only on internal respondents as sources of primary data for the case study companies. It also fits with Morgan's (1987) 'Flux and Transformation' metaphor, which was earlier highlighted as the most appropriate metaphorical lens through which to view organizational change processes in pursuit of Sustainability (see Section 2.2.5).This views organisations as closed, autonomous systems of interactions, in which managers create 'contexts' where self-organisation can occur and they use leverage to break from the *status quo.* The metaphor therefore highlights the importance of management leadership and organizational change processes, which are the key focus of this research in the context of CS. A view of organisations as systems of flux and transformation provided a useful guide for the scope of the thesis, in regard to who was interviewed and what questions they were asked

6.2 Choice of research design

The commonly recognised research design types are:

- **Experimental**: Manipulating controllable variables and analysing the results;
- **Survey**: Allowing collection of large amount of data by using a standardised questionnaire;
- **Case study**: Focusing on contemporary real life phenomena;

- **Action research**: Collaborating with practitioners in controlled changes of the organisation;
- **Grounded Theory (GT)**: Developing and building theory from data and observations;
- **Ethnography**: Interpreting the social world by inhabiting in it;
- **Archival research**: Making use of administrative records and documents as the principal source of data; and
- **Comparative**: Comparing behaviours of different units. (Glaser & Strauss, 1999; Jupp, 2006; Saunders *et al.*, 2003, 2007; Strauss & Corbin, 1998; Yin, 1984)

The selection of research design type is established by three conditions and three dimensions presented in Table 6-1.

Table 6-1 Criteria that establish the type of research design to be used

Criteria for research design type	
Conditions (Bryman, 2004)	***Dimensions (Yin, 1984)***
1. The type of research question posed; 2. The extent of control of the investigator over actual behavioural events; and 3. The degree of focus on contemporary or historical events.	• Expressing causal connections between variables; • Generalising behaviour and its meaning in the specific context; • Having a temporal appreciation of social phenomena and their interconnections.

For this research the choice of research design is established by the conditions and dimensions, as follows (the suitability to address the conditions and dimensions of the different types of research design is presented in Table 6-2):

- **Conditions**:
    - *Questions*: As presented in Section 6.1 these are both exploratory and explanatory in nature. The research questions imply that there might be different barriers and approaches to overcome them. These might differ from company to company or industrial sectors;
    - *Investigator control*: Limited access or control on actual behaviour in large corporations;

- *Contemporaneity*: CS, the main topic of the research questions and hypotheses, is of contemporary, practical, real-life, and holistic in nature;

- **Dimensions**:
  - *Causal connections*: The complex nature of CS requires research designs that would allow holistic connections to be seen;
  - *Generalisation*: Creation of theories and strategies that could help large corporations to accelerate the incorporation of CS;
  - *Temporal appreciation*: See contemporaneity above;
- **Other factors**:
  - The regulations at Cardiff University stipulate that doctoral studies have to be completed within four years; and
  - The limited available resources (budget and time) for doing the research.

The choice of research design is given by the suitability of the research type to the conditions and dimensions, as presented in Table 6-2. From which it can be observed that the design that best fits the criteria for this research is case studies. The next one is GT (presented in Section 6.2.2). Combining case studies and GT can offer answers to the research questions through theoretical and empirical perspectives.

6.2.1 Case studies

Case studies are a particular type of research where the researcher chooses one or more particular cases and studies them in depth. They are preferred in examining contemporary events, but when the relevant behaviours cannot be manipulated (Jupp, 2006; Scholz & Tietje, 2002); the historic and authentic dynamics and perspectives of real social or natural systems are considered and the phenomenon cannot be separated from their context (Rothman & Havelock, 1980; Saunders *et al.*, 2007). Their major feature is flexibility (Jupp, 2006), which allows more holistic perspectives than cross-sectional or longitudinal studies, and the possibility of meaningful exploration of real-life events (Saunders *et al.*, 2003). The phenomena explored in this thesis are real, contemporary, dynamic, holistic and difficult to separate from its context, thus case studies have great potential to explore them.

Table 6-2 Suitability of research design types to answer the questions of this research

		Research design types							
		Experimental	***Survey***	***Case Study***	***Action research***	***Grounded theory***	***Ethnography***	***Archival research***	***Comparative***
Conditions	*Exploratory/ explanatory questions*	Not suitable	Not suitable	Suitable	Suitable	Suitable	Suitable	Limited	Suitable
	Limited access and control from the researcher	Not adequate	Adequate	Adequate	Not adequate	Adequate	Adequate	Adequate	Adequate
	Contemporary issues	Adequate	Adequate if access is allowed	Adequate	Adequate if access is allowed	Adequate	Adequate if access is allowed	Not applicable	Limited
Dimensions	*Complex inter-related connections*	Limited	Limited	Adequate	Adequate	Adequate	Adequate	Limited	Limited
	Attempting to generalise from empirical data	Adequate	Adequate	Adequate	Limited	Not adequate	Not adequate	Adequate	Adequate
Other factors	*Limited budget*	Adequate	Adequate	Adequate	Not adequate	Adequate	Not adequate	Adequate	Limited
	4 years for completion	Adequate	Adequate	Adequate	Limited	Adequate	Very limited/ Not adequate	Adequate	Limited

Case studies are considerably useful in answering the 'why' questions (Rothman & Havelock, 1980). They can also be used to establish valid and reliable evidence, analyse it to create a narrative description, and add value to the body of knowledge (Yin, 1984). A well-constructed case study can enable a very worthwhile way of exploring existing theory. It can also enable an existing theory to be challenged (Saunders *et al.*, 2007).

Case studies have been critiqued for their lack of rigor. However, this has been mainly from unprepared or negligent researchers (Corcoran, Walker, & Wals, 2004), presenting only success stories (Dillon & Reid, 2004), or providing limited or no information on the methodology (Jupp, 2006; Yin, 1984). Although case study findings may not allow generalisations for population or universes, they allow for the generation of theoretical propositions (Yin, 1984).

There are four types of case studies:

1. **Holistic single-case**: In this case a single study unit and a single case are studied;
2. **Holistic multiple-case**: For this a single unit in several cases are studied;
3. **Embedded single unit**: In this case multiple units of a single case are studied; and
4. **Embedded multiple-case:** In this case multiple units of multiple cases are studied. (Yin, 1984)

Multiple case studies are generally considered more robust than single case (Rothman & Havelock, 1980; Yin, 1984), but they require extra resources and time needed (Rothman & Havelock, 1980). When using multiple case studies for doctoral degrees the recommended number is 5 to 10 cases (Yin, 1984). It should be noted that "*Each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) produces contrasting results but for predictable reasons (a theoretical replication).*" (Rothman & Havelock, 1980, p. 46)

This research focuses on leadership perspective on organisational changes for CS in large corporations. Holistic multiple-case studies offer the potential to address this, where the unit of study is large corporations. The original ambition in this research

was to achieve five case studies; however, in practice securing access at a relatively high level of organisations to discuss sensitive issues proved to be a daunting challenge. Only three case studies could be accessed, nonetheless, these data obtained provided considerable insights into CS change efforts and its institutionalization.

6.2.1.1 Criteria for the selection of case studies

The case studies for this research were deliberately chosen as recognised leaders in CS to help to recognise organisational planned changes towards it. The criteria used to choose the case studies were:

- A large corporation, preferably with a presence in several countries, with a well defined hierarchy, fluent communication amongst the parent and affiliates, and leadership stability. The different departments and areas in large corporations can provide various disciplinary perspectives on CS, and help data triangulation;
- A market leader within its sector and a consolidated company within a mature industry. This would limit the problems of economic instabilities, *e.g.* threats of bankruptcy or disappearance, that could deviate the company's focus on CS issues;
- Several years of working formally with Sustainability and/or publishing Sustainability reports on a frequent base, such as those based on the GRI Sustainability Guidelines. This guarantees that the company is engaged in CS; and
- Preferably a self-recognised Sustainability leader and/or a member of one of the major CS organisations, *e.g.* the WBCSD or the International Business Leaders Forum (IBLF). This indicates that the company is considered an innovator in relation to CS.

The choice of case studies inevitable introduces some bias and might not be fully representative; nonetheless it has the advantage of knowing and having worked with CS for a considerable amount of time, and having recognised some barriers and strategies to overcome them. This can help create a CS change model that aimed at accelerating CS incorporation and institutionalization in large publicly traded corporations.

Following the selection criteria, over fifteen large corporations were targeted from which only three agreed to participate as case studies. This is slightly less than what Yin (1984) recommends; nonetheless it is better for theoretical replication, triangulation, and results prediction than one or two case studies. Given the potential political sensitivity of the issues being examined by the research it was not surprising that the majority of companies were not willing to be involved. Therefore, persuading three major companies to talk in-depth about such politically sensitive and strategically important set of issues should perhaps be regarded as an achievement rather than a failure.

One of the key issues in selecting the corporations was access to individuals and internal corporate data. Access is recognised by several authors, *e.g.* Jupp (2006) and Saunders *et al.* (2007), to be key challenges to research. Three gatekeepers facilitated company access: Mark P. Chatelain, Eugenio Clariond, and Mario Huerta.

Table 6-3 presents the corporations selected to be case studies while Table 6-4 shows the details of the sources consulted for the secondary data from each.

Table 6-3 Corporations selected to be case studies

Name of the company	***Grupo IMSA***	***Johnson Controls Inc. (JCI)***	***Industrias Peñoles***
Location	Monterrey, Mexico	Wisconsin, U.S.A.	Mexico City, Mexico
Industry	Metals	Manufacturing and Metals	Mining
Main products	Steel	Automotive systems, building controls, and car batteries.	Non-ferrous metals and chemicals
Year of foundation	1936	1883	1887
Years formally engaged in Sustainability	6	10	7
First Sustainability report	*	2003	2003**
Corporate Sustainability organisation they are member of	WBCSD, and CESPEDES (Mexican Chapter of WBCSD)	Business Roundtable/Climate RESOLVE; Corporate Environmental Enforcement Council (CEEC)	CESPEDES

* The company does not publish Sustainability reports

** The company published its first Environmental report in 2001, but in 2003 changed the title to Sustainability report

Table 6-4 Details of the sources consulted for the collection of secondary information from the case studies

Case study	*Number and description of sources*
Grupo IMSA	2 Annual Financial Reports (Grupo IMSA, 2004, 2005) 1 webpage (Grupo IMSA, 2007)
Johnson Controls Inc. (JCI)	3 Sustainability Reports (JCI, 2004, 2005b, 2006j) 10 webpages (JCI, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g, 2006h, 2006i, 2007) 2 forms (JCI, 2005c, 2006k) 1 Annual Financial Report (JCI, 2005a)
Industrias Peñoles	8 annual Financial Reports (Peñoles, 1998, 1999, 2000, 2001b, 2002a, 2003b, 2004a, 2006a) 6 Sustainability Reports (Peñoles, 2001a, 2002b, 2003a, 2004b, 2005, 2006b) 1 webpage (Peñoles, 2007)

6.2.2 Grounded Theory (GT)

GT was developed as a response to the neglect of theory discovery (Glaser & Strauss, 1999), the concerns over the predominance of quantitative methods in social sciences, and the tendency to test existing grand theories (Jupp, 2006). GT refers to the strategy that emphasises developing and building theory from data and observations (Glaser & Strauss, 1999; Jupp, 2006; Saunders *et al.*, 2007; Strauss & Corbin, 1998). It aims to close the gap between theory and empirical research (Glaser & Strauss, 1999).

According to Glaser & Strauss (1999), GT is based on generating conceptual categories or their properties from evidence by comparative analysis. The evidence is then used to illustrate the generated concept. Using the constant comparative method makes probable the achievement of a complex theory that corresponds closely to the data. It has four stages: (1) comparing incidents applicable to each category, (2) integrating categories and their properties, (3) delimiting the theory, and (4) writing the theory.

Two types of theory can be generated: (1) substantive, developed for a substantive or empirical area of inquiry, and (2) formal, developed for a formal or conceptual area of inquiry (Glaser & Strauss, 1999). The latter is more appropriate for the objectives and research questions of this thesis.

GT has split into two streams: (1) the Straussian approach based on selective coding, *i.e.* reducing the concepts into core categories (Corbin & Strauss, 1990; Strauss, 1995; Strauss & Corbin, 1998), which tends to be fragmentative; and (2) the classic, or Glaserian, approach, which takes a broader view by integrating systematically generated conceptual hypotheses to produce an inductive theory (Glaser, 1998, 2002, 2004). The latter is better suited to address the holistic nature of CS.

Some of the objections to GT include: the danger that an approach that is described as GT will simply become a form of data analysis, with no real theoretical content, and the assumption that the researcher approaches the topic without any preconceived conceptual frameworks and that the framework is formed entirely by the data (Jupp, 2006). These critiques do not consider that the researcher's perspective shapes the inquiry by using the constant comparative analysis (Glaser, 2004; Glaser & Strauss, 1999). Jupp (2006) complements this by stating that data should be used to guide theorising but not to place limits on it. Saunders *et al.* (2007) caution that GT is time consuming, intensive and reflective.

For this thesis, GT was useful in the conceptualisation and integration of complex and inter-related CS issues. It allowed creating categories from the literature, case studies and non-case study interviewees. These were separated into categories, which were continuously improved as the research evolved. GT was also useful to propose new theories, as presented in Section 10.2.

6.3 Research methods

Once the choice of research design type is made, case studies and GT for this research, it is necessary to focus on data collection or the research method. According to Checkland (1999) a research method is a technique for collecting data.

Two broad types of methods can be found: quantitative and qualitative. The former is usually associated with the positivist tradition. The data collected tend to be accepted as they stand, and as valid measures of the variables they purport to indicate. The latter is often based upon interpretivism, constructivism and inductivism (Jupp, 2006). Qualitative methods are better suited to explore substantive areas about which little is

known or about which much is known to gain novel understanding (Strauss & Corbin, 1998; Yin, 1984), as in the case of this research.

The choice of methods to address the components is given by four major conditions (1) the research questions, (2) time, (3), skill of the investigator, and (4) costs (Scholz, Lang, Wiek, Walter, & Stauffacher, 2006). On the last point, Strauss & Corbin (1998) indicate that the researcher's own preference, familiarity, and ease with a research mode inevitably will also influence choices.

The research methods help to gather data (theoretical and empirical) to address the research topics (van Maanen *et al.*, 1982). The theoretical aspects are reviewed in Chapters 2, 2.1 and 4, where some of the disciplines used include change theory, CSR, Sustainability, innovation theory, organisational behaviour; organisational development, and strategic management.

This thesis' empirical data was collected through secondary and primary data sources. Secondary data was obtained from internal and external corporate reports (*e.g.* financial, environmental, and Sustainability Reports). The information obtained from these can be divided into:

1. **General information:** history, products, markets, and locations; and
2. **Sustainability related information**: the efforts taken by the company to incorporate, institutionalise, assess, and share their achievements.

Reports communicate the corporations' efforts at CS to their stakeholders. However, they suffer from different drawbacks, *e.g.* not showing organisational or change processes, being compartmentalised, tending to be PR biased, and not integrating the long-term, as discussed in Section 3.2.2. This can be solved by also collecting primary data, for which a method needs to be chosen.

The research method for this thesis was chosen to best suit the research conditions. In the case of this research these were: the questions and their nature (see Section 6.1); the time prescribed by the PhD regulations of Cardiff University; the researcher's skills; the limited extent of control that the researcher could exercise *in situ*; and the contemporaneity of the events. The exploratory and explanatory nature of the research

questions is best addressed through qualitative research methods. Qualitative research methods focus on human understanding and behaviour, *i.e.* the what, of a phenomenon or phenomena (Saunders *et al.*, 2003).

Table 6-5 Comparison of interviews and observation advantages and disadvantages

	Interviews	***Observation***
Time needed	Low	High
Resources needed	Relatively low	High
Contact with study subjects	High	Variable, generally lower than in interviews
Valuable insights	Medium	High

Sources: Adapted from (Jupp, 2006; Saunders *et al.*, 2003, 2007)

The different qualitative methods to help collect the data to answer the research questions, *e.g.* interviews and observation (Jupp, 2006; Saunders *et al.*, 2007), have their advantages and disadvantages. For this research interviews offer the optimal balance between the potential valuable insights, and the resources and time needed, as shown in Table 6-5.

6.3.1 Interviews

Interviews refer to close communication between two, or more, individuals. Interviews can help to gather valid and reliable information relevant to the research questions and objectives (Saunders *et al.*, 2003). In comparison to other types of qualitative methodology, such as observation, they allow the researcher to put direct questions to the interviewee thus providing in-depth understanding of concepts (Jupp, 2006). They also require less time to be spent in the organisation (Saunders *et al.*, 2007). According to Jupp (2006), interviews enable the interviewer to follow up and probe responses, motives and feelings and their potential added value is that the recording of nonverbal communications, facial expressions and gestures, for example, can enrich the qualitative aspects of the data. Data collection and recording in interviews can be done through note-taking, electronic recording (Saunders *et al.*, 2003).

Within qualitative research there are two types of interviews: (1) unstructured interviews, or in-depth interviews, and (2) semi-structured. The former are generally

used for exploratory purposes, while the latter for both exploratory and explanatory purposes (Saunders *et al.*, 2003). A third interview category, structured interviews, is used for descriptive purposes, to help identify and describe the variability in different phenomena (van Maanen *et al.*, 1982), mainly in quantitative methodologies (Oppenheimer, 2003). Qualitative interviews usually have a higher response rate than quantitative ones (Saunders *et al.*, 2003). Table 6-6 shows the uses of interview types for the main research categories.

Table 6-6 Uses of different types of interview in each of the main research categories

	Exploratory	***Descriptive***	***Explanatory***
Structured		More frequent	Less frequent
Semi-structured	Less frequent		More frequent
Unstructured	More frequent		

Source: (Saunders *et al.*, 2007)

Unstructured interviews tend to be informal (Saunders *et al.*, 2003). Totally informal interviews do not truly exist since the researcher must, at least, have some idea of the research topic. The degree of freedom in the responses of unstructured interviews complicates their comparison. Unstructured interviews can produce rich grounded data but can be very time-consuming to analyse and the potential bias of the interviewer might be increased (Jupp, 2006).

Semi-structured interviews refer to those where the researcher uses a predetermined set of questions and topics (Bryman, 2004). In semi-structured interviews the researcher has a list of fairly specific topics, which serve as a guide, to be covered but the interviewee is allowed much flexibility in her/his responses. They usually have a high response rate, between 50 to 70% (Saunders *et al.*, 2003). The standardisation of semi-structured interviews allows comparison and triangulation of the information collected from the interviewees (Scholz *et al.*, 2006). They can also be used longitudinally, by applying a new questionnaire some time later so that the researcher can observe if there has been a change. The strengths and weaknesses of semi-structured interviews are presented in Table 6-7.

Table 6-7 Semi-structured interviews strengths and weaknesses

Strengths	• Structured yet open to flexibility • High response rate • Possibility of triangulation by comparing data from different interviewees • Potential for coverage of several topics and amounts of data • Relatively short time to gather information • Relatively low resources needed • Potential to gather valuable insights
Weaknesses	• Potential problems with access to the interviewees • Interviewees co-operation • Skill of the interviewer • Constrained by confidentiality issues • Interviewer and interviewee bias, including cultural differences • Transcription, in the case of recorded interviews

Sources: Adapted from (Jupp, 2006; Saunders *et al.*, 2003, 2007; Scholz *et al.*, 2006)

Among the three types of interviews semi-structured ones offered the possibility to address exploratory and explanatory research, as in the case of this thesis. They also offer the best balance of possible valuable insights, resources and time needed to collect data to help answer this thesis' research questions. This thesis author's previous interviewing experiences helped reduced the limitation of interviewer's skill.

6.3.2 Interview design and application

The interview questions can be based on concepts derived from literature, experience, or preliminary fieldwork (Strauss & Corbin, 1998). The approach used to develop the semi-structured interviews in this thesis combined concepts from the literature (see Chapters 2, 3, and 4), the theoretical framework (Chapter 5), and this thesis author's experiences, see Lozano-Ros (2003). The semi-structured interview used is presented in Appendix A. I. The interview was translated into Spanish to be applied to the Mexican companies (see Appendix A. V). A slightly modified version was used for experts from NGOs and academia. The interviews ranged between 30 and 90 minutes. Table 6-8 presents a brief summary of the questions and their intended purpose.

Table 6-8 Summary of interviews' questions, key themes and their intended purpose

Question(s)	*Summary of key themes*	*Intended purpose*
1-2	Interviewee name and background in the company	Make the interviewee feel comfortable, and gather general information
3	Understanding of SD* and concept used in the company	Clarify what CS means to the interviewee, within the company, and the terminology used
4-5	SD evolution, current role and communication in the company	Identify the company's efforts towards CS
6-7	SD institutionalization and how to accelerate it	Discuss the time and how the company has institutionalised CS, or how long would it take
8-10	SD drivers, barriers to change, and strategies to overcome them	Identify the main drivers, barriers to change and how these have been overcome in the company
11	Role of SD in the company's institutional framework	Examine the role of the company's institutional framework on changes towards CS
12	Involvement of company's areas and people in CS issues	Identify the areas or people who are most and least involved with CS and why
13	Advantages and disadvantages of top-down or bottom-up approach for SD	Obtain the interviewee's perceptions on different managerial approaches to incorporate and institutionalise CS
14	SD responsibility	Examine the role of leadership and champions in the CS change efforts
15	Interviewee's position relation to SD	Clarify and link the interviewee's position to CS
16	Taking SD forward if the interviewee was CEO	Make the interviewee think what else could be done to take CS forward if she/he would be CEO

* SD was used as a generic concept. From Question 3 on it was substituted to the company's own terminology to avoid misunderstandings. In the intended purpose it is stated as CS.

The interviews involved (1) company employees from the **case studies**, mainly top-level executives, see Tables 6-9, 6-10, and 6-11 and; (2) **non-case study** experts on CS from corporations, see Table 6-12, academia and NGOs, see Table 6-13. Three in-company gatekeepers facilitated the contact with the other company interviewees, Mark P. Chatelain, Eugenio Clariond and Mario Huerta. The other interviewees were identified as key actors in the CS movement through their participation in international workshops and conferences. They were contacted and formally invited to

participate by e-mail. Nonetheless, one of the main constraints on the number of people interviewed was accessibility.

The case study interviewees and non-case study interviewees' insights allowed multiple perspectives and triangulation on CS. Following GT's constant comparative analysis, these were used to build and inform the theories proposed in this thesis.

Most of the interviews were done face-to-face, digitally recorded and backed up by note taking.

Table 6-9 Details of Grupo IMSA interviewees

Name	*Position*	*Time in company*	*Time in position*	*Position's relation to CS*	*Interview transcription appendix number*
Ruben Rodriguez	Human Resources (HR) Director	9 years	6 years	Facilitate human processes and administration, and promote the company's culture	A. Iii
Eugenio Clariond	President and CEO	44 years	3 years (president) 22 years (CEO)	Drive CS throughout the company	A. Ii

Table 6-10 Details of Johnson Controls Inc. (JCI) interviewees

Name	*Position*	*Interview transcription appendix number*
Rebecca Andrew	Senior ESH/ Sustainability Advisor	A. Ili*
Mark P. Chatelain	Manager, Blue Sky Program	
Jeff Werwie	Director Environmental Control	

* Note that this interview took place after the three JCI representative made presentations about their efforts, thus some of the questions were not transcribed since they can be found in the PowerPoint presentations

Table 6-11 Details of Peñoles interviewees

Name	*Position*	*Time in company*	*Time in position*	*Position's relation to CS*	*Interview transcription appendix number*
Mario Arrellin	Executive Vice President Finance, Planning & IT	15 years	7 years	Make sure that CS is incorporated and explicit in the strategic plan, that it can be evaluated and followed up; and make sure that the resources are available to fulfil the objective	A. Ii
Mario Huerta	Corporate Manager of Environmental Planning and Development	5 years	5 years	Identifying trends in the mineral and metallurgic industries	A. Iiii
Octavio Alvidrez	Executive Vice President Exploration, Engineering and Construction	9 years	33 years	Supporting people in regards to SD, and participating in events	A. Ii
Rafael Rebollado	HR director	7 years	6 month	Making the report available, and social development within the company	A. Iiv

Table 6-12 List of corporate experts interviewed*

Company or organisation	*Name of person interviewed*	*Position in the company or organisation*	*Interview transcription appendix number*
DuPont Chemicals	Dawn Rittenhouse	Director of SD	A. Ii
Royal Dutch/Shell	Mark Wade	Principal consultant leadership director	A. Ivi
Rio Tinto	Michael Tost	SD advisor	A. Iv
Dow Chemicals	Scott Noesen	Director of SD	A. Ivi

* The opinions of the interviewees are personal and may not represent the opinion of their company.

Table 6-13 List of academic and NGOs experts interviewed*

Company or organisation	*Name of person interviewed*	*Position in the company or organisation*	*Interview transcription appendix number*
WBCSD	Marcel Engel	Regional Network Director	A. Ii
Global Reporting Initiative	Sandra Vijn	Research Coordinator	A. Ivi
Cambridge Programme for Industry	Sheila von Rimscha	Senior Associate	A. Iiii

* The opinions of the interviewees are personal and may not represent the opinion of their organisation.

6.4 Data analysis

Glaser & Strauss (1999) propose four general approaches to help analyse qualitative data using GT. The first is when the analyst converts qualitative data into crudely quantifiable forms so that a hypothesis can be provisionally tested. In this method the data is coded first and then analysed.

The second is when the analyst wishes only to generate theoretical ideas, new categories and their properties, hypotheses and interrelated hypotheses. These cannot be confined to the practice of coding first and then analyzing the data. The theoretical notions are being constantly redesigned and reintegrated as the material is reviewed.

The third, known as the constant comparative method, is when the analyst jointly codes and analyses in order to generate theory more systematically than allowed by the previous approach. For this explicit coding and analytic procedures are used.

The fourth, known as Analytic induction, combines the first and second approaches in a different manner to the constant comparative method. This method is concerned with generating and providing an integrated, limited, precise, universally applicable theory of causes accounting for a specific behaviour.

This research uses the constant comparative analysis, which helps to identify, develop, and relate the concepts that make the building blocks of theory more systematic and creative (Strauss & Corbin, 1998). Constant comparative analysis is an iterative process with four stages:

1. Comparing incidents applicable to each category, *i.e.* classifying the data into meaningful categories which may be derived from the data, theoretical framework, or the researchers' readings, life experiences, research, and scholarship;
2. Integrating categories and their properties. This can be done with the help of a Computer Aided Qualitative Analysis Data Software (CAQDAS);
3. Delimiting the theory by reorganising relationships and developing new categories; and

4. Writing the theory, which could then be taken forward by developing or testing new hypotheses or theories. (Corbin & Strauss, 1990; Glaser & Strauss, 1999; Saunders *et al.*, 2007; Strauss & Corbin, 1998)

The constant comparative analysis is based on continuously improving the categories being created from the data during the analysis process. For this process the CAQDAS NVivo versions 2.0 and 7.0 (QSR, 2002a, 2002b, 2006) were used. NVivo is recognised to help to support the various processes and strategies to construct arguments from the literature or primary data (di Gregorio, 2000).

For this research, the categories were created from the literature, the case studies, and non-case study experts' interviews. NVivo provided an indispensable tool to help manage large amounts of information and create the categories or nodes (see Appendix A. VI) from the literature, the corporate reports, and the interviews. It also helped to detect the inter-connections between categories. Detecting nodes' synergies was a critical part of the analysis, since many of the issues inter-relate.

The barriers to change and the strategies to overcome them were illustrated with the help of the MuSIC memework[19] (Lozano, 2006b, 2008a), see Figure 6-2. For more details refer to Sections 5.5 and 5.6 .

The MuSIC memeworks of the barriers to change and the strategies to overcome them were created using a relative percentage of each case study and the non-case study interviewees, in respect to the total barriers to change identified and collected from the literature, during the case studies, and non-case study interviews for each organisational level and their attitudes (see Tables 10-5, 10-6, and 10-7) and strategies (Tables 10-9, 10-10, and 10-11)[20]. The relative percentage helps to assess the corporation's awareness and recognition of barriers to change and strategies to

[19] The use of the MuSIC memework to analyse barriers to change and strategies to overcome them is still in its early stages. Further application and testing is required to increase its validity and reliability.

[20] The decision to use the total collection of identified barriers and strategies from the literature review, the case studies, and non-case study interviewees was made to avoid grading against incomplete lists, since new barriers and strategies were identified in each case study and during the non-case study interviews.

overcome them, as well as to compare the concordance between them. The lists of all the barriers and strategies to overcome them are presented in Section 10.2.4, while the total amounts of barriers to change and strategies are presented in Table 6-14 and 6-15, respectively[21]. For a discussion on the comparison between Tables 6-14 and 6-15 refer to Section 10.2.4.

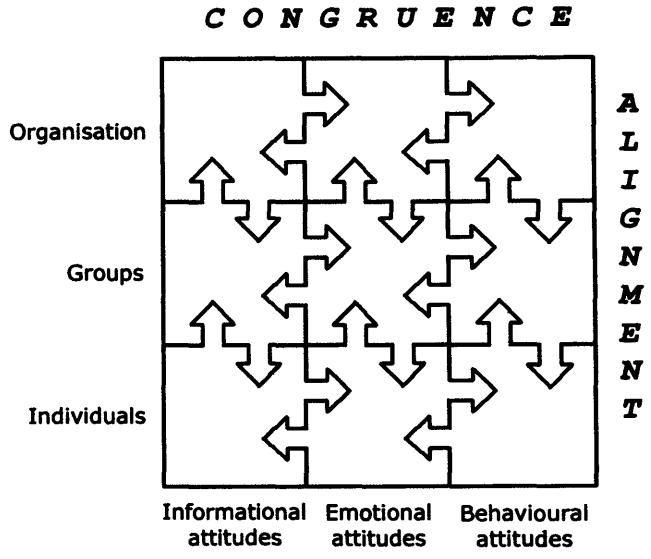

Figure 6-2 Multi-dimensional Sustainability Influence Change (MuSIC) memework
Source: (Lozano, 2006b, 2008a)

The barriers to change and strategies are grouped according to:

- **Non-existent:** No barriers or strategies are recognised, *i.e.* 0%;
- **Very low:** A limited number of barriers or strategies are recognised, *i.e.* between 0% and 20% (inclusive);
- **Low**: Between a quarter and two-quarters of the barriers or strategies are recognised, *i.e.* between 20% and 40% (inclusive);

[21] The aim is to collect the maximum number of barriers to change and strategies to overcome them. However, , this method of analysis must be used with caution when applien in other contexts and cases, in the case some barriers and strategies might not have been found

- **Medium**: About half of the barriers or strategies are recognised, *i.e.* between 40% and 60% (inclusive);
- **High**: Most of the barriers or strategies are recognised, *i.e.* between 60% and 80% (inclusive); and
- **Very high**: Practically all the barriers or strategies are recognised, *i.e.* more than 80%.

Table 6-14 Total numbers of barriers to change collected from the literature review, case studies, and non-case study interviews[22]

	Attitudes			
System levels	***Informational***	***Emotional***	***Behavioural***	***Systemic***
Individuals	7	25	18	
Groups	0	1	4	
Organisation	19	22	27	16

Table 6-15 Total numbers of strategies to overcome barriers to change collected from the literature review, case studies, and non-case study interviews

	Attitudes			
System levels	***Informational***	***Emotional***	***Behavioural***	***Systemic***
Individuals	7	6	15	
Groups	1	1	3	
Organisation	5	8	40	10

The MuSIC memework could be useful for leaders and change agents to better recognise the barriers to change that could appear and apply appropriate strategies to overcome them. The recognition of a barrier or strategy does not necessarily indicate or reflect its importance. The hypothetical example shown in Figure 6-3 shows this. In the examples the following percentages are recognised: more than 80% of the organisational behavioural attitudes; between 60% and 80% of the group behavioural attitudes; between 40% and 60% of the individual behavioural attitudes; between 20% and 40% of the individual emotional attitudes; and more than 0% but less than 20% of the group emotional attitudes. The rest are not recognised.

[22] A new category has been added to the MuSIC memework, systemic, which represents attitudes that affect the entire system, see Section 5.5.

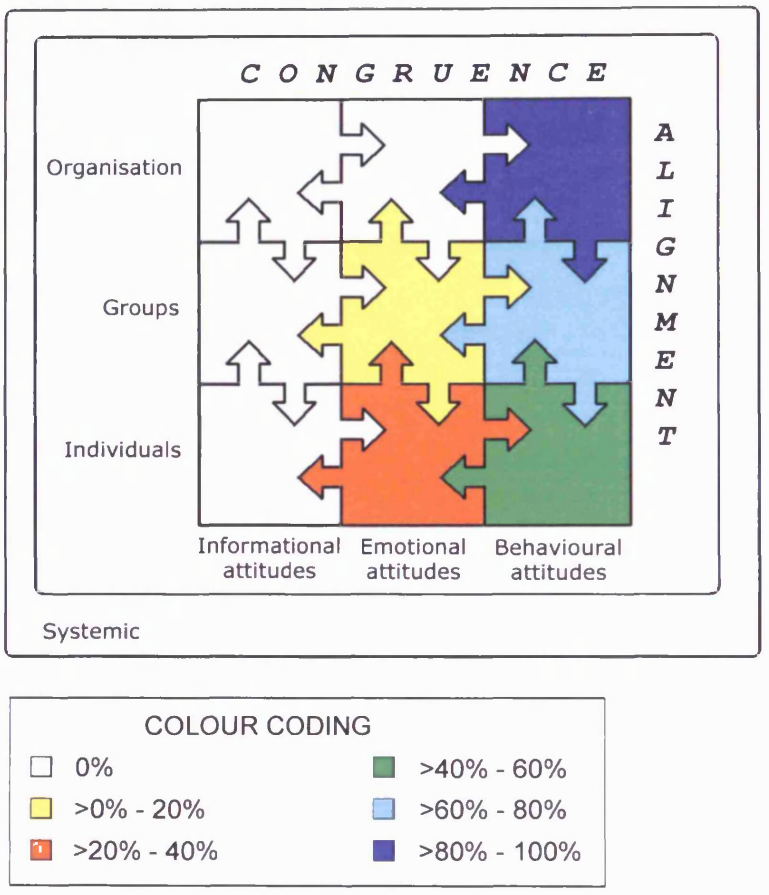

Figure 6-3 MuSIC memework example of barriers to change relative percentages

During the constant comparative analysis, it was observed that the MuSIC memework presented the potential to illustrate the CS meme transfer within the case studies. An example is offered in Figure 6-4, where it can be observed that CS started from the emotional attitudes of leadership, being then transferred to individuals' informational and behavioural attitudes, then to groups behavioural ones, and finally to the organisation's behavioural ones. Additionally, the MuSIC memework can help to graphically represent which parts of the corporation's system and attitudes are involved in CS and those that still need to be engaged.

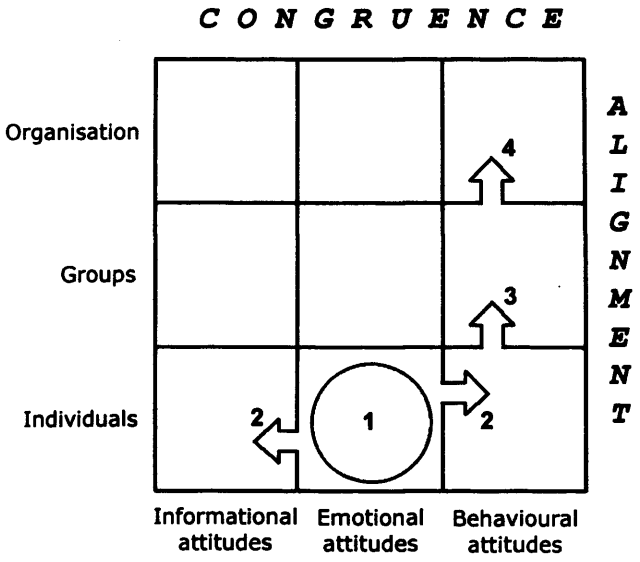

Figure 6-4 Example of Corporate Sustainability meme transfer

6.5 Limitations of the methodology

Operational issues, validity, generalisation, and reliability limit any methodology. The operational issues for this thesis include: limited access to the interviewees and companies; only three companies agreeing to participate, which may lead to replication problems in other companies; limited resources and time available to complete the research; and the nature of CS, where different concepts and issues had to be addressed in detail and integrated, while losing perspective of the overall research structure and context.

Validity is concerned with whether the findings are really about what they appear to be about (Jupp, 2006; Saunders *et al.*, 2007). The major threats to validity are: history, testing, instrumentation, mortality, maturation, and ambiguity about causal direction (Saunders *et al.*, 2007). The criteria used for selecting the case studies (see Section 6.2.1.1) helped to reduce the threats of history, mortality, and maturation. Using a semi-structured interview reduced the instrumentation one. The selection of the case studies could affect the generalizability of the results, since the insights generated by studying companies that have successfully engaged with CS may be of limited value when considering companies that have not. These insights may however offer the possibility of helping such companies to recognise the potential drivers of, and

barriers to change, and the strategies that could be employed to overcome the barriers. Some drivers, barriers, and strategies might be understood by companies that have not yet proactively engaged with CS, but this might be a result of reactively solving a specific problem, rather than engaging in planned organisational change to become more CS orientated.

Ambiguity about causal direction is based on cause-effect (Saunders *et al.*, 2007). This is not applicable to this thesis, since CS is a complex problem. A weakness in the validity of the data analysis is that in having a category like groups' emotional barriers, where just one barrier was identified, a company can go from 'non-existent' recognition of barriers, to 'very high' recognition of barriers in this category.

Although the memework was designed to help model interactions within a single company, its representation of CS barriers to change and the strategies to overcome them from the non-case study interviewees' responses (Section 8.6) may not be valid for an organisation. Nonetheless, it was useful to illustrate the identification of barriers to change and strategies to overcome them, and to detect discrepancy between them.

Generalisation, or external validity, involves asking whether the conclusions drawn from a particular study can be generalised to other people and other contexts (Jupp, 2006; Saunders *et al.*, 2007). For this thesis this is limited by: the engineering nature of the companies, which may make generalisation difficult to other industrial sectors; the size of the corporations, *i.e.* large, which may not apply to SMEs; and the nature of GT, which is based on data and context.

According to Saunders *et al.* (2007), reliability refers to the extent to which the data collection techniques or analysis procedures yield consistent findings. The threats to reliability are: subject or participant error, subject or participant bias, observer error, and observer bias. Reliability for this research may be affected by:

- **Subject or participant error**: For example, the busy schedule of some of the interviewees, which may not allowed to expand upon some of the interview's questions;

- **Subject or participant bias**: There is always the possibility that the interviewees would have provided answers that were guided by the semi-structured interview, or by the attitudes of the interviewer. The involvement of the subjects in CS in their companies or organisation, may have skewed the answers towards the importance of CS. Additionally, the subjects being part of the top-level of the company might have resulted in a bias towards top-down approaches, over bottom-up, and the recognition of leadership as the main CS driver;
- **Observer error:** This was lessened by the use of semi-structured interviews applied only by the author. However, there is the possibility of cultural differences that may have affected the research, especially during the interviews translation and interpretation. Additionally, CS being an important topic for the observer may have biased some responses;
- **Observer bias**: The shared concern of this thesis author and the interviewees to CS and SD issues. Additionally, this thesis author's experience of the topic created a bias when analysing the responses of the interviewees.

The methods chosen will introduce limitations. The results might not be entirely generalisable, particularly from the company respondents. However, they provide rich insights into their experiences, which could then be relevant to other situations and contexts.

6.6 Chapter conclusion

This chapter presented the methodology followed for the collection and analysis of this thesis' empirical data.

This thesis follows a combination of critical realism and pragmatism, which allows research on multiple levels, and that can be focused on change. Traditional positivist and interpretivist positions rely on reductionist approaches that tend to be limited in their potential to address this thesis' questions and challenges.

The chapter presented the thesis' research questions, which are focused on companies' organisational efforts for CS. As presented in the literature review (see Chapters 2, 3, and 4, and 5), although there is some pre-existing literature addressing

these research questions, it tends to be fragmented and often relatively shallow. This pointed to a need for both exploratory research, and explanatory research.

The research designs used in this thesis were: case studies, which helped in exploring the organisational changes taken by three companies that have been engaged in CS for some time; and GT, which was useful in the conceptualisation and integration of complex and inter-related CS issues.

This research used the constant comparative analysis, which helps to identify, develop, and relate the concepts that make the building blocks of theory more systematic and creative. The constant comparative analysis is based on continuously improving the categories being created from the data during the analysis process. For this research, the categories were created from the literature, the case studies, and non-case study experts' interviews.

The barriers to change and the strategies to overcome them were illustrated with the help of the MuSIC memework. The MuSIC memeworks of the barriers to change and the strategies to overcome them were created using a relative percentage of each case study and the non-case study interviewees, in respect to the total barriers to change identified and collected from the literature, during the case studies, and non-case study interviews for each organisational level and their attitudes (see Tables 10-5, 10-6, and 10-7) and strategies (Tables 10-9, 10-10, and 10-11).

During the constant comparative analysis, it was observed that the MuSIC memework offered the potential to illustrate the CS meme transfer within the case studies.

7. Case studies

This chapter presents the case studies and the insights derived form them. Each case study is related to the relevant elements of the literature review (in Chapters 2, 3, and 4) whenever pertinent; and the analysis of the evidence follows the theoretical framework presented in Chapter 5, and the methodology (Chapter 6).

To maintain consistency, the term CS is used during the discussion, although the interviewees used different terminologies to refer to it, such as SD, and Sustainability.

7.1 Grupo IMSA

Grupo IMSA was founded in 1936. The company's stock is traded on the Mexican Stock Market (for financial details see Appendix A. Ii), and is controlled by a minority shareholding. It has its HQ in Monterrey, Mexico, and has manufacturing and distributions operations in Mexico, U.S.A., Europe, and Central and South America. It is divided into three major groups: (1) processed steel, (2) steel and plastic products for construction, and (3) aluminium products. In 2005 its income was over 3.6 billion dollars, 50% of the income was generated outside of Mexico. (Grupo IMSA, 2004, 2005, 2007). In 2005 the company had 12,010 employees (Grupo IMSA, 2005).

7.1.1 Findings from Grupo IMSA secondary sources

Three secondary sources were analysed to identify the efforts taken by Grupo IMSA to contribute to CS. The sources were: 2 Annual Financial Reports (Grupo IMSA, 2004, 2005), and 1 webpage (Grupo IMSA, 2007). The company does not publish Sustainability Reports, but provides a section in the annual reports dedicated to CS.

A summary of the findings of CS efforts from the reports is presented next (for more details consult Appendix A. VII). The reports provide detailed information about economic issues, such as market, customers, and earnings. In general the efforts towards environmental concerns are framed by eco-efficiency, such as reductions in energy consumption (Grupo IMSA, 2004, 2005), and Wastewater treatment, and the

pursuit of environmental certifications, such as ISO 14001 and the 'Clean Industry' certificate from the Mexican Environmental Agency; and the business unit in Guatemala was re-certified by the Industrial Camera of Guatemala as a 'Clean and Competitive Company', a certification that has held since 2001 (Grupo IMSA, 2004). In 2000, Grupo IMSA established the Administration Model for Quality-Focus, which has facilitated the incorporation of Six Sigma concepts, as well as synergies among business units. Other activities are related to internal stakeholders include social, cultural, and sports activities in the company's recreational club. The company and several employees participate in civil associations and NGO programmes directed at e enhancing the cultural and social well-being of communities. (Grupo IMSA, 2004).

Although the reports provide some information about the company's CS efforts, their inclusion as a part of the company's annual financial reports could imply that Sustainability is an add-on to the company's economic enterprise, and not that the economic is also an integral part of Sustainability.

As discussed in Section 3.2.2, reports do not usually present change efforts to incorporate and institutionalise CS. The interviews helped to bring these to light. The Grupo IMSA interviewees included Eugenio Clariond, who was President (for the previous 3 years) and also CEO of the company (for the previous 22 years), and had worked for the company for 44 years; and Ruben Rodriguez, who was the Director of Human Resources (for the previous 6 years) and had been with the company for the previous 9 years.

7.1.2 Conception of CS, its role within the company, and its evolution

To probe how the interviewees conceive CS they were asked how and where non-economic factors are considered in relation to company responsibilities, strategies and performance. Their responses (which are provided in full under Question 3 in Appendices A. Ii and A. Iii) indicate that CS, including environmental and social aspects, is being considered in operational functions, for their political consequences, as part of the process of making it part of their objectives, and increasingly as part of the culture.

The role of CS is considered to be vital in the company, where "*leadership has taken SD as the base for defining long-term objectives, in operations and in business strategies*" (Clariond). Rodriguez mentioned, "*SD is an economic effort, not only philosophical or a vision*". Their full responses are in presented in Question 4 in Appendices A. Ii and A. Iii.

As indicated by the responses to Question 5a in Appendix A. Ii and Question 4 in Appendix A. Iii, CS has evolved from being an operational viewpoint, *e.g.* "*It was not possible to have operations that wasted energy and water. There is still much to be done. There are new opportunities to improve*" *(Clariond)*; to a strategic and planning exercise. During the last years, it has become more of an organisational reality in the company (*i.e.* being part of the company's vision, the board's principles, and the CS responsibilities being decentralised from HQ to the business units). The respondents perceived that this progress was mainly through leadership, and particularly that of the CEO.

7.1.3 CS Drivers

As presented in the responses under Questions 4 and 8 in Appendices A. Ii and A. Iii, the interviewees identified leadership, mainly that of the CEO, who is a firm CS believer, as the main driver of progress towards CS. Leadership started the action by leading through example, thereby convincing the people in the company that CS is important for the company and for society.

Other drivers mentioned included: corporate values and principles shared by the employees, resources and cost savings, national government legislation, and growing student awareness. The latter complement the findings from the literature (see Section 3.2.3).

The CS driver model (see Figure 3-2) can be used to plot the drivers mentioned explicitly by the interviewees. 'Raising student awareness' (which can also be expressed as growing students awareness), mentioned by Rodriguez, was not part of the figure, thus it was added to create Figure 7-1. The drivers mentioned in the literature review and identified by the interviewees, are in yellow, the ones not

mentioned are in blue, and the one not reflected in the literature is in green. Only 3 internal drivers were mentioned (out of 16 from the literature review), and 1 external (out of 18 from the literature review).

The number of drivers identified was much less than those found in the literature review. This could mean that: (1) The interviewees did not identify the drivers, (2) they were aware of them but did not mention them or they were taken for granted, (3) the number of interviewees was too small to elicit a comprehensive list of the drivers, or (4) that leaders in any one company will be conscious of only a limited number of drivers, while those identified from the literature review most probably came from a large number of companies.

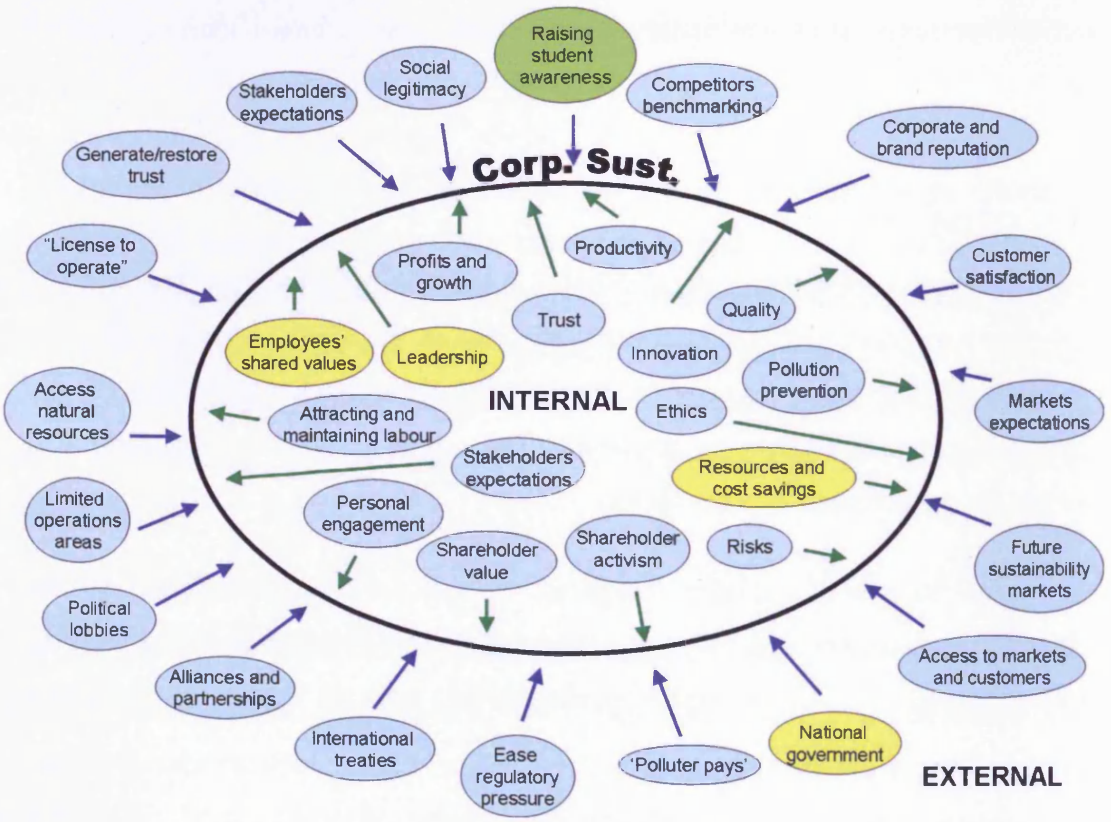

Figure 7-1 CS drivers identified at Grupo IMSA

7.1.4 Efforts made towards CS, and employees' involvement

As can be observed from the responses to Questions 5 and 11c in Appendices A. Ii and A. Iii, at Grupo IMSA CS is mainly addressed through technological improvements to operational activities, for example reuse of energy and materials, aimed particularly at the environmental aspects. This has been achieved mainly through eco-efficiency and EMS.

Other efforts used to move the company towards CS are the Annual Report and communication efforts, where there is a section "*which is mainly about environmental protection issues, through awards, recognition, and continuous improvement programmes.*" (Clariond) and "*... cultural activities [which help to] teach SD to the community.*" (Rodriguez)

Employee involvement in CS varies within different parts of Grupo IMSA (see Questions 12 and 12a in Appendices A. Ii and A. Iii). According to Rodriguez "*There is no-one who is not involved*", although the directors and the operational side tend to be more involved in CS than the staff areas, such as the finance, systems, and marketing departments.

From the responses to Question 12b in Appendices A. Ii and A. Iii, it can be observed that people are made to feel involved with CS, which includes raising awareness, and making it part of performance evaluation. However, there are areas where little concerted effort seems to be made in this respect. In addition there appear to be no company-wide systematic processes and protocols for awareness training and involvement.

7.1.5 Leadership's role and Management approaches

Complementing the opinions presented in previous sections indicating that this company's leadership is important in the CS change process, the interviewees thought that CS needs to come from the top; otherwise it is very difficult for the changes to take place. While bottom-up was considered to help in consolidating the efforts, the support of the top-levels was needed, and that it tended to be more time consuming, see Question 13 in Appendices A. Ii and A. Iii.

7.1.6 Grupo IMSA's institutional framework

The company's mission is:

> "*To opportunely and permanently satisfy our clients needs, while contributing to sustainable development, promoting corporate activity and responsible solidarity with the society of which we are part.*" (Grupo IMSA, 2004, p. 10)

This statement shows that the company is aiming explicitly too contribute to CS by making it part of its mission. In addition, the term 'Sustainability' is mentioned four times in their 2004 annual report, which can be summarised as: A fundamental part of Grupo IMSA's strategy is to be in the vanguard in its commitment with the communities where it has operations and with the quality of life of its personnel. For this it invests in activities that fully comply with and go beyond ecological norms, making better use of natural resources, and in different programmes providing employees with optimal work conditions and promoting their, and their families' development. (Grupo IMSA, 2004)

CS was considered by both interviewees to be part of the company's values and responsibilities. They considered that it is (and should be) included in the company's institutional framework. Clariond remarked that "*He hopes the policies represent the company's culture and future. However, if the company changed owner this might change*". Rodriguez remarked that "[*The policies] are only a legal framework. Culture is traditions and activities. The framework rules this, but culture is more than that.*"

7.1.7 CS barriers to change and strategies to overcome them

Rodriguez at first claimed "*There have been no barriers*", but then he identified laziness as a barrier to CS. During the course of the interview he mentioned different ones in response to other questions. The barriers to change mentioned by the interviewees, (see Question 9 in Appendices A. Ii and A. Iii) are presented in Table 7-1, which follows the conventions set in Section 4.5.

Table 7-1 Grupo IMSA's interviewees perceived barriers to change

	Change barrier	***Attitude***
	Individual	
Level 2	Not seen as a priority	Emotional
	Natural human resistance towards change	Behavioural
Aspect 1	Laziness	Behavioural
	Organisational	
Supportive	Lack of resources	Behavioural
	Lack of available technologies to produce more sustainable products	Behavioural

Table 7-2 shows the number of barriers to change mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes[23]. These helped to create Figure 7-2, which shows the memework of the barriers to change, mentioned by the interviewees. It can be observed that only individuals' emotional and behavioural attitude barriers, and organisational behavioural ones are recognised; all with relatively low percentages. This could be from the low number of interviewees, the barriers being taken for granted, or most possible by not being identified.

Table 7-2 Grupo IMSA's barriers to change compared with the total collected in this research

	Attitudes							
	Informational		***Emotional***		***Behavioural***		***Systemic***	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	0	0%	1	4%	2	11%		
Group	0	0%	0	0%	0	0%		
Organisational	0	0%	0	0%	2	7%	0	0%

[23] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

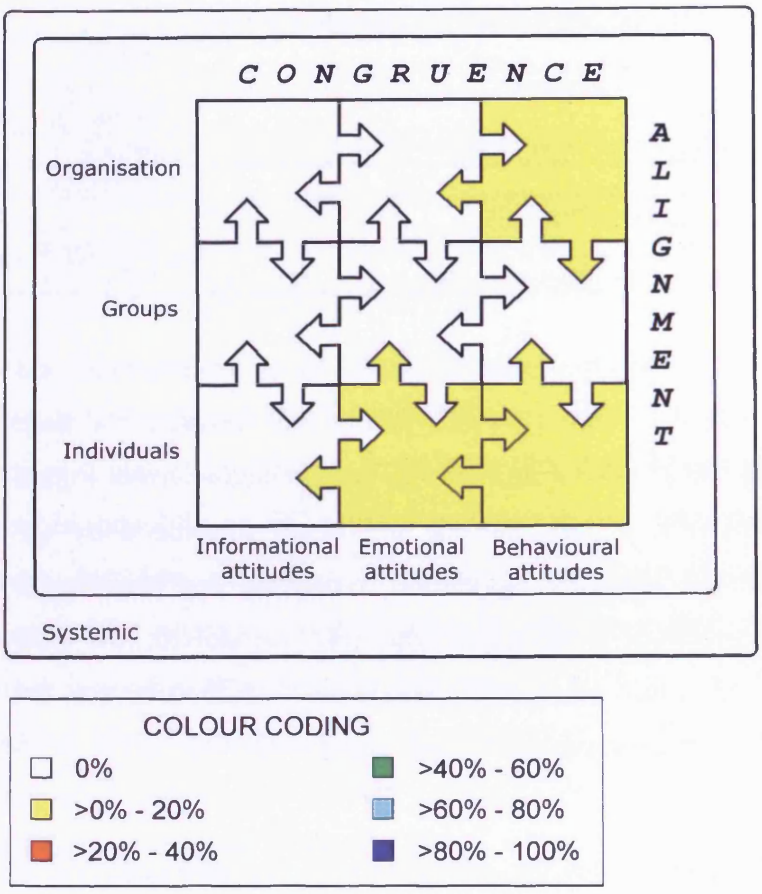

Figure 7-2 Grupo IMSA's barriers to change MuSIC memework

The approaches to overcome the barriers that were proposed by the interviewees (see Question 10 in Appendices A. Ii and A. Iii) are presented in Table 7-3. Clariond made an interesting point by mentioning that in addition to convincing people, sometimes it is necessary to '*Fire people*'.

Table 7-3 Grupo IMSA's interviewees proposed strategies, and approaches to overcome barriers to change

	Strategy or approach	***Attitude***
	Individual	
Level 1	Education and awareness raising campaigns	Informational
	Education and training	Informational
Level 2	Convincing people, especially business units' leaders	Behavioural
	Organisational	
Managerial	Firing people	Behavioural
	Leadership	Systemic
Org.	Making it part of performance	Behavioural
	Extending CS to all functional and business units	Behavioural/ Systemic
Supportive	Using Six Sigma programmes	Behavioural
	Incentives, rewards and compensations	Behavioural
External	Collaboration with other companies	Behavioural

Clariond indicated that integrated product policies and product impacts are at an embryonic stage within the company. These could be framed under product responsibility discussions.

As mentioned above, there are no formal procedures to engage employees in organisational change efforts towards CS. Although some strategies are being identified, it appears that the barriers, especially the emotional, are addressed *ad hoc*, or are 'solved' serendipitously.

Table 7-4 shows the number of strategies and approaches to overcome barriers to change, mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes[24]. These helped to create Figure 7-3, which shows the memework of the strategies and approaches mentioned by the interviewees. It can be observed that only the individuals' informational and behavioural attitudes, and the organisational behavioural and systemic ones appear. All with relatively low percentages. This could be due to the low number of interviewees, the strategies being taken for granted, or most possible by not being identified.

Table 7-4 Grupo IMSA's approaches to overcome barriers to change compared with the total collected in this research

	Attitudes							
	Informational		***Emotional***		***Behavioural***		***Systemic***	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	2	29%	0	0%	1	7%		
Group	0	0%	0	0%	0	0%		
Organisational	0	0%	0	0%	6	15%	2	20%

[24] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

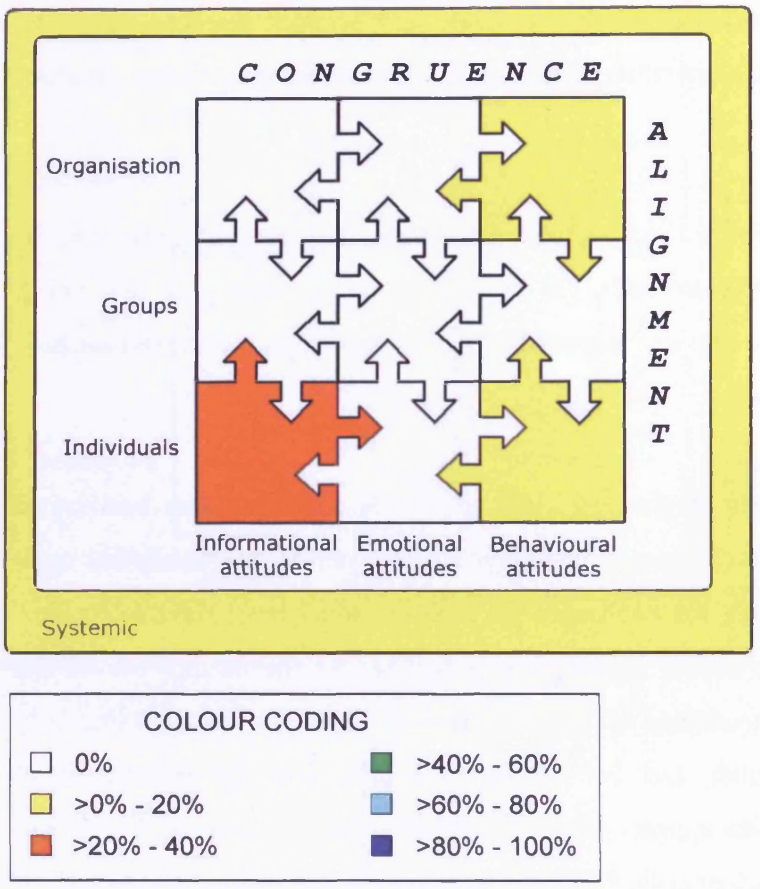

Figure 7-3 Grupo IMSA's approaches to overcome barriers MuSIC memework

Table 7-5 shows the similarities and divergences between the barriers to change and the strategies to overcome them. Note the concordance with individuals and organisational barriers and strategies[25]. There is recognition of the individuals' emotional barriers, there are no strategies offered to overcome them. On the contrary, there are strategies to overcome the individuals' informational barriers, but no barriers are identified. The same applies for organisational systemic ones. Additionally, there are none identified for groups, or organisational informational, or emotional ones.

The MuSIC memework can be also used to offer a graphical representation on the recognition of the barriers and strategies to change. This could be useful for leaders and change agents to better address the barriers that could appear, and apply appropriate strategies to overcome them.

[25] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

In Grupo IMSA, there is some discordance between the identified barriers and the strategies being applied to overcome them. This may be one of the limiting factors in CS incorporation and institutionalization.

Table 7-5 Grupo IMSA's barriers to change and strategies to overcome them comparison

Level	*Attitude*	***Barriers to change awareness***	***Strategies awareness***
Individuals	*Informational*	None	Low
	Emotional	Very low	None
	Behavioural	Very low	Very low
Groups	*Informational*	None	None
	Emotional	None	None
	Behavioural	None	None
Organisations	*Informational*	None	None
	Emotional	None	None
	Behavioural	Very low	Very low
	Systemic	None	Low

7.1.8 CS institutionalization

From the responses to Question 6 in Appendices A. Ii and A. Iii, making CS part of Grupo IMSA's culture has taken 4 to 6 years. This partially contradicts what the interviewees implied regarding employee involvement (see Section 7.1.4). The question that arises is: what do the interviewees consider as 'becoming part of the culture'?

The interviewees differed in regards to accelerating CS institutionalization, see Question 7 in Appendices A. Ii and A. Iii. Clariond indicated, "*In a diversified organisation, it wouldn't work through dictatorship. The company purchased other companies here and elsewhere. The foreign companies had other cultures and ways of working, and it takes time to change them. Using power could create high resistance.*" Whereas Rodriguez mentioned that accelerating CS institutionalization could be achieved by "*Extending SD to all the functional areas and business units, for example staff and operations... Making it part of the objectives, such as annual grading. Using incentives and punishments, and making it part of employee evaluations.*" However, the institutionalization could be done through planned changes and the recognition of barriers and strategies to overcome, as discussed in previous sections.

During the constant comparative analysis, it was observed that the MuSIC memework presented the potential to illustrate the CS meme transfer within the case studies. Based on the researcher's interpretation of the interviewees responses, especially, but not exclusively those in Sections 7.1.2, 7.1.3, 7.1.4, and the quotes in this section, it was perceived that the CS meme in Grupo IMSA started in the emotional attitudes of the leaders, then being transferred through education and actions (informational and behavioural attitudes) to other individuals, from whence it moved to group actions (behavioural attitudes), and finally to organisational actions. This path is presented in Figure 7-4, which indicates that CS is being adopted by individuals, and actively by groups and the company. However such actions might be done without a direct link to thinking and learning within the groups and the company.

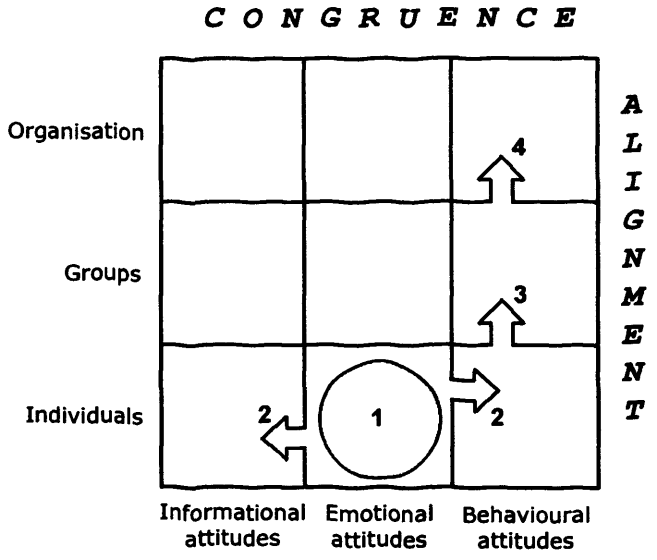

Figure 7-4 Corporate Sustainability meme transfer in Grupo IMSA

Clariond identified that when changing towards CS, "*There is still much to be done. There are new opportunities to improve efficiencies and to improve the working-life quality for employees.*" Rodriguez indicated that if he were the CEO he would "*Make SD's economic issues more explicit. He would push towards a more integrative holistic vision, and show the business case for the company to do so.*"

7.1.9 Grupo IMSA's efforts seen through the Corporate Sustainability change model

The types of changes, according to the literature review (Section 4.2.1), that the company has adopted towards CS have been mainly 'internal' and 'planned incremental changes'. Although in some cases they have been left to serendipity. The 'cultural' changes that have taken place have resulted from 'operational' and 'strategic' changes. The main 'political' change that has taken place has been firing people. The company has engaged with different types of changes to facilitate CS institutionalization.

The 'incremental' changes indicate that the change pathway (see Section 4.2.3) has been predominantly 'developmental'. Nonetheless, further historical research needs to be conducted to detect if transitional periods have occurred.

The Corporate Sustainability change model (Figure 5-3) presented in Section 5.8 offers a possible framework for analysing the efforts taken by Grupo IMSA to contribute to Sustainability. The model provides an ideal change process, where the changes become institutionalised after a period of time, and then new change takes place. Sections 7.1.3 offer a detailed description and analysis of Grupo IMSA's CS drivers (left part of Figure 5-3).

In the Corporate Sustainability change model, it is proposed that the institutional framework maintains the stability of the system while the changes are taking place. The evidence presented in Section 7.1.6 indicates that this process takes place in Grupo IMSA.

As discussed in Sections 7.1.3 and 7.1.4, the efforts have been institutionalised in some parts of the company, but not in others. However, the data obtained does not provide enough information to detect if there have been transition and institutionalization stages, or how many have occurred.

The model in Figure 5-3 considers that the barriers and strategies to overcome them are in ideal concordance. As presented in Section 7.1.7, this is not the case in Grupo

IMSA, thus the model needs to be modified to fill the gap created by the discordance between the barriers to change and the strategies to overcome them, as shown in Figure 7-5.

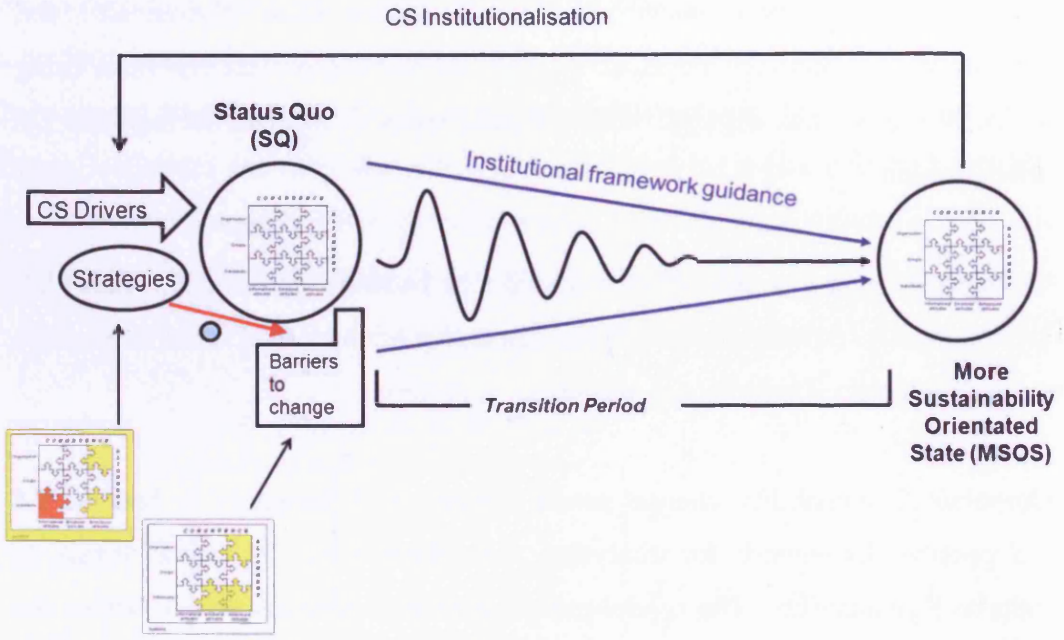

Figure 7-5 Grupo IMSA's organisational changes for CS

The discussions on how Grupo IMSA's efforts answer the research questions are offered in Section 7.4, where the findings from the three case studies are integrated.

7.2 Johnson Controls Inc. (JCI)

Johnson Controls Inc., hereon JCI, was founded in 1885 in Wisconsin, U.S.A. (JCI, 2006h, 2006j, 2006k). The company's operations were mainly in building efficiency and controls (JCI, 2006h, 2006k). After 1978, it started diversifying into the lead-acid batteries and automotive parts sectors (JCI, 2006h). Today the company is a global leader in these three sectors (JCI, 2004, 2005b, 2006j), being the largest producer of batteries in North America, and one of the largest world manufactures of automotive parts (JCI, 2005b, 2006h).

JCI is a publicly owned company governed by a board of directors who are empowered by its charter to review continuously the company's corporate governance practices, compare them against those of other public companies and those recommended by the investment community, and to make recommendations for their improvement. The board of directors represents different viewpoints. Their expertise covers management, strategic direction, and environmental and social risks and opportunities. The 12-member Board includes one female, two African-American males and one Hispanic male (JCI, 2004, 2005b). The company does not indicate if this Board composition is prescribed or coincidental.

JCI is divided into three groups. The 'interior experience group', also known as 'automotive group', provides seating, overhead systems, electronics, floor consoles, cockpits and door systems (Chatelain, 2006; JCI, 2005b, 2005c). The 'power solutions group' produces lead-acid batteries (JCI, 2006k) and next generation batteries (Nickel-metal-hydride) for fuel-efficient hybrid-electric vehicles (HEVs) (Chatelain, 2006; JCI, 2005c, 2006j). The 'building efficiency group' focuses on designing, producing, marketing and installing systems that monitor, automate and integrate building operating equipment, and environmental conditioners (Chatelain, 2006; JCI, 2006k). These are focused on helping to create more comfortable and safe building environments while maximising productivity while reducing costs (JCI, 2004). The systems include heating control, ventilation, air conditioning (HVAC), lighting, security, and fire management (JCI, 2006j).

In September 2006 the company had operations in 52 countries, with over 250 locations (JCI, 2006j, 2006k). JCI's corporate and batteries HQs are located in Wisconsin; the controls HQs are in Wisconsin and Brussels, Belgium; and the automotive group HQs are in Michigan, U.S.A. and Burscheid, Germany (JCI, 2005b).

Company employee numbers has increased in recent years, from 118,000 in 2000 (JCI, 2004) to 123,000 in 2003 (JCI, 2005b), and to 136,000 in 2006, of which approximately 75,000 were hourly paid, and 61,000 salaried (JCI, 2006j, 2006k).

7.2.1 Findings from JCI secondary sources

Three secondary sources were analysed to identify the efforts taken at JCI to contribute to CS. The sources were: 3 Sustainability Reports (JCI, 2004, 2005b, 2006j), 10 webpages (JCI, 2006a, 2006b, 2006c, 2006d, 2006e, 2006f, 2006g, 2006h, 2006i, 2007), 2 forms (JCI, 2005c, 2006k), and 1 Annual Financial Report (JCI, 2005a).

JCI's Sustainability Reports are based on the GRI (2006), which provides the company with a framework to address CS issues. A summary of the findings of CS efforts from the reports is presented next (for more details consult Appendix A. VIII). The reports provide detailed information in regards to economic aspects of the company, such as markets, customers, earnings, and Sustainability indices. The company provides a detailed coverage of most environmental issues. The most important initiatives are: Blue Sky training (discussed in Section 7.2.4), Design for Environment (DfE), Waste minimisation, Battery recycling, (JCI, 2005b), and Goals for the European End-of-life Vehicles Directive (ELV) (JCI, 2005a). With the exception of Blue Sky, the others are mainly focused on technological changes. In regards to social aspects, JCI provides a very comprehensive breakdown of its stakeholders, and detailed information on other social issues, such as Health and Safety, Employee diversity, Employee development and training, and Community engagement.

As discussed in Section 3.2.2, reports do not usually present change efforts to incorporate and institutionalise CS. The interviews helped to bring these to light. The interviewees from JCI included Rebecca Andrew, Senior EHS and Sustainability advisor; Mark P. Chatelain, Manager of the Blue Sky Programme; and Jeff Werwie, Director of environmental control. Chatelain and Andrew chose to make a short presentation (Andrew, 2006; Chatelain, 2006) as a prelude to their interviews. In some cases presentation content effectively addressed some of the initial interview questions, allowing more time for discussion on the remaining issues.

7.2.2 Conception of CS, its role within the company, and its evolution

The interviewees indicated through their presentations that for JCI, CS is defined through the TBL. Figure 7-6 is how the TBL is being depicted and communicated by JCI.

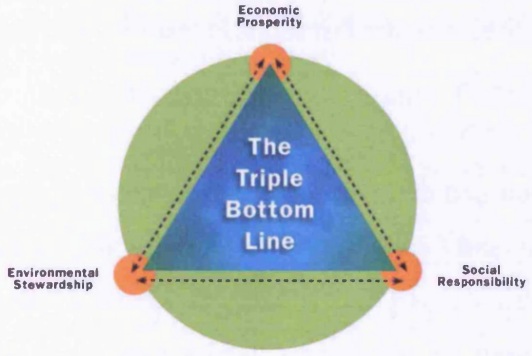

Figure 7-6 CS at JCI
Source: (Chatelain, 2006)

JCI recognises that business success needs to go beyond financial results by incorporating environmental and social aspects. CS has been made explicit in the company's institutional framework (JCI, 2005a), which commits the company and its employees to CS through the company values (JCI, 2005b). These are supported by the following systems:

- **Reward systems**: to recognise, reward, energise and motivate people (JCI, 2004);
- **Measuring systems**: currently being set in place to create a 'dashboard';
- **Legal systems**: to make sure the company complies with laws and regulations;
- **Management systems**: to support health and safety, environmental protection, and sustainable development;
- **Communication system**: to provide timely, consistent and accurate information to stakeholders (JCI, 2005b). The communication system was given much emphasis in the reports and during the interviews.

The communication systems is set up to provide full, fair, accurate, timely, and understandable disclosure in reports, documents and any other public communication

to the stakeholders in regards to economic, environmental and social aspects (JCI, 2004, 2005b). The information must also be consistent with legal and regulatory requirements (JCI, 2004).

The company has an open-door policy and encourages stakeholder interaction, *e.g.* with NGOs (JCI, 2005b). This information is used to help establish the company's goals, determine the scope and content of the information, and shape programmes and actions (JCI, 2004).

Internally, communication and dialogue with employees is fostered through different initiatives, *e.g.* teams and committees, presentations, video and web-based communication, and publications (JCI, 2005b). Since 2005, managers, starting with the executive, are required to share their goals with those who report to them, allowing employees to see multiple levels of organisational goals (JCI, 2005a).

JCI reports that it has contributed to improving environmental and social aspects for many years; even before the TBL term was coined. This is illustrated by the company's 1985 vision statement (JCI, 2004, 2005b, 2006j).

Before 2000, the company was not recognised as an important player in worldwide financial markets. Even though at the time CS was still a new concept for most companies, JCI was committed to its values and ethics, and started to be traded as a socially responsible corporation. After 2000, JCI became a world financial leader, increasing its presence in social investment, and became more interactive with external organisations. This helped the company to engage more strongly with CS (Chatelain, 2006). JCI's most important contributions to SD during past decades are presented in Table 7-6.

Table 7-6 JCI's selected efforts to contribute to SD

Year	*Effort to contribute to SD*
1945	Began publishing advertisements to promote energy savings in buildings through fuel-saving temperature control
1990	Began sponsoring the U.S.A. Energy Efficiency Forum
1992	Began co-sponsoring U.S.A. Energy Efficiency Forum with the U.S. Energy Association
2003	Awarded the "Star of Energy Efficiency" by the Alliance to Save Energy
	Invited to the Billion Dollar Roundtable, an organisation that sources from minority- and women-owned businesses
2004	Awarded the "Gold Medal for International Corporate Achievement in Sustainable Development" by the World Environment Centre
	HQ one of the first buildings in the U.S.A. to achieve a gold rating under the LEED™ certification
	Included on the FTSE4Good US Index and Domini 400 Social Index
2005	Nickel-metal-hydride battery for hybrid electric vehicles
	Selected as a member of the Dow Jones Sustainability World Index (DJSI World)

Source: Adapted from (JCI, 2006j)

7.2.3 CS Drivers

The main explicitly mentioned CS drivers in JCI have been: the company's culture; CS reports that have engaged stakeholders; and customer demands and expectations. The last one may result in the company being reactive to external stimuli. These complement those collected during the literature review (see Section 3.2.3).

The CS driver model (see Figure 3-2) can be used to plot the drivers mentioned by the interviewees. However, company culture, and CS reports were not part of the figure, thus they were added to create Figure 7-7. The drivers that were identified and mentioned in the literature are in yellow, the ones not identified are in blue, and those not mentioned in the literature are in green. Only 2 internal (as opposed to 16 in the literature review), and 3 external drivers were mentioned (out of 18 from the literature review).

The number of drivers identified was much fewer than those found in the literature review. This could mean that: (1) The interviewees did not identify the drivers, (2) they were aware of them but did not mention them or they were taken for granted, (3) the number of interviewees was not enough as to obtain a comprehensive list of the

drivers, or (4) leaders in any one company being conscious of only a limited number of drivers, while those identified from the literature review most probably come from a large number of companies.

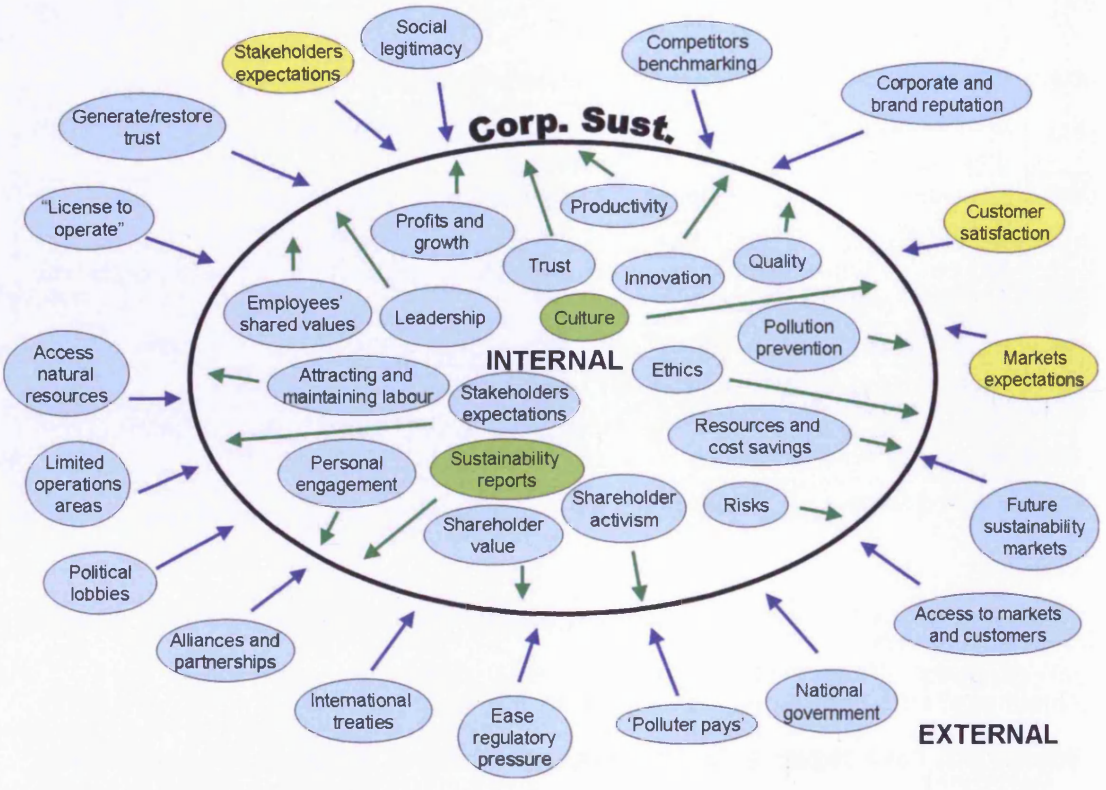

Figure 7-7 CS drivers identified at JCI

7.2.4 Efforts made towards CS, and employee involvement

In addition to the efforts mentioned in Section 7.2.1, JCI has made CS explicit in its institutional framework (discussed in Section 7.2.6, where the vision statement is presented), CS reports, and the Blue Sky programme.

CS reports have been recognised as key to promote CS at JCI. These have been prepared since 2004 under the GRI guidelines. The reports are identified as offering stakeholders a more detailed picture of JCI's CS performance (JCI, 2004, 2005a). It was indicated that the reports encourage the company to look at their business in a more holistic way. However, this process is demanding for a company with locations in many countries, especially when stakeholders have different expectations (JCI, 2004). The CS reports have: facilitated stakeholder feedback (Chatelain, 2006); better

appreciation of the company by employees, customers and investors; consolidation of usually dispersed information; improved links to external organisations; and provided better metrics (Chatelain, 2006). A summary of the CS efforts being reported is offered in Appendix A. VIII.

The Blue Sky programme is focused at how JCI's employees can benefit the environment and the communities where they operate (Andrew, 2006; JCI, 2006a). Blue Sky is divided into:

- **Blue Sky Environment, and Blue Sky Leaders:** Corporate driven strategies focusing on the company's commitment to resource efficiency and leader development; and
- **Blue Sky Involve:** Employee driven. It supports employee volunteer efforts towards communities, aligned with the company's resource efficiency and leader development priorities (Andrew, 2006).

Regarding involvement, Andrew said, "*The production workforce may be a little further behind. I think they get the values but not the word 'Sustainability'. Our management is fully engaged.*" This illustrates that, in general, employees at management level understand, and are involved in CS; while the production workforce tends to be further behind in fully understanding Sustainability; but they understand its underlying principles.

7.2.5 Leadership's role and management approaches

Complementing the opinions presented in previous sections indicating that JCI's leadership is important in the CS change process, it was clear that leadership was sceptical about it and thought it would conflict with the company's values. As Werwie expressed it, "*We always took [sic] the behaviour of our CEOs, who were very low key, very pragmatic... People were watching what their peers were doing, and didn't want to step out of line. We had a very difficult culture to change, which made us very cautious to [sic] Sustainability in the beginning.*" This perception was abandoned once they realised that company values and CS were aligned.

Chatelain mentioned that: "*There was a group [in top-level management] that helped put it in there and then it just 'boiled' throughout the organisation...*" This statement, and those in other sections, show that top-down approaches have been key to making CS part of JCI.

7.2.6 JCI's institutional framework

JCI's vision statement outlines the company's values and their objectives for success. It is a guide for the company in conducting business and helping their customers to grow and succeed (JCI, 2005b). The vision statement is:

> "*We are committed to our customers, to ethical behaviour, to a focus on innovation, our communities and the environment, and to continuous improvement in every aspect of our business.*" (JCI, 2005a, p. 3)

JCI's objectives are: customer satisfaction; technology; growth; market leadership; and shareholder value. In addition to these objectives, JCI strives to exceed the expectations of its customers, employees, suppliers, and communities (JCI, 2004, 2005b)

JCI believes in the free enterprise system framed by the company's and its employees' ethical behaviours and their relations with customers, shareholders, suppliers and the community, which are regulated by the company values: customer satisfaction; integrity and employees; improvement and innovation; safety and the environment; and community involvement (JCI, 2004, 2005a, 2005b, 2006i).

Company values require that JCI conducts business to the highest ethical standards, including honesty, dignity, fairness and respect. These are continuously reinforced throughout the company's global operations, and set the bases of the policies, ethics, and corporate culture (JCI, 2004, 2005a, 2005b).

The Ethics Policy defines the standards to which the entire company is expected to adhere. It specifies that JCI employees, including officers and directors, must not seek illegal or unethical economic gains. It addresses all the U.N. Global Compact

principles, and it is available on the company's web site in 14 languages (JCI, 2005a, 2005b). The Ethics Policy has 19 points, which focus on financial security; employees' rights; health and safety; use of company information; compliance with regulations; and the responsibilities of officers, directors and employees (JCI, 2007).

The Ethics Policy is supported by the following policies, guidelines and charters, which also provide the framework for doing business in a more sustainable manner (JCI, 2005b).

- **Charters**: Corporate governance (JCI, 2006c); Disclosure (JCI, 2006d); Executive committee (JCI, 2006e); Finance committee (JCI, 2006g);
- **Policies**: Safety (JCI, 2004, 2005b); Environmental (JCI, 2004); Ethical (JCI, 2007); and
- **Guidelines**: Purchasing (JCI, 2004).

The above are based on the company's commitment to: non-discrimination and diversity; employee opportunities and development; human rights; local customs and diversity; fair compensation and benefits; labour and management relations; protection of personal employee data; pollution-free workplaces; regulatory compliance; and continuous improvement (JCI, 2004).

All employees are required to re-commit to the Ethics Policy. In 2004 nearly 22,000 employees completed the ethics certification. The Ethics Policy is supported by a 24 hour a day Ethics Hotline, available in all major languages, and operated by an independent third-party, where shareholders and employees can report suspected improper conduct anonymously (JCI, 2004, 2005a, 2005b).

As it can be observed, ethical behaviour with respect to the environment and social aspects is intertwined with economic activities and objectives in JCI's institutional framework.

7.2.7 CS barriers to change and strategies to overcome them

The interviews revealed some insights on the perceived CS barriers to change, see Question 10 in Appendix A. IIi. These comments illustrate this:

> *"...a lot of our employees thought that this was another fad, like quality circles..."* (Chatelain)

> *"People are not specifically asking for it [CS], so why spend resources on it."* (Andrew)

> *"The whole cultural change...historically, our company was very low profile, we always kept our head low, we were always doing well."* (Werwie)

Table 7-7 shows the number of barriers to change mentioned by the interviewees.

Table 7-7 JCI's interviewees perceived barriers to change

Change barrier		Attitude
Individual		
Level 1	Ignorance	Informational
Level 2	Fear of losing core values	Emotional
	Fear of not belonging	Emotional
	Seen as a threat to company's core values, mainly from a lack of understanding of the concept	Emotional
Organisational		
Managerial	Not yet seen as adding value to the company	Informational
	Middle management short-term constrain	Informational
	Seen as a threat to company's core values, mainly from a lack of understanding of the concept	Emotional
	Managing the change (JCI, 2005b)	Behavioural
	Not being specifically asked for, thus no resources should be allocated	Behavioural
	Considered as a fad	Behavioural

Table 7-8 shows the number of barriers to change mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes [26]. These helped to create Figure 7-8, which shows the memework of the barriers to change mentioned by the interviewees. It can be observed that there is some recognition of the individuals' informational and emotional barriers to change, and organisational ones. There are no

[26] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

group barriers recognised. All have relatively low percentages. This could be due to the low number of interviewees, the barriers being taken for granted, or most possible by not being identified.

Table 7-8 JCI's barriers to change compared with the total collected in this research

	Informational		*Emotional*		*Behavioural*		*Systemic*	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	1	14%	3	12%	0	0%		
Group	0	0%	0	0%	0	0%		
Organisational	2	11%	1	5%	3	11%	0	0%

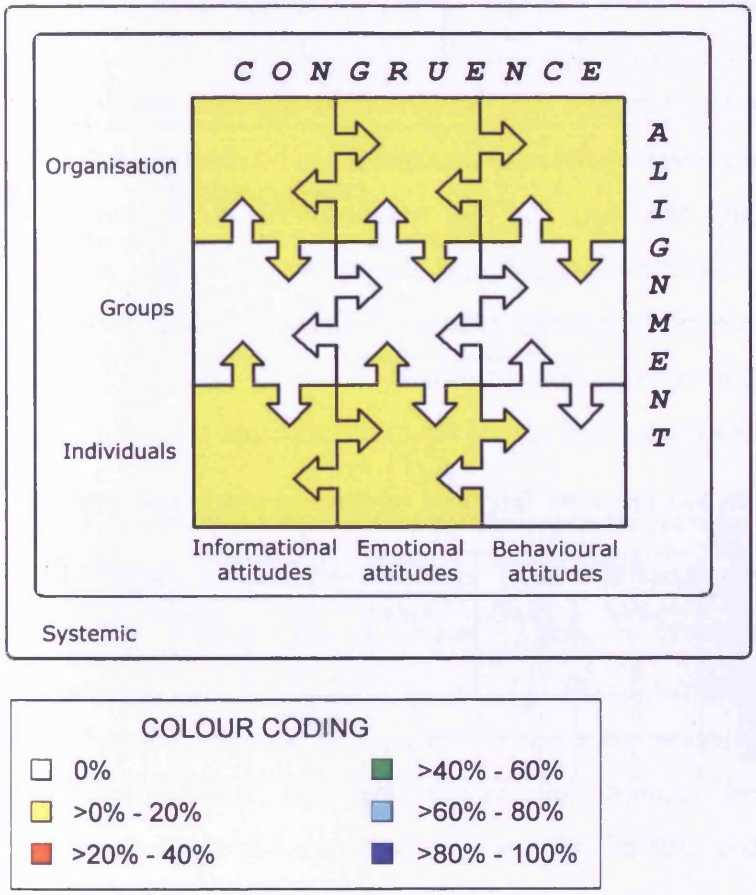

Figure 7-8 JCI's barriers to change MuSIC memework

The interviewees proposed different approaches to overcome the barriers, as presented in Table 7-9 (refer to Question 10 in Appendix A. IIi for full details).

Table 7-9 JCI's interviewees proposed strategies, and approaches to overcome barriers to change

	Strategy or approach	Attitude
	Individual	
Level 1	Communication to employees	Informational
	Education and training	Informational
	Organisational	
Managerial	Awards	Behavioural
	Leadership	Systemic
	Linking it to the company's institutional framework	Systemic
Supportive	Stakeholder communication and engagement	Behavioural
	Using Six Sigma programmes	Behavioural
	Providing support and resources	Behavioural
External	Pressure from customers	Behavioural

Table 7-10 shows the number of strategies and approaches to overcome barriers to change, mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes[27]. These helped to create Figure 7-9, which shows the memework of the strategies and approaches mentioned by the interviewees. It can be observed that only the individuals' informational attitudes, and the organisational behavioural and systemic ones appear. This indicates that, although the barriers to change are to a great extent identified, there are no formal procedures to address them. It appears that they are either left to serendipity or are addressed *ad hoc*.

Table 7-10 JCI's approaches to overcome barriers to change compared with the total collected in this research

	Informational		***Emotional***		***Behavioural***		***Systemic***	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	2	29%	0	0%	0	0%		
Group	0	0%	0	0%	0	0%		
Organisational	0	0%	0	0%	5	13%	2	20%

[27] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

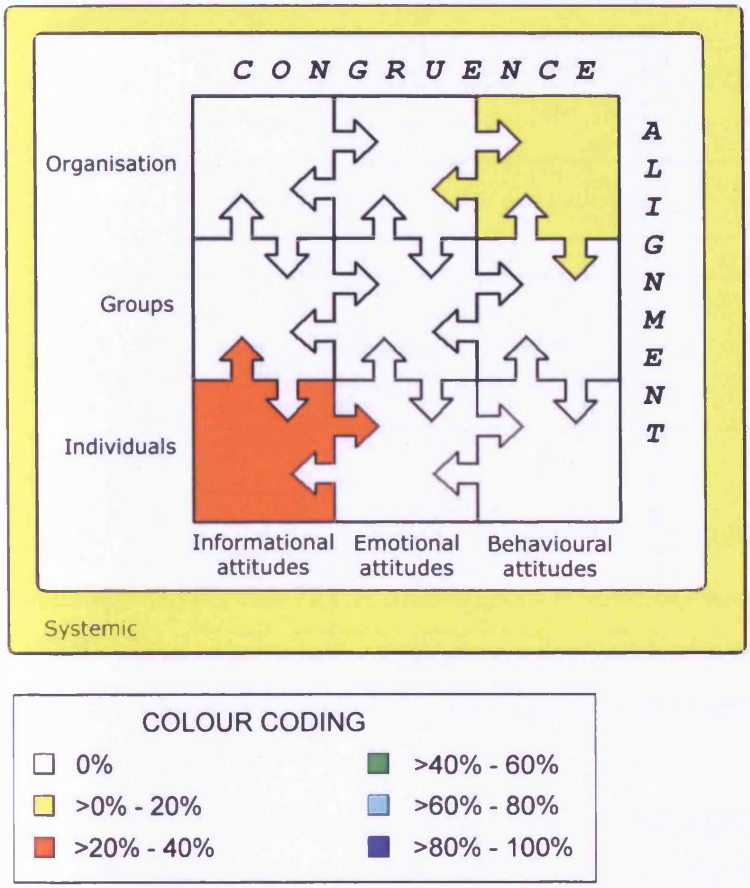

Figure 7-9 JCI's approaches to overcome barriers MuSIC memework

Table 7-11 shows the similarities and divergences between the barriers to change and the strategies to overcome them. Note the concordance with organisational behavioural barriers and strategies. There is recognition of the individuals' informational and emotional barriers, and of the organisational barriers. However, only strategies to overcome the individuals' informational barriers, the organisational behavioural barriers, and the organisational systemic barriers are identified. The mismatch between the extent of the identified barriers and the strategies shows that efforts are being misdirected, or are insufficient, to overcome the barriers barriers. This suggests that such mismatches could limit CS incorporation and institutionalization.

Table 7-11 JCI's barriers to change and strategies to overcome them comparison

Level	*Attitude*	*Barriers to change awareness*	*Strategies awareness*
Individuals	*Informational*	Very low	Low
	Emotional	Very low	None
	Behavioural	None	None
Groups	*Informational*	None	None
	Emotional	None	None
	Behavioural	None	None
Organisations	*Informational*	Very low	None
	Emotional	Very low	None
	Behavioural	Very low	Very low
	Systemic	None	Very low

7.2.8 CS institutionalization

The interviewees indicated (see Question 6 in Appendix A. IIi) that CS incorporation "*...started in the US because of customer demands for it...Europe was already there, maybe 2002-2003*", where core values are understood and shared by most people.

Accelerating institutionalization was considered to be fast enough (between 4 to 5 years), see Questions 6 and 7 in Appendix A. IIi, where "*The way it went was more digestible by employees; you jam it down their throat, and then it becomes a fad. This is kind of a natural way. It has helped [JCI] understand how that feeds into sustainability, and how all is part of the company. The communication feeds need time.*"

During the constant comparative analysis, it was observed that the MuSIC memework presented the potential to illustrate the CS meme transfer within the case studies. Based on the researcher's interpretation of the interviewees' responses, especially, but not exclusively, those in Sections 7.2.2, 7.2.4, and the quotes in this section, it was perceived that the CS meme in JCI started with the values (emotional attitudes) of the organisation's culture; then being transferred throughout the organisation through education and actions (informational and behavioural attitudes respectively); then to its group actions, values, and education; finally to the individual's actions, values, and education. This path is presented in Figure 7-10. As can be seen, CS has taken a top-down approach; from the company to the groups, and then to the individuals. The entire system appears to be engaged with CS efforts. The path also indicates that there

have been attempts to address attitudes at the same time. This might be the fastest way to CS institutionalization.

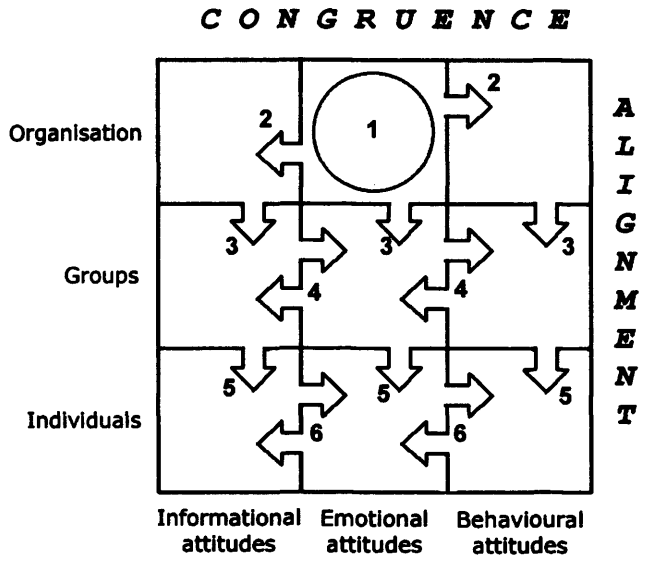

Figure 7-10 Corporate Sustainability meme transfer in JCI

According to the interviewees (see Question 10 in Appendix A. IIi), CS could be taken forward by providing support systems, involving HR, and by developing a 'dashboard'.

In electronic communication after the interviews, Chatelain (2007) indicated that several high level management teams have since been created at JCI to find business cases for CS, and Sustainability has been made more explicit in the institutional framework by including it in the values statement.

7.2.9 JCI's efforts seen through the CS change model

The types of changes, according to the literature review (Section 4.2.1), that the company has adopted towards CS have been mainly 'internal' and 'planned incremental changes'. Although the company is aiming to be a CS change driver in respect to its suppliers and consumers, the changes have been mainly 'strategic' and

'cultural'. These in turn have resulted in 'operational' changes, where the company has taken a top-down approach when dealing with CS.

The 'incremental' changes indicate that the change pathway (see Section 4.2.3) has been predominantly 'developmental'. Nonetheless, further historical research needs to be conducted to detect if transitional periods have occurred.

The Corporate Sustainability change model (Figure 5-3) presented in Section 5.8 offers a possible framework for analysing the efforts taken by JCI to contribute to CS. The model provides an ideal change process, where the changes become institutionalised after a period of time, and then new change takes place. Section 7.2.3 offers a detailed description and analysis of JCI's CS drivers (left part of Figure 5-3).

In the Corporate Sustainability change model, it is proposed that the institutional framework maintains the stability of the system while the changes are taking place. The evidence presented in Section 7.2.6 indicates that this is the case in JCI.

The institutionalization of CS is explained in Sections 7.2.4 and 7.2.8, where it can be observed that the efforts have been institutionalised in some parts of the company, but not in others. However, the data obtained does not provide enough information to detect if there have been transition and institutionalization stages, or how many.

The model in Figure 5-3 considers that the barriers and strategies to overcome them are in ideal concordance. As presented in Section 7.2.7, this is not the case in JCI, thus the model needs to be modified to fill the gap created by the discordance between the barriers to change and the strategies to overcome them, as shown in Figure 7-11.

The discussions on how JCI's efforts answer the research questions are offered in Section 7.4, where the findings from the three case studies are integrated.

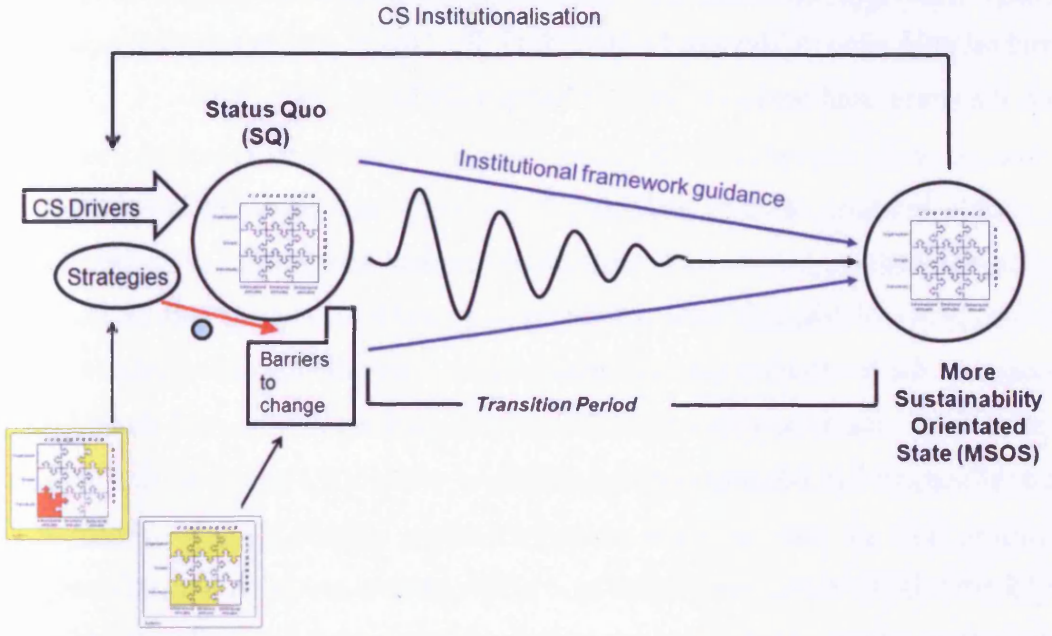

Figure 7-11 JCI's organisational changes for CS

7.3 Industrias Peñoles

Industrias Peñoles, S.A. de C.V., hereon Peñoles, was founded in 1887 and started trading its shares on the Mexican Stock Exchange in 1968. It is one of Mexico's main non-renewable natural resources industries specialised in mining, smelting and refining of non-ferrous metals, and production of inorganic chemicals. It is the world's largest producer of refined silver, metallic bismuth, and sodium sulphate (Peñoles, 1998, 1999, 2000, 2001a, 2002b, 2004a, 2004b, 2005, 2006b), and Latin America's top producer of refined gold and lead (Peñoles, 2002b, 2004b, 2005). Peñoles is part of Grupo Bal, a privately held and diversified Mexican consortium (Peñoles, 2000, 2004b, 2005, 2006b). In 2006, the company had 7,576 employees (Peñoles, 2005).

Internationally, Peñoles has gold exploration operations in Peru and Argentina (Peñoles, 1998, 1999, 2000, 2001b, 2005, 2006b), and sales offices in the U.S.A. and Brazil (Peñoles, 1998, 2004b, 2005, 2006b).

Peñoles' operating divisions are: The 'mining and chemicals division'; extraction and processing of non-ferrous minerals (Peñoles, 1999), producing lead-silver, zinc, and gold concentrates. In 1998 it mined and milled over 5 million tonnes (Peñoles, 1998).

The key Peñoles mines are: Fresnillo, the richest silver mine in the world; La Cienega, the richest gold mine in Mexico; La Herradura, the largest gold mine in Mexico; and Naica, the largest lead producing mine in Mexico (Peñoles, 1999, 2000).

The 'metals division'; smelting and refining of non-ferrous metals (Peñoles, 1999). It consists of Met-Mex, a zinc plant, a metals by-product plant, and a zinc alloy plant (Peñoles, 1998). Met-Mex is the most important non-ferrous metals complex in Latin America and the fourth largest worldwide (Peñoles, 1998, 2000, 2004a). It has a lead-silver refinery with a capacity of 160,000 tons of lead per annum, and a zinc plant with a capacity of 135,000 tons (Peñoles, 1998).

The 'chemicals division'; manufacturing of high margin specialty, and value-added products from mining natural resources, and from by-products obtained in the refining processes (Peñoles, 1999).

The 'exploration, engineering and construction division'; locating and developing new world-class ore deposits (Peñoles, 1999).

Peñoles has four support divisions: finance, planning & IT, internal audit, legal affairs, and HR (Peñoles, 2004b, 2005, 2006b).

7.3.1 Findings from Peñoles secondary sources

Three secondary sources were analysed to identify the efforts taken at Peñoles to contribute to CS. The sources were: 8 Annual Reports (Peñoles, 1998, 1999, 2000, 2001b, 2002a, 2003b, 2004a, 2006a), 6 Sustainability Reports (Peñoles, 2001a, 2002b, 2003a, 2004b, 2005, 2006b), and 1 company webpage (Peñoles, 2007).

The last two Peñoles' Sustainability Reports are based on the GRI (2006), and have been verified by a third-party. This provides the company with a framework to address CS issues. A summary of the CS efforts from the reports is presented next (full details at Appendix A. X). Economic aspects are identified as fundamental for Peñoles' continuous growth, increased competitiveness, and permanence in markets. The reports' coverage of economic issues is fairly comprehensive and detailed, for

example in regards to customers and market presence, earnings, and quality programmes.

The reports indicate that Peñoles' efforts to protect the environment are an answer to the challenge of increasing land access, raising awareness that its products come from non-renewable resources, and that its operations modify landscapes, biomes, and communities (Peñoles, 1999, 2000, 2001a, 2001b, 2005, 2006b). These efforts are mainly focused on making operations more environmentally friendly through technological change, such as increasing material and energy efficiency. Further, the company was obtaining ISO 14001 certification, and the Mexican 'Clean Industry' certificate. Pursuing CS became urgent for Peñoles when, in 1998, the level of lead in the blood of those living close to Met-Mex was found to be higher than the 10 μg/dl limit, as defined by the Centre for Disease Control and Prevention in Atlanta, Georgia (Peñoles, 1999, 2001a, 2001b, 2005). In response to this, the Mexican Environmental Protection Agency (PROFEPA) ordered the following measures: reduction of operations to 50% for five months, followed by 25% of total capacity for two and a half months; implementation of actions agreed as a result of a voluntary environmental audit; absolute control of emissions; creation of a USD 6 million trust for health education, hygiene and nutrition programmes; relocation of 410 families living adjacent to the business units; and thorough cleaning of an area of two kilometres around the plant (Peñoles, 1999, 2001a, 2005). The total cost of the measures taken was USD 17.5 million (Peñoles, 1999).

Peñoles' reports provide a limited breakdown of its stakeholders. Nonetheless, its coverage of social issues is fairly detailed and comprehensive, such as employees training and education, health and safety, volunteering and philanthropy, and community relations.

As discussed in Section 3.2.2, reports do not usually present change efforts to incorporate and institutionalise CS. The interviews helped to bring these to light. The interviewees from Peñoles included Octavio Alvidrez, who was Executive Vice President Exploration, Engineering and Construction (for the previous 9 years), and had worked for the company for 33 years; Mario Arrellin, who was Executive Vice President Finance, Planning & IT (for the previous 7 years), and had been with the

company for 15 years; Mario Huerta, who was Corporate Manager of Environmental Planning and Development (for the previous 5 years), and had been with the company for that duration; and Rafael Rebollado, who was HR Director (for the previous 6 months), and had been with the company 7 years.

7.3.2 Conception of CS, its role within the company, and its evolution

At Peñoles, CS has been built on economic growth, ecological balance, and social and technological progress (Peñoles, 2001a). This means designing, building, operating, and closing down mines in a more environmentally and socially responsible manner, including respect for local cultures, and compliance with the law, without jeopardising future generations' access to the natural wealth of the area (Peñoles, 2001a, 2002a).

CS is considered a key factor of the business strategy, operations, and stakeholder relations (Peñoles, 2006b). Implementing policies and innovative programmes that generate positive and tangible CS results are considered to make the company more competitive (Peñoles, 2006b). Peñoles' approach to CS is based on its institutional values and transparent management (Peñoles, 2003a); founded on its culture, which protects the environment and the health and safety of its employees and communities (Peñoles, 2001b, 2004b, 2005).

Peñoles aims to add value to non-renewable natural resources in a safe, and socially and environmentally responsible manner (Peñoles, 2001a, 2002a, 2005), while creating value for shareholders, employees, communities, customers, and suppliers (Peñoles, 2004b). Future areas of opportunity for achieving this include: ensuring that all operating units are certified ISO 14001, and 'Clean Industry'; systematising the restoration of closed mines; formalising the work culture as ethically and socially responsible; forming strategic alliances with government and NGOs; and perfecting the CS information sharing system (Peñoles, 2003a). The main challenge at Peñoles, while addressing CS, is to establish it as part of the internal culture (Peñoles, 2005).

In addition to the information found in the reports, the interviewees indicated (see Question 3 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv) that CS in Peñoles addresses economic, environmental, and social aspects, while considering the needs of future

generations. Interestingly Huerta mentioned that CS, for him, is "*enough time, and having enough all the time.*" Within the company, CS is aimed at going beyond legislation and philanthropy, as Arrellin mentioned, "*Working with communities has a focus on making them self-sufficient, and not just being philanthropic, because it creates dependencies.*"

The role of CS is considered to play a vital role in Peñoles, as Huerta mentioned, "*SD is more relevant for companies that have natural resources as raw materials, because there is more pressure from stakeholders, than service companies*" (see Question 4 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv).

Table 7-12 presents the environmental initiatives at Peñoles, while Table 7-13 shows the social ones during the last decades.

Table 7-12 Selected Peñoles initiatives to address environmental aspects

Year	*Initiative*
1962	First sulphuric acid plant installed to capture sulphur dioxide
1976	First residual water treatment plant installed
	First forestation project in a tailing dam
1991	Helping to develop environmental Official Mexican Standards (NOM)
	Creation of Corporate Ecology Department
1993	First mining group in Mexico to join the Voluntary Environmental Auditing Programme of the Mexican government
	Corporate Environmental Protection Policy established
1994-1995	Issuing of Environmental Principles
1996	Beginning of municipal wastewater treatment to obtain steam
	Creation of the company's Department of Ecology, Safety, and Occupational Health
1997-1998	Accreditation of the first business, Dolorey, with ISO 14001
2000	Department of Ecology, Safety, Occupational Health created
2005	Communications and Sustainable Development Department was created

Source: Adapted from (Peñoles, 2001a, 2005)

Table 7-13 Selected Peñoles initiatives to address social aspects

Period	*Initiative*
1960-1974	Creation of 'Peñolera Ladies' a group of employees' wives and volunteers to carry out formative social activities in the community
1975-1990	Department of Community Relations created
	First social diagnosis at Química del Rey
	Studies focused on the social impact of a mine closure, and on the installation of operations
1991-1995	Community as part of principles of environmental protection

Source: (Peñoles, 2001a)

CS evolution in Peñoles has taken two routes: the first one in urban areas, where it has been mainly changed its focus from environmental issues to social ones; and the second in rural areas, where it has evolved from social issues into environmental ones (see Question 5a in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv). This may indicate a divergence in the company's CS strategies according to location.

7.3.3 CS Drivers

As illustrated in the responses to Questions 8 and 13a in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv, CS is recognised as driven by leadership, moral and ethical obligations contributing to CS, champions, access to resources, environmental crises, regulations and legislation, society awareness raising, and collaboration with external organisations.

Leadership is considered to be the most important CS driver at Peñoles: it drives the strategic plans by having a longer-term perspective of the business; makes CS explicit; it motives people through rewards and incentives; and helps to create indicators to evaluate CS efforts. There is a champions' team that supports leadership, and helps to operationalise it, and communicates with it.

Table 7-14 presents Peñoles' leadership responsibilities towards CS, as stated in its 2006 Sustainability Report. However the responsibilities appear to be compartmentalised with respect to each function. The relationships between the top executives could be made clearer. For example, the Vice President Metals could collaborate with Vice President Law to engage with government in developing more environmentally and socially friendly regulations.

Table 7-14 Peñoles' leadership responsibilities to Corporate Sustainability

Position	***Responsibility***
CEO	Adding value to non-renewable natural resources in a sustainable manner
Executive Vice President Mining & Chemicals	Economic and environmental development of mines and chemicals
Executive Vice President Metals	Economic and environmental development of metals
Executive Vice President Finance, Planning & IT	Company's financial performance
Vice President Human	Development of personnel and communities

Resources	
Vice President Internal Audit	Regulations, corporate governance and ethics
Vice President Law	Complying with Mexican legislation and regulations

Source: Adapted from (Peñoles, 2006b)

The CS driver model (see Figure 3-2) can be used to plot the drivers mentioned by the interviewees. 'Environmental and social crises' was not part of the figure, thus it was added to create Figure 7-12. The drivers that were identified and mentioned in the literature are in yellow, the ones not identified are in blue, and those not mentioned in the literature are in green. Only 2 internal drivers were mentioned (out of 16 from the literature review), and 5 external (out of 18 from the literature review).

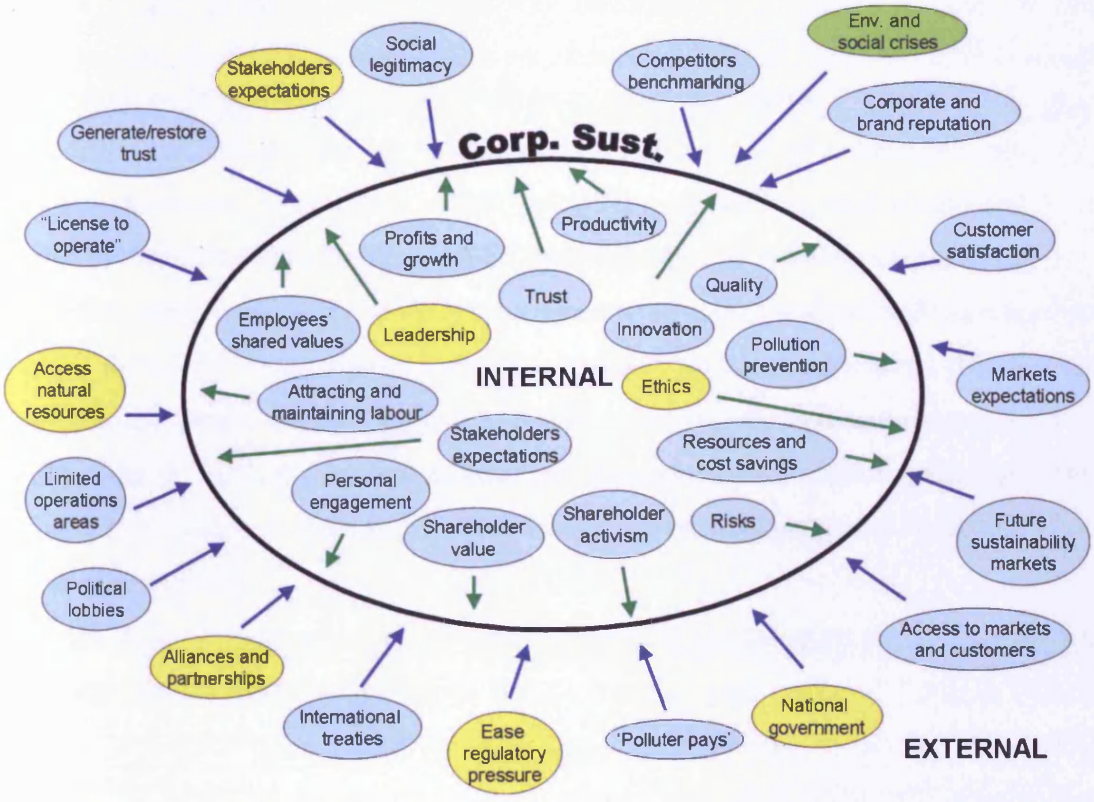

Figure 7-12 CS drivers identified at Peñoles

The number of drivers identified was much fewer than those found in the literature review. This could mean that: (1) The interviewees did not identify the drivers, (2) they were aware of them but did not mention them or they were taken for granted, (3) the number of interviewees was too small to elicit a comprehensive list of the drivers,

or (4) that leaders in any one company will be conscious of only a limited number of drivers, while those identified from the literature review most probably came from a large number of companies.

7.3.4 Efforts made towards CS, and employee involvement

At Peñoles, CS is addressed by integrating it into institutional values, the corporate structure, including general management, human resources, ecology, health and safety, and by creating synergies between operating units (Peñoles, 2004b). These are framed by the following systems:

- **Prevention**: Links CS explicitly to the environmental and occupational safety policies. If the risks generated by any project or process cannot be eliminated or reduced to acceptable levels, the project is redesigned, or the process is stopped (Peñoles, 2006b);
- **Measuring**: Creates indicators regarding health, safety, and community development (Peñoles, 2002a); establishes an information management systems to manage indicators (Peñoles, 2003a, 2005); uses impact matrices to track social and environmental projects and programmes (Peñoles, 2006b), and a modified version of the Balance Scorecard (BSC) (Peñoles, 2002a, 2004b); and is a requirement for new projects (Alvidrez, 2006);
- **Communication**: Addresses employees and community members' complaints regarding company activities. This includes a 'Feedback System for Interested Parties'. It also prepares the CS reports (Peñoles, 2004b).

As indicated by the responses to Questions 5 and 11c in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv, CS efforts range from pollution control, prevention, and assessment through indicators, to raising awareness, and communication. However, some interviewees contradict each other, for example with regard to incentives, some acknowledged their existence, and others not. This might mean that they were not known, or their influence was not identified.

Peñoles has published CS reports since 2001, initially labelled as environmental reports (Peñoles, 2001a, 2002a). After 2003 they were labelled as Sustainability Reports (Peñoles, 2003a). In 2004, Peñoles started using the GRI Guidelines (Peñoles,

2004b, 2005). In 2005, the CS report was submitted to PriceWaterhouseCoopers for data verification and assurance (Peñoles, 2005). The Sustainability Reports are targeted both internally and externally. The interviewees considered reporting to be vital (see Question 5b in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv).

Employee involvement in CS varies within the different parts of Peñoles, as illustrated in the responses to Questions 12 and 12a in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv. Leadership was considered to be integrally involved in CS. Although one interviewee thought that everybody in Peñoles should be involved in making CS part of their everyday activities, until now operational functions have been more involved with CS than support areas.

Efforts to get people involved with CS included: communication, 'day of the environment', reports, conferences and presentations, and making it part of operations and the strategic plan (see Question 12b in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv)

7.3.5 Leadership's role and management approaches

Complementing the opinions presented in previous sections, indicating that leadership is key to the CS change process, interviewees offered the following opinions as presented in Table 7-15 on top-down and bottom-up approaches (see Question 13 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv). There is a preference for the top-down approach. Nonetheless, Huerta indicated that top-down and bottom-up approaches "... *are complementary.*"

Table 7-15 Top-down and bottom-up advantages and disadvantages identified by Peñoles' interviewees

Top-Down	***Bottom-Up***
Advantages	
• It makes CS a priority • It is more efficient • It makes it flow through the company by being the means and facilitators • It provides the necessary resources and a clear path	• It can secure and communicate the results • It helps to raise awareness
Disadvantages	
• It could create resistance if being perceived as orders • The top levels cannot evaluate what is being done in all parts of the company	• It is more difficult to move forward without top level support • Little or no resources, support or time are made available • It can lead to feelings of abandonment

None of the interviewees referred explicitly to middle management, but this was mentioned in some of the secondary sources, under High Performance Teams (Peñoles, 1999, 2000, 2001b).

7.3.6 Peñoles' institutional framework

Peñoles' vision statement is: "*To be the most recognised Mexican company of its sector worldwide, for the quality of its processes, and the excellence of its people*" (Peñoles, 2003a, p.2, 2004b, p. 2, 2005, p.7, 2006b, p.8). This vision statement is reaffirmed by its mission, "*To add value to non-renewable natural resources in a sustainable way*" (Peñoles, 2000, p.3, 2001a, p.1, 2003a, p.2, 2004a, p.4, 2004b, p. 2, 2005, p. 7, 2006b, p.8). The vision and the mission are supported by a commitment to the environment; society (Peñoles, 2003a); and the company values (Confidence, Responsibility, Integrity, and Loyalty) (Peñoles, 2006b).

Peñoles objectives are to:

- Provide its shareholders with long-term investment options, growth and profitability;
- Form strategic partnerships with its clients;
- Establish long-term mutually beneficial relations with suppliers;
- Create a workplace that engenders pride and dignity, based on respect, recognition, and a safe work environment;
- Respect the natural environment, and promote self-sufficiency among the communities where it operates (Peñoles, 2000, 2001a, 2001b, 2002b, 2003a, 2004a, 2005).

Peñoles has policies for the following subject areas that guide its social responsibility (details of these are offered in Appendix A. IX):

1. Corporate Governance;
2. Code of Ethics;
3. Security, health and labour;
4. Environment;
5. Community development;
6. Responsible market and consumer protection practices;

7. Social dialogue;
8. Social investment;
9. Donations, volunteers and philanthropy;
10. Education (Peñoles, 2006b).

Peñoles' Board of Directors includes independent advisors and committees. It adheres to, and is in compliance with, the 'Better Corporate Practices Code of the Entrepreneurial Coordinating Board' (Peñoles, 2004b, 2006b). Accountability, transparency, and responsibility for financial and operating information are promoted through open management (Peñoles, 2005, 2006b).

Peñoles code of ethics supports the integration of the core values into daily activities (Peñoles, 2004b, 2006b). It is up to date with current trends and regulations (Peñoles, 2005). All employees must sign an annual declaration, in which they agree to comply, uphold and respect the code of ethics. It adheres to the United Nations' Global Compact, of which Peñoles became a signatory in 2005 (Peñoles, 2005, 2006b). The code of ethics was reviewed in 2003, reducing the institutional policies from 176 in 2002 to 21 (Peñoles, 2003a).

In addition to the CS statements found in the reports, the interviewees considered that it is necessarily included in the company's institutional framework, as indicated by Arrellin: "*They have dedicated much time to create them and make sure they are part of the company*", and Rebollado: "*They frame the life of the company.*"

They considered the institutional framework to be part of the company's values and responsibilities, "*Because the company cannot survive if there is no SD plan.*" (Arrellin), and "*...otherwise it is not understood by the employees. It helps ground SD, driving the changes, values, sense of belonging, and makes policies belong to the people.*" (Huerta)

7.3.7 CS barriers to change and strategies to overcome them

Huerta said *"A lack of holistic focus in operations"* as an important barrier, while Rebollado mentioned, *"There are no barriers or opposition towards SD"*, but the

main concern is the effectiveness in the implementation. Table 7-16 shows the number of barriers to change mentioned by the interviewees (see Question 9 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv).

Table 7-17 shows the number of barriers to change mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes [28]. Figure 7-13, which shows the memework of the barriers to change mentioned by the interviewees. It can be observed that there is good recognition of the individuals' informational barriers to change, and the groups' emotional ones. The organisation's informational and behavioural, group behavioural, individual emotional and behavioural, and systemic barriers to change, have a relatively low percentage. There are no organisational emotional barriers identified. In general, there is relatively good recognition of barriers to change.

Table 7-16 Peñoles interviewees' barriers to change that affect Corporate Sustainability

	Change barrier	***Attitude***
	Individuals	
Level 1	Ignorance	Informational
	Lack of awareness	Informational
	Lack of information	Informational
	Lack of ability to face the problems	Informational
	Misunderstanding the information	Informational
Level 2	The individuals themselves	Behavioural
	Natural human resistance towards change	Behavioural
Aspect 1	Lack of time	Emotional
	"Why do something if we're not doing anything wrong?"	Behavioural
	Groups	
	It is difficult to see the connection or relate it everyday activities or jobs especially in functions that have no evident connection to CS	Emotional
	Keeping feuds	Behavioural
	Organisational	
Managerial	Not seen as related to the financial bottom line	Informational
Org.	Difficult to measure the effectiveness of the implementation	Systemic
	Lack of holistic focus in operations	Systemic
Historical	Operative profile of the company	Behavioural
	Considered as a fad	Behavioural

[28] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

Table 7-17 Peñoles' barriers to change compared with the total collected in this research

	Informational		*Emotional*		*Behavioural*		*Systemic*	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individuals	5	71%	1	4%	3	17%		
Groups	0	0%	1	100%	1	25%		
Organisational	1	5%	0	0%	2	7%	2	13%

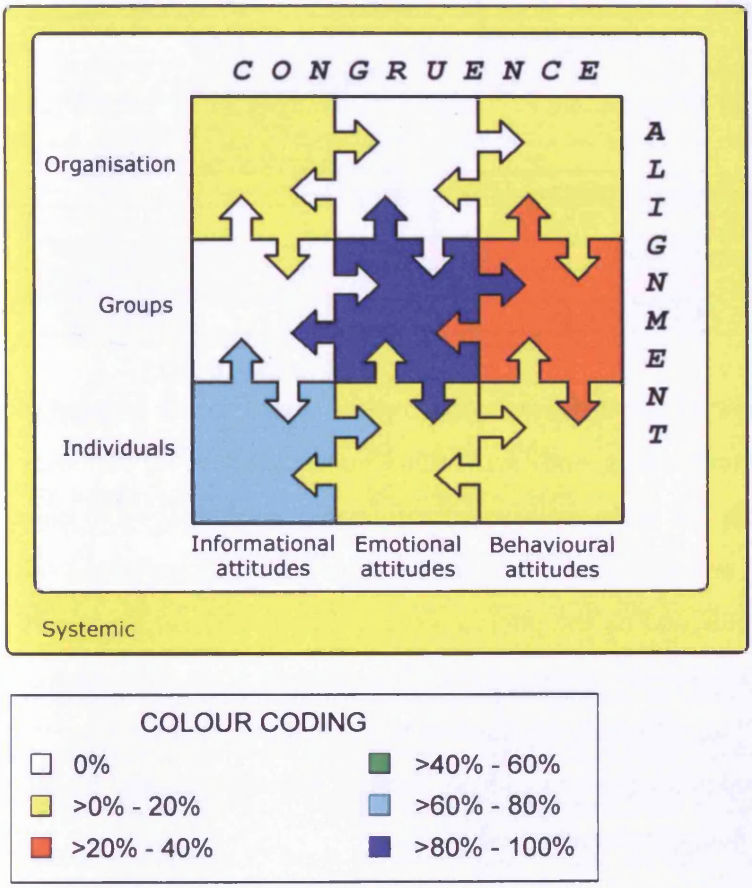

Figure 7-13 Peñoles' barriers to change MuSIC memework

The interviewees indicated different strategies to overcome the barriers (see Question 10 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv). Table 7-18 collects the different answers.

Table 7-18 Peñoles' interviewees proposed strategies, and approaches to overcome barriers to change

	Strategy or approach	***Attitude***
	Individuals	
Level 1	Education and awareness raising campaigns	Informational
	Communication to employees	Informational
	Examples and local activities	Informational
	Education and training	Informational
Level 2	Champions	Systemic
	Groups	
	Champions	Systemic
	Organisational	
Managerial	Managing the change	Behavioural
	Adapting external models	Behavioural
	Leadership	Systemic
	Champions	Systemic
	Linking it to the company's institutional framework	Systemic
	Strategic planning	Systemic
Org.	Making it part of performance	Behavioural
Supportive	Use of technology	Behavioural
External	Collaboration with other companies	Behavioural

Table 7-19 shows the number of strategies and approaches to overcome barriers to change, mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes [29]. These helped to create Figure 7-14, which shows the memework of the strategies and approaches mentioned by the interviewees. It can be observed that only the individuals' informational attitudes, organisation's behavioural ones, and systemic ones appear. This indicates that, although the barriers to change are, to a great extent identified, there are not formal procedures to address them. It appears that they are left to serendipity, addressed *ad hoc*, or not addressed at all.

Table 7-19 Peñoles' approaches to overcome barriers to change compared with the total collected in this research

	Informational		***Emotional***		***Behavioural***		***Systemic***	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individuals	4	57%	0	0%	0	0%		
Groups	0	0%	0	0%	0	0%		
Organisational	0	0%	0	0%	5	13%	4	40%

[29] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

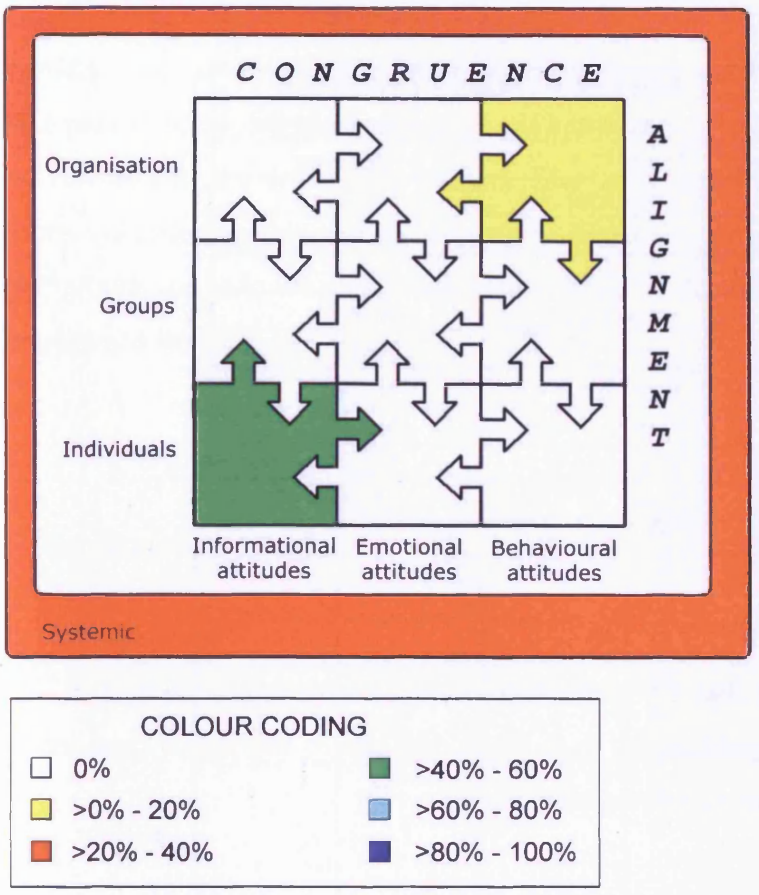

Figure 7-14 Peñoles' approaches to overcome barriers MuSIC memework

Table 7-20 shows the similarities and divergences between the barriers to change and the strategies to overcome them. There is concordance between organisational behavioural barriers to change and strategies. There is high recognition of groups' emotional barriers. There is some awareness of the individual's emotional and behavioural, group behavioural, and organisational informational ones. However no strategies are offered to overcome these. There is recognition of organisational systemic strategies, yet the recognition of the barriers is much lower. The discordances between identified barriers and strategies may be one of the limiting factors in CS incorporation and institutionalization.

Table 7-20 Peñoles' barriers to change and strategies to overcome them comparison

Level	*Attitude*	***Barriers to change awareness***	***Strategies awareness***
Individuals	*Informational*	High	Medium
	Emotional	Very low	None
	Behavioural	Very low	None
Groups	*Informational*	None	None
	Emotional	Very high	None
	Behavioural	Low	None
Organisations	*Informational*	Very low	None
	Emotional	None	None
	Behavioural	Very low	Very low
	Systemic	Low	Medium

7.3.8 CS institutionalization

The interviewees indicated that CS institutionalization had taken between 4 to 10 years, see Question 6 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv. This is considered to be mainly through extensive communication efforts.

The interviewees considered that CS institutionalization can be accelerated by: leadership; raising awareness; assessment and reporting; investment (in technology); and linking it to the objectives and performance, see Question 7 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv. However, the top-down approaches being taken could result in changes being resisted by the lower levels of the company's hierarchy. Additionally, Rebollado mentioned that "*Crises help to accelerate [CS]*", referring to the lead crises they had had in the Met-Mex plant in 1998, see Appendix A. Iii.

During the constant comparative analysis, it was observed that the MuSIC memework presented the potential to illustrate the CS meme transfer within the case studies. Based on the researcher's interpretation of the interviewees' responses, especially, but not exclusively those in Sections 7.3.2, 7.3.6, and 7.3.8, and the quotes in this section, it was perceived that the CS meme in Peñoles started with organisational actions (behavioural attitudes) and the values of individuals (emotional attitudes). From the former it moved to group actions (behavioural attitudes), followed by individual actions and organisational values (emotional attitudes). Finally it moved to the organisation's education programmes (informational attitudes). From the latter it

moved to individual actions (behavioural attitudes), then to education (informational attitudes), next to group values (emotional attitudes), and finally to group education. This path is presented in Figure 7-15, and indicates a split between the feelings of individuals and the company's actions. The individuals appear to be pushing CS efforts via action and learning, to the groups. The company's actions appear to engage with groups and individuals through action, while at the same time engaging with the feelings and learning processes of the organisation.

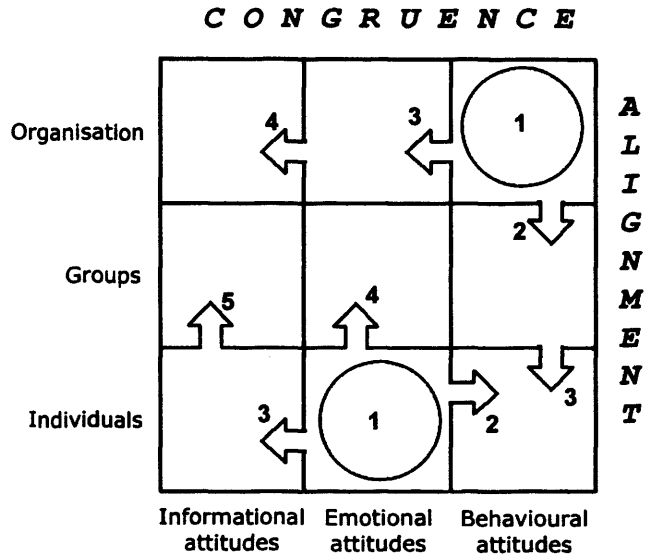

Figure 7-15 Corporate Sustainability meme transfer in Peñoles

The following responses were given when the interviewees were asked how they would take CS forward if they were the CEO of their company, see Question 16 in Appendices A. Ii, A. Iii, A. Iiii, and A. Iiv:

> *"Visiting other companies and learning from their experiences."* (Alvidrez)

> *"Peñoles is very strong in SD. Just continue what they've been doing."* (Arrellin)

> *"I would put more attention to R&D to develop more environmentally friendly processes and solid waste discharges. Search for more symbiosis with other industries. Create more explicit SD policies. Create synergies with other companies. Make more sustainable communities."* (Huerta)

"Keeping on what is being done. Making all the employees responsible. Improving information for personnel." (Rebollado)

7.3.9 Peñoles' efforts seen through the Corporate Sustainability change model

The types of changes, according to the literature review (Section 4.2.1), which the company has adopted towards CS, have been mainly 'internal' and 'planned incremental changes'. The changes have been aimed mainly at 'operations' and 'strategies', resulting in some 'cultural' changes.

The change pathway (see Section 4.2.3) was, to a great extent transformational, until the lead crisis, from which time it has been more developmental. Further historical research needs to be conducted to detect if transitional periods have occurred.

The Corporate Sustainability change model (Figure 5-3) presented in Section 5.8 offers a possible framework for analysing the efforts taken by Peñoles to contribute to CS. The model provides an ideal change process, where the changes become institutionalised after a period of time, and then new change takes place. Section 7.3.3 offers a detailed description and analysis of Peñoles' CS drivers (left part of Figure 5-3).

In the Corporate Sustainability change model, it is proposed that the institutional framework maintains the stability of the system while the changes are taking place. The evidence presented in Section 7.3.2 indicates that this is the case with Peñoles.

The institutionalization of CS is explained in Sections 7.3.6, and 7.3.8, where it can be observed that the efforts have been institutionalised in some parts of the company, but not in others. However, the data obtained does not provide enough information to detect if there have been transition and institutionalization stages, or if these have occurred.

The model in Figure 5-3 considers that the barriers and strategies to overcome them are in ideal concordance. As presented in Section 7.3.7, this is not the case in Peñoles. Thus the model needs to be modified to fill in the gap created by the dissonance

between the barriers to change and the strategies to overcome them, as shown in Figure 7-16.

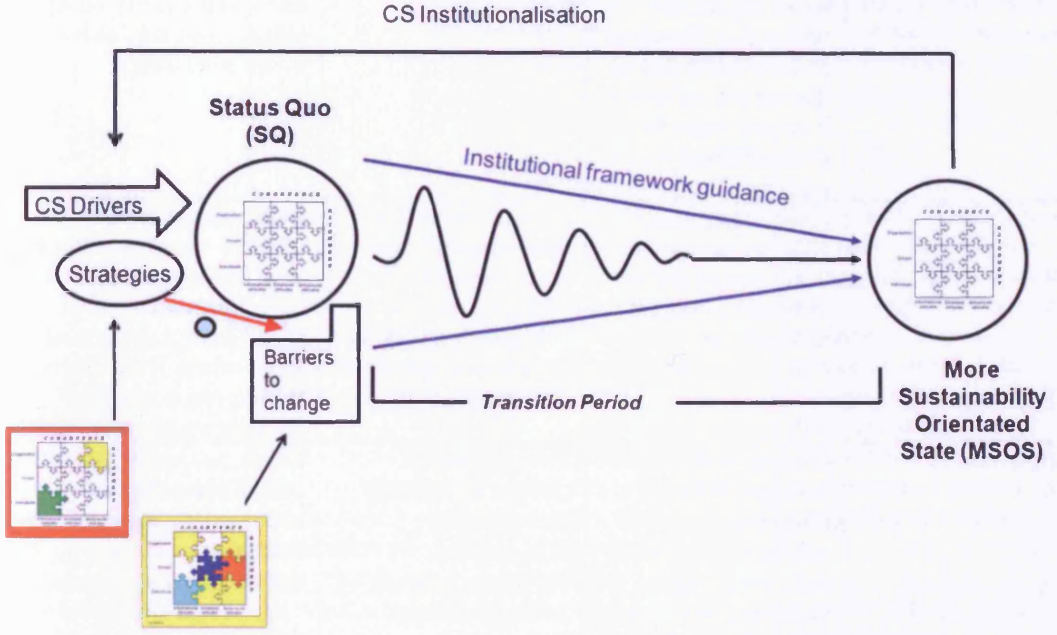

Figure 7-16 Peñoles' organisational changes for CS

The discussions of how Peñoles' efforts answer the research questions are offered in Section 7.4, where the findings from the three case studies are integrated.

7.4 Chapter conclusion

This chapter presented an analysis of the case studies applying the theoretical framework, and the tools specified in Chapter 6. Although the case studies belong to different industrial sectors, they share certain characteristics, such as:

- Being publicly traded corporations;
- Selling their products and services to other companies and not directly to consumers, which lowers their public exposure;
- Having engineering bases;
- Being relatively large corporations with worldwide operations, within which change usually takes considerable time to accomplish;
- Being in business for many decades; and
- Having engaged in CS efforts for several years.

Table 7-21 Concise comparison of the case studies findings

Findings	Grupo IMSA	JCI	Peñoles
Top-level managers' conception of CS	Including environmental and social aspects in operational functions, and making it part of the culture. However, it mainly refers to environmental aspects	Sustainability is defined through the TBL	A way of addressing economic, environmental, and social aspects, taking into account the needs of future generations
CS evolution	From strategic and planning exercise to being part of the company's policies and activities	Contributions to environmental and social aspects have taken place for over two decades, with an increased emphasis in the last years	Two main routes: (1) in urban areas, where there has been, mainly, a shift from environmental issues to social ones; and (2) in rural areas, where it has evolved from social issues to environmental ones
Main CS drivers	Leadership has been the main driver. Employees' shared values, and resources and cost saving; national government, and raising students' awareness	The company's culture; publishing Sustainability Reports, and customer demands and expectations.	Leadership; moral and ethical obligation to contribute to Sustainability; champions; access to resources; environmental crises; regulation and legislation; society's raising awareness; and collaboration with external organisations
CS efforts	Focuses on operations and processes. Inclusion of a CS section in the annual report	Incorporation into its systems, especially through the Sustainability Report. The Blue Sky programme has been a base for changes	Pollution control (monitoring of emissions), prevention, assessment through indicators, raising awareness, and communication
Involvement	Mainly operational functions. Staff areas not that involved. Involvement is done mainly through raising awareness	Employees in management positions. Production workforce tends to be further behind	Operational functions tend to be more involved than staff and support areas
Top-down management approaches	Necessary for CS changes to take place	Key to make it part of the culture	Considered to be more efficient in effecting changes towards Sustainability
Bottom-up management approaches	Considered to help to consolidate the changes	Important to consolidate changes	Help to make it part of the company's culture
CS inclusion in the institutional framework	Explicitly mentioned. Addressing environmental and social aspects. It is needed to include CS in it since it rules the culture and maintains stability	Explicitly mentioned. Addressing environmental and social aspects, which are intertwined with those in economic activities and objectives	Explicitly mentioned. Considered to help to operationalise it into the company's culture
Barriers to change	Natural human resistance to change, technological and	The company's culture; conservative leadership; a lack of	Operative profile of the company, ignorance, lack of information, lack of time,

	economical challenges	understanding; not proactively asking for it; falsely perceived conflicts with the company's values; lack of time and resources; perception of Sustainability being another fad; and questioning about its business case.	lack of proactivity, lack of holistic perspective, feud keeping, lack of relevance to activities or functions, no direct impact on the bottom line, individuals resistance, and effectiveness in the implementation
Strategies to overcome barriers to change	Convincing people through leadership, incentives, firing people, Six Sigma programmes, training, education, and raising awareness	Awards; top-level management involvement; customer pressure; reports; and communication	Use of technology, planning, visits to other companies, communication and training, Sustainability champions, knowledge transfer, managing the changes, and adapting external models
Comparison between barriers to change and strategies to overcome them	Discordance between the recognition of barriers and application of strategies	Discordance between the recognition of barriers and application of strategies	Discordance between the recognition of barriers and application of strategies
Institutionalization	Between 4 to 6 years. Starting from emotional attitudes of the leaders, being then transferred to the informational and behavioural attitudes of other individuals, from which it moved to groups' behavioural attitudes, and finally to the organisation's behavioural ones	Between 4 and 5 years. Started in emotional attitudes of the organisation; being then transferred throughout the organisation through informational and behavioural attitudes; then to its groups attitudes, and finally to its individuals' attitudes	Between 4 to 10 years. Started through organisational behavioural attitudes and individual emotional ones. From the former it moved to group behavioural attitudes, followed by individual behavioural attitudes and organisational emotional attitudes, finally to the organisation's informational attitudes. On the latter, it moved to the individuals' behavioural attitudes, then to their informational attitudes, next to group emotional attitudes, and finally to groups' informational ones.

The organisational change efforts from the case studies, to engage with CS, provided data that can be useful in answering this thesis' research questions. Table 7-21 shows a concise comparison of the findings from the case studies.

The evidence to help to answer the first question (*What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?)* can be found in Sections 7.1.3, 7.2.3, and 7.3.3, from which it is possible to identify that the main

driver was perceived to be leadership. Different internal and external drivers were also mentioned, or detected, in the case studies, as listed in Table 7-22.

Table 7-22 CS drivers mentioned by the interviewees in the case studies

Internal	
Driver	***Company***
Leadership	Grupo IMSA, Peñoles
Employees' shared values	Grupo IMSA
Resources and cost saving	Grupo IMSA
Company's culture	JCI
Publishing Sustainability Reports	JCI
Moral and ethical obligation	Peñoles
Champions	Peñoles
External	
Driver	***Company***
National government/regulation and legislation	Grupo IMSA, Peñoles
Raising students' awareness	Grupo IMSA
Customer demands and expectations	JCI
Access to resources	Peñoles
Society's raising awareness	Peñoles
Collaboration with external organisations	Peñoles
Environmental and social crises	Peñoles

Figure 7-17 shows the drivers mentioned in the case studies. The ones mentioned by the interviewees, and found in the literature review, are presented in yellow; those not mentioned in the literature are in green; while the ones found in the literature, but not mentioned by the case study interviewees, are in blue. Compared to the literature, see Section 3.2.3, there were relatively few drivers identified in the case studies (4 out of 16 internal, and 7 out of 18 external). This could mean that: (1) The interviewees did not identify the drivers, (2) they were aware of them but did not mention them or they were taken for granted, (3) the number of interviewees was too small to elicit a comprehensive list of the drivers, or (4) leaders in any one company will be conscious of only a limited number of drivers, while those identified from the literature review most probably came from a large number of companies.

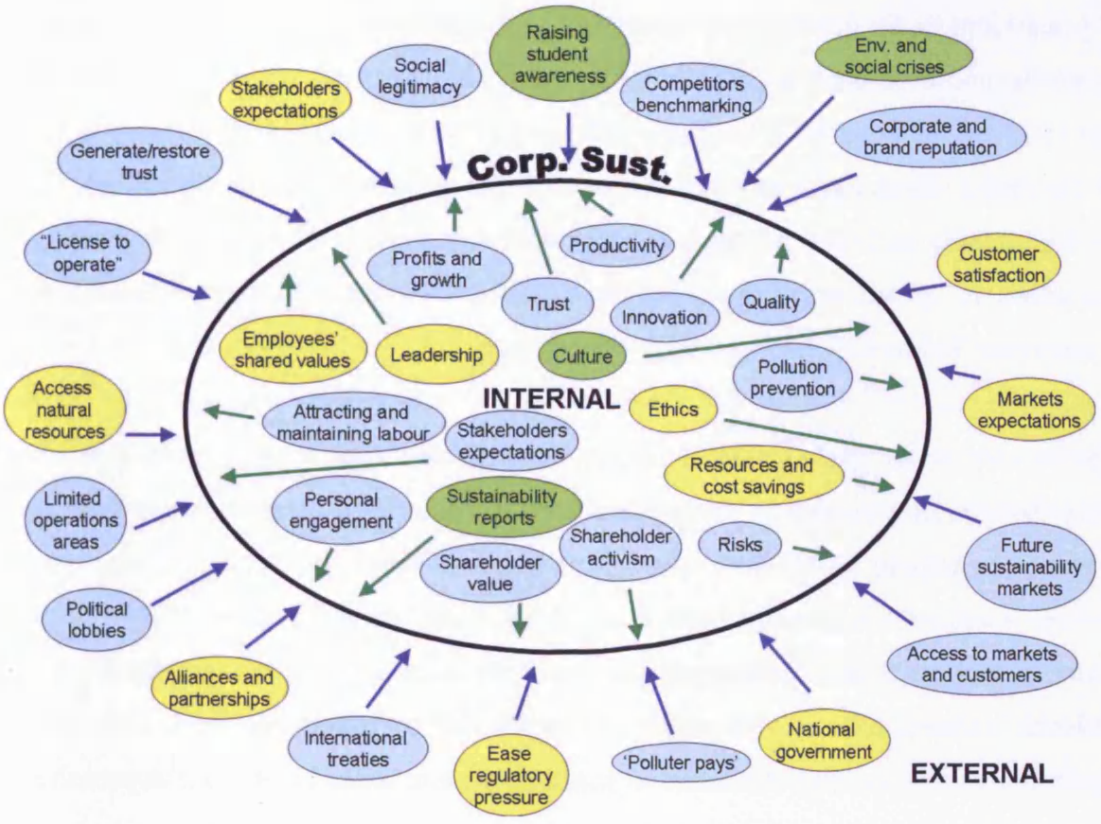

Figure 7-17 CS drivers mentioned in the case study companies

The evidence to help to answer the second question (*What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?*) can be found in Sections 7.1.2, 7.1.4, 7.1.6, 7.2.2, 7.2.4, 7.2.8, 7.3.2, 7.3.4, and 7.3.8. The efforts being taken by the case study companies have included changes in operations and processes (such as pollution control mechanisms, eco-efficiency and Six Sigma initiatives to promote eco-efficiency); incorporation of CS into systems; raising of awareness; assessment through indicators; and internal and external communication through CS reporting. There has been an overall emphasis on technological improvements.

CS reporting is considered by JCI and Peñoles to be one of the main CS efforts, both internally and externally. It formally addresses CS issues and aspects, and raises awareness and engagement. In Grupo IMSA, CS is included in the financial reports. This, however, signals that CS issues are dominated by economic considerations.

CS is present in the institutional framework of the three case studies. It is considered to go beyond ecological norms, to make better use of natural resources, to provide optimal working conditions for employees, and to contribute to improvements in the communities where the companies operate. It was considered necessary to include CS in the institutional framework, since this provided guidance and rules for the culture, activities, and objectives of the companies. As discussed in Section 5.4, this helps to make it the 'Leitmotiv' throughout the company.

The answers to the third question (*For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?*) can be found in Sections 7.1.5, 7.1.8, 7.2.5, 7.2.8, 7.3.5, and 7.3.8. In all three companies it was considered that top-down approaches are necessary for CS changes to take place, and make them part of the culture. Bottom-up approaches were identified as helping to consolidate changes. It was indicated that these approaches need to be complementary. Although none of the interviewees referred explicitly to middle management, this was mentioned in the secondary sources.

Operational functions were recognised as more involved than those of staff functions and support functions. In general, corporate leaders see themselves as the most involved. Efforts being taken to involve employees include: raising awareness, investing in technology, and making it part of objectives and performance evaluation.

The data from the case studies indicate that it takes between 4 to 10 years for CS institutionalisation to occur. Further research needs to take place to detect if company characteristics, such as location, number of employees, and profitability, influences, or could provide a guide to the number of years needed to institutionalise CS.

CS institutionalisation, as a meme, has followed different paths within the companies: (1) from the leaders' emotional attitudes, to individual informational and behavioural attitudes, to group actions, and then to organisational actions; (2) from the organisational values, to the organisation's informational and behavioural attitudes, to groups, and then to individuals' attitudes; and (3) from organisational action to group action, to individual actions and organisational values; also from individuals' values

to actions and informational attitudes, to group values, and finally to group informational attitudes.

The interviewees disagreed on whether CS institutionalization can be accelerated. On one hand, those who thought it possible suggested that it could be promoted by proactive leadership, engagement of functional areas, awareness raising, assessment and reporting, investment (in technology), and linkage to objectives and performance targets. On the other hand, there were two considerations: the first was that the number of years taken, allowed for an easier incorporation into the culture, the other was that it is difficult to accelerate the institutionalization in diversified companies.

The answers to the fourth question (*What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?*) can be found in Sections 7.1.7, 7.2.7, and 7.3.7. Table 7-23 presents the barriers to change reported in the three case studies.

Table 7-24 shows the barriers to change from the case studies, following the MuSIC memework representations. It can be observed that there is a large variation in the extent of barrier recognition. This could be due to the small number of interviewees, the barriers being taken for granted, the interviewees not being aware of them, or from a limitation in the methodology, where a comparatively low number of interviewees in the case studies resulted in, may have resulted in a relatively few barriers being identified.

The common points in the three case studies in regards to CS barriers to change are:

- No awareness of group informational barriers;
- Almost no awareness of group behavioural, and organisational informational and emotional barriers;
- Very low awareness of individuals' emotional barriers, and behavioural barriers of individuals and the organisation; and
- Discrepancies in individuals' informational, and groups' emotional barriers.

Table 7-23 Case studies' interviewees perceived barriers to change

	Change barrier	Attitude
	Individual	
Level 1	Ignorance	Informational
	Lack of awareness	Informational
	Lack of information	Informational
	Lack of ability to face the problems	Informational
	Misunderstanding the information	Informational
Level 2	Fear of losing core values	Emotional
	Fear of not belonging	Emotional
	The individuals themselves	Behavioural
	Not seen as priority	Emotional
	Seen as a threat to company's core values, mainly from a lack of understanding of the concept	Emotional
	Natural human resistance towards change	Behavioural
Aspect 1	Laziness	Behavioural
	Lack of time	Emotional
	"*Why do something if we're not doing anything wrong?*"	Behavioural
	Groups	
	It is difficult to see the connection or relate it everyday activities or jobs especially in functions that have no evident connection to CS	Emotional
	Keeping feuds	Behavioural
	Organisational	
Managerial	Not yet seen as adding value to the company	Informational
	Middle management short-term constrain	Informational
	Not seen as related to the financial bottom line	Informational
	Seen as a threat to company's core values, mainly from a lack of understanding of the concept	Emotional
	Managing the change (JCI, 2005b)	Behavioural
	Not being specifically asked for, thus no resources should be allocated	Behavioural
	Considered as a fad	Behavioural
Org.	Difficult to measure the effectiveness of the implementation	Systemic
	Lack of holistic focus in operations	Systemic
Supportive	Lack of resources	Behavioural
	Lack of available technologies to produce more sustainable products	Behavioural
Historical	Operative profile of the company	Behavioural
	Considered as a fad	Behavioural

Table 7-24 Case studies' barriers to change comparison

Level	***Attitude***	***Grupo IMSA***	***JCI***	***Peñoles***
Individuals	*Informational*	None	Very low	High
	Emotional	Very low	Very low	Very low
	Behavioural	Very low	None	Very low
Groups	*Informational*	None	None	None
	Emotional	None	None	Very high
	Behavioural	None	None	Low
Organisation	*Informational*	None	Very low	Very low
	Emotional	None	Very low	None
	Behavioural	Very low	Very low	Very low
	Systemic	None	None	Low

This indicates a limited perspective on the organisational systems and their attitudinal barriers. Priority is given to individuals' and the organisational informational attitudes, but little attention is given to other organisational unit attitudes.

Table 7-25 presents the strategies to overcome the barriers to change towards CS found in the three case studies.

Table 7-26 shows the comparison of the strategies to overcome barriers to change for the case studies, following the MuSIC memework. It can be observed that there is a large variation in the extent of strategy recognition. This could be due to the small number of interviewees, the barriers being taken for granted, the interviewees not being aware of them, or from a limitation in the methodology, where a lesser number of interviewees in the case studies resulted in, comparatively, a lesser number of barriers being identified.

Table 7-25 Case studies' interviewees proposed approaches to overcome barriers to change

	Strategy or approach	***Attitude***
	Individual	
Level 1	Education and awareness raising campaigns	Informational
	Communication to employees	Informational
	Examples and local activities	Informational
	Education and training	Informational
Level 2	Convincing people, especially business units' leaders	Behavioural
	Champions	Systemic
	Groups	
	Champions	Systemic
	Organisational	
Managerial	Firing people	Behavioural
	Managing the change	Behavioural
	Awards	Behavioural
	Adapting external models	Behavioural
	Leadership	Systemic
	Champions	Systemic
	Linking it to the company's institutional framework	Systemic
	Strategic planning	Systemic
Org.	Making it part of performance	Behavioural
	Extending CS to all functional and business units	Behavioural/ Systemic
Supportive	Using Six Sigma programmes	Behavioural
	Stakeholder communication and engagement	Behavioural
	Incentives, rewards and compensations	Behavioural
	Providing support and resources	Behavioural
	Use of technology	Behavioural
External	Collaboration with other companies	Behavioural
	Pressure from customers	Behavioural

Table 7-26 Case studies' strategies to overcome barriers to change comparison

Level	*Attitude*	*Grupo IMSA*	*JCI*	*Peñoles*
Individuals	*Informational*	Low	Low	Medium
	Emotional	None	None	None
	Behavioural	Very low	None	None
Groups	*Informational*	None	None	None
	Emotional	None	None	None
	Behavioural	None	None	None
Organisation	*Informational*	None	None	None
	Emotional	None	None	None
	Behavioural	Very low	Very low	Very low
	Systemic	Low	Very low	Medium

The common points in the three case studies with regard to CS strategies and approaches applied to overcome barriers to change are:

- Almost no awareness of individuals' behavioural strategies;
- Very low awareness of organisational behavioural strategies;
- Low awareness of individuals' informational strategies; and
- No recognition of strategies to overcome barriers in the other organisational levels and their corresponding attitudes.

The low awareness, or recognition of strategies to overcome barriers to change, could imply that there is a failure to generate strategies, or that the respondents were not aware of the strategies available or taking place.

Table 7-27 shows the comparison between the barriers and strategies to overcome them from the case studies following the MuSIC memework, where it is possible to group the differences between barriers and strategies recognised:

- No barriers or strategies identified, shown in purple;
- Equal recognition of barriers and strategies, shown in light green;
- More barriers than strategies being recognised, shown in yellow and orange; and
- Less barriers than strategies being identified, shown in light blue and white.

Table 7-27 Case studies' barriers to change and strategies to overcome them comparison

		Grupo IMSA		*JCI*		*Peñoles*	
Level	***Attitude***	***Barriers***	***Strategies***	***Barriers***	***Strategies***	***Barriers***	***Strategies***
Ind.	*Informational*	None	Low	Very low	Low	High	Medium
	Emotional	Very low	None	Very low	None	Very low	None
	Behavioural	Very low	Very low	None	None	Very low	None
Groups	*Informational*	None	None	None	None	None	None
	Emotional	None	None	None	None	Very high	None
	Behavioural	None	None	None	None	Low	None
Org.	*Informational*	None	None	Very low	None	Very low	None
	Emotional	None	None	Very low	None	None	None
	Behavioural	Very low	Very low	Very low	Very low	Very low	Very low
	Systemic	None	Low	None	Very low	Low	Medium

Table colour coding:

	No barriers or strategies identified
	Equal recognition of barriers and strategies
	More barriers (very low) than strategies (none) being recognised
	More barriers than strategies being recognised (in different combinations)
	More strategies (none) than barriers (very low or low) being recognised
	More strategies (very low or low) than barriers (low or medium) being recognised

The mismatch between the extent of the identified barriers and the strategies shows that efforts are being misdirected, or are insufficient, to overcome the barriers barriers. This suggests that such mismatches could limit CS incorporation and institutionalization.

The answers to the fifth question (*Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?*) are given in Section 10.2.5 below.

8. Interviews with non-case study Corporate Sustainability experts

The case studies (Chapter 7) were complemented with semi-structured interviews (presented in Appendices A. IV and A. V) conducted with CS experts from corporations, academia, and NGOs. These provided perspectives that allowed triangulation with the responses from the case studies. Non-case study company employees offered specific insights into their companies, while the other experts helped complement the GT. Table 8-1 presents the names, companies, or organisations, to which the interviewees belong. For more details on the interviewees refer to Section 6.3.2.

Table 8-1 Non-case study interviewees' details

Name	*Company or organisation*
Marcel Engel	WBCSD
Scott Noesen	Dow Chemicals
Dawn Rittenhouse	DuPont Chemicals
Michael Tost	Rio Tinto
Sandra Vijn	Global Reporting Initiative
Sheila von Rimscha	Cambridge Programme for Industry
Mark Wade	Royal Dutch/Shell

8.1 Conception of CS, its role in companies, and its evolution

To grasp an understanding of CS, the corporate interviewees from Table 8-1 were asked how and where non-economic factors are considered when discussing aspects of company responsibilities, strategies, and performance. Some illustrative examples include:

> "*The mission of the company is sustainable growth, which we define as creating shareholder and societal value while reducing our environmental footprint*" (Rittenhouse)

> "*When you speak about sustainability, it still has a large environmental connotation. Even if from a conceptual perspective it's not about the environment, but about finding the balance among the economic, environmental, and social pillars.*" (Engel)

"*The expression we use is to contribute to SD, because we are not pretending that we can become inherently sustainable in terms of renewable feed stock, certainly within the next 3 or 4 decades...*" (Wade)

"*We talk about the triple-bottom line, and we reference the TBL; economic prosperity, environmental stewardship, and CSR... [where] CSR is one component of Sustainability*" (Noesen)

The responses illustrate that environmental and social aspects are increasingly being considered in their business activities. A key point is that they make a difference between SD and CS, and related terms such as TBL, corporate responsibility, and sustainable growth[30]. SD refers to the broader context, and the balance among the economic, environmental, and social aspects. CS refers to company's contributions to SD. Although the social aspects are considered important, they seem to be less mature than those of economic and environmental aspects.

Engel (see Question 7 in Appendix A. Ii) and Wade (see Question 3 in Appendix A. Ivii) indicated that CSR tends to be equated with philanthropy or relating to social aspects. Noesen mentioned (see Question 3 in Appendix A. Iii) that it refers mainly to stakeholders (the communities where the company operates, its employees, and society at large), and that in Europe CSR tends to be considered as equivalent to CS, while in the U.S.A. it tends to be a component of CS.

The answers to Question 3 in Appendices A. Iiv and A. Ivii, and Question 4 in Appendices A. Iii and A. Iv illustrate that CS is increasingly being considered in their business activities, as shown in Table 8-2. It plays a role in the designing, building and the operation of plants and facilities; the development of new products; the management of products (*e.g.* chemicals); taking strategic decisions; considering climate change and global warming in investments; health and safety; benefiting workers and their families; the wider impacts on society; and earning the respect of stakeholders.

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[30] Sustainable growth does not consider that there are limits to growth (see (Meadows *et al.*, 1974), contrary to development (see Costanza, 1991; Daly, 2002).

Table 8-2 CS issues mentioned by the non-case study interviewees

	Interviewees				
CS issue	**Engel**	**Noesen**	**Rittenhouse**	**Tost**	**Wade**
Economic aspects					
Making sense for shareholders	X		X		
Threat of bankruptcy		X			
Shareholders perspectives that the negative environmental impact of key products could be a liability			X		
Using economic incentives	X				
Threats from competition in global markets		X			
Environmental aspects					
Pollution prevention					
Using eco-efficiency principles	X	X			
Combining short-term eco-efficient with long-term eco-effective activities	X				
Pollution prevention transfer programmes		X			
Emissions					
Reduction of air carcinogens and toxics			X		
Reduction of greenhouse gas emissions			X		
Seeing carbon dioxide emissions as a competitive factor, especially with carbon trading schemes	X				
Linking climate change and global warming to the long-term strategy					X
Energy					
Maintaining energy usage flat			X		
Sourcing energy from renewable resources			X		
Energy generation from solvents burning	X				
Waste					
Using six sigma and design for six sigma principles to reduce environmental impacts		X			
Considerable reductions of hazardous waste			X		
Water					
Reduction of water usage per pound of product		X			
Avoiding disastrous accidents		X			
Products			X		
Social aspects					
Internal stakeholders					
Health and safety					
Basic health and safety in all operations				X	X

Table 8-2 Cont.

CS issue	Engel	Noesen	Rittenhouse	Tost	Wade
Health and safety (cont.)					
Safety in the plants from their design, building and operations			X		
Improving safety records and performance in developing countries		X			
Employees					
Success relies on its employees		X			
Being one of the first to provide benefits for workers families and setting up a pension			X		
Fundamental human rights				X	X
Severance packages		X			
External stakeholders					
Communities relations					
Contributing and helping to community success		X			
Redeveloping communities and environmental remediation		X			
Understanding what role could the company have in the community and respecting the role of the governments		X			
Nutrition and poverty		X			
Relations to governments					
Understanding the 'crisis of boundary condition'		X			
Product responsibility		X			
Partnerships with other companies and organisations				X	

Although the social aspects are considered important, they seem to be less mature than economic and environmental ones. This may result from: a focus on health and safety issues; being engrained in the way companies do business, not being made explicit; not being considered an integral part of CS; or, most probably, being difficult to grasp and measure, as Salzmann *et al.* (2003) argue.

The responses to Question 5 and 5a in Appendices A. Iii, A. Iiv, A. Iv, and A. Ivii, illustrate that there has been a transition from crisis management, to engaging in environmental aspects through compliance (in the late 1980s); to a focus on eco-efficiency and eco-innovation in the 1990s; and integrating CS into management systems, and in raising awareness. In the beginning, companies were more reactive to external stimuli; while in later years efforts have become more proactive.

8.2 CS Drivers

The drivers mentioned by the interviewees (see Appendices A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii) are collected in Table 8-3. Figures 8-1 and 8-2 present the number of drivers identified by the respective interviewees, where 15 internal drivers (100% in Figure 8-1), and 23 external drivers (100% in Figure 8-2) were identified. The ones mentioned most were: proactive leadership (as internal driver), and reputation (as external driver).Wade and Noesen made a special emphasis on 'selling' CS as a business case in their companies. It should be noted that the frequency of mentioning a barrier should not be confused with the perceived importance of a barrier.

Several points reinforce the reasons why leadership was considered key in CS change, including:

- Creating examples that others can copy, thus helping to further the move to CS change, and demonstrate what success looks like;
- Empowering, recognising best practice, and supporting innovation;
- Making clear that CS is part of the way business is done, and not an add-on;
- Having a strategic, high level perspective;
- Facilitating action;

- Making people own CS; and
- Taking charge of CS.

Table 8-3 Internal, and external drivers mentioned by the non-case study interviewees

Internal drivers	***Number of interviewees who mentioned the driver***
Proactive leadership, *e.g.* "walking the talk"	5
Business case	2
Demands from employees about companies CS efforts	2
Precautionary principle, *i.e.* potential future environmental and/or social impacts from operations, processes or products	2
Company's culture	1
Shareholder activism	1
Moral and ethical obligation to the contribute to CS, also called the values case	1
Avoiding risk	1
External drivers	***Number of interviewees who mentioned the driver***
Reputation, *e.g.* corporate or brand	5
Customer demands and expectations	2
raising awareness in the student population, *i.e.* potential future employees	2
Negative publicity	2
Access to resources, *e.g.* land	2
NGOs activism	2
Environmental or social crises	1
Market opportunities	1
Market positioning	1
Regulation and legislation	1
Society's raising awareness	1
Collaboration with external parties, *e.g.* institutions, NGOs, or other companies	1
Peer-pressure, *i.e.* what leader companies in the same sector are doing	1
Market demands for non-financial information	1

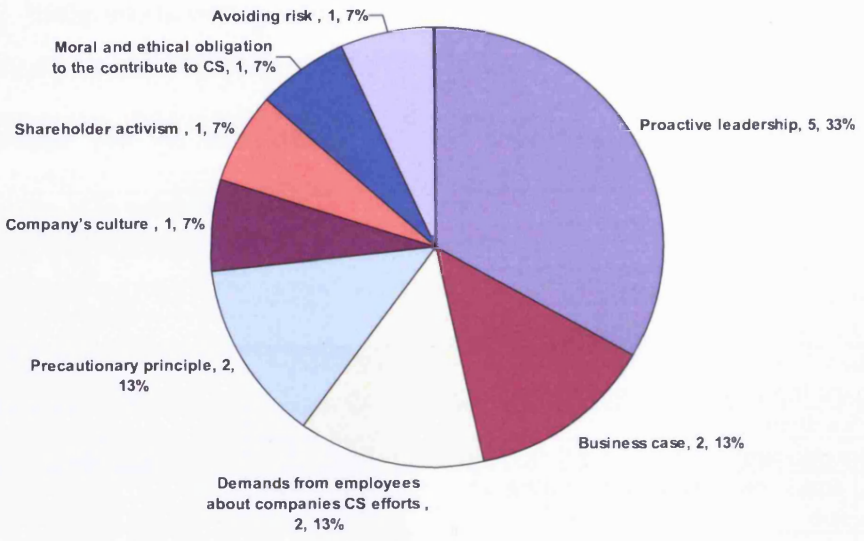


Figure 8-1 Number of non-case study interviewees who mentioned each CS internal driver

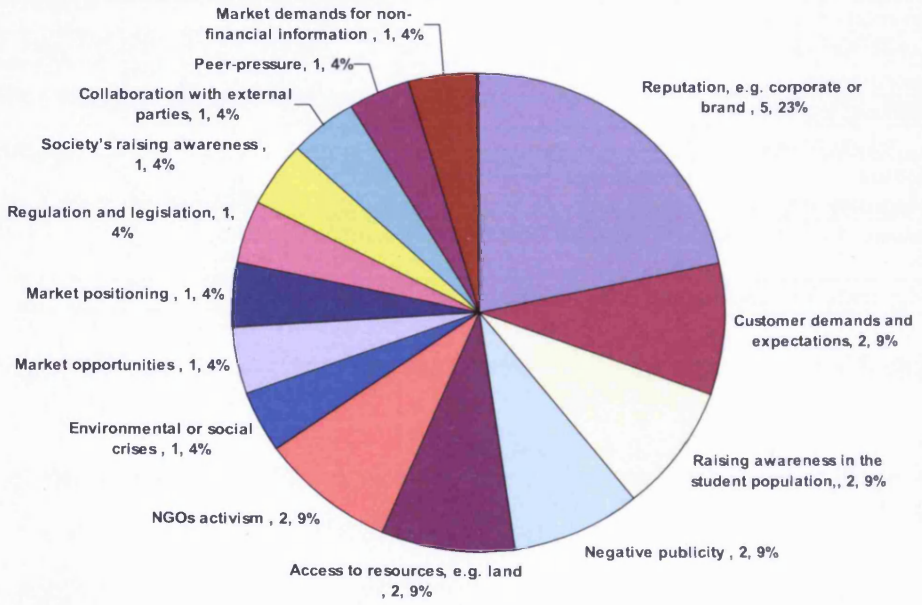


Figure 8-2 Number of non-case study interviewees who mentioned each CS external driver

The non-case study interviewees identified 5 out of 16 internal drivers mentioned in the literature review (see Section 2.3.3). They complemented these with three others: the business case, company culture, and the precautionary principle. Of the external drivers, they mentioned 12 out of 18 found in the literature review, and complemented them with another two: raising student awareness, and environmental and social crises. The drivers are shown in Figure 8-3, which presents those from the literature in yellow, and the complementary ones in green. This could mean that: the interviewees did not identify the drivers; they were aware of them but did not mention them; or they were taken for granted.

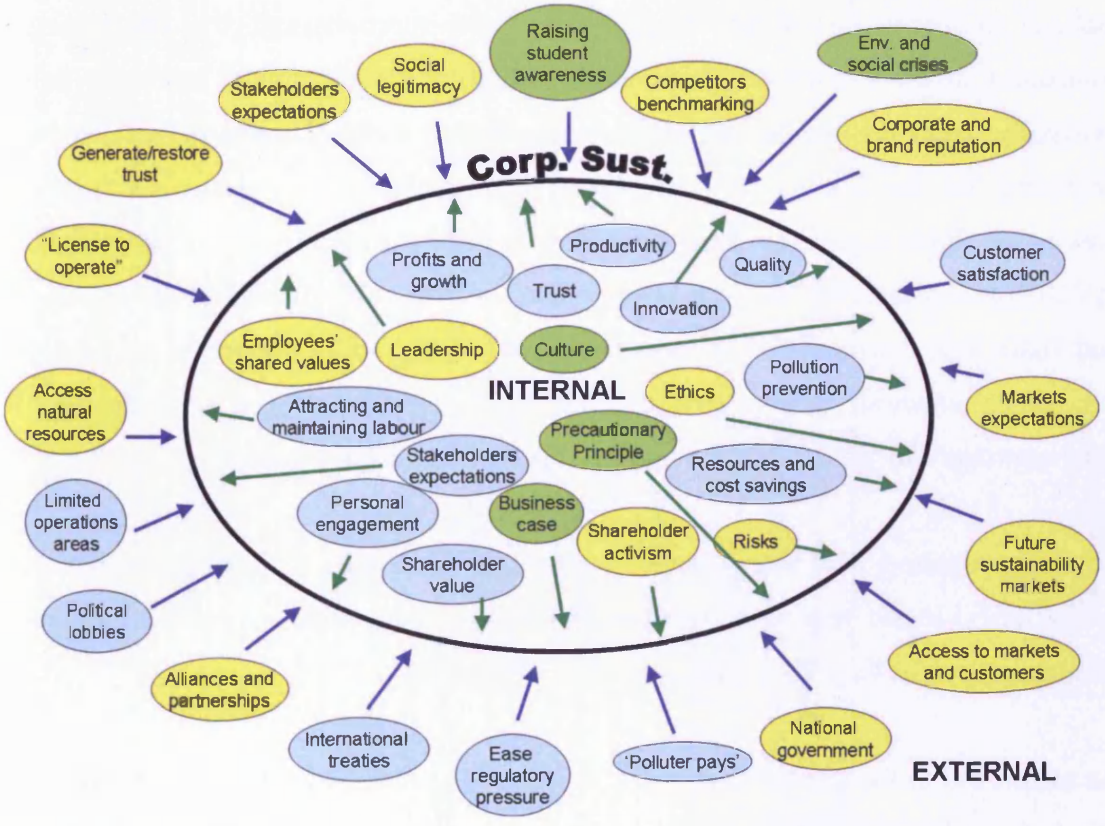


Figure 8-3 CS Drivers identified by the non-case study interviewees

8.3 Efforts made towards CS, and employee involvement

The key points raised by the interviewees (see Question 5 in Appendices A. Iii, A. Iiv, A. Iv, and A. Ivii) in which CS is being taken forward included: training (internal and external) and learning; CS challenges and opportunity reviews; CS reports; award

programmes, sometimes judged by external individuals; inclusion of CS into systems and processes; decision-making criteria based on CS, and long-term goals; engagement with leadership and champions; reputation campaigns; and design and operation, following the Six Sigma approach. Wade recalled, *"Over the last three years, we're really bringing it in to the people of the organisation through ... both hard-wiring and soft-wiring [which] is important to integrate [CS] into how the company operates, if you're really going to achieve lasting change."* Table 8-4 shows the different efforts mentioned by the interviewees, divided into the environmental, social, administrative, and strategic.

Sustainability Reports are considered to be key for CS efforts (see Question 5b in Appendices A. Iii, A. Iiv, A. Iv, and A. Ivii). Once a report is published, people are inclined to follow up on the issue, and ask for improvements, thereby helping companies to move forward. Sustainability Reports are distributed internally and externally. Some companies started publishing Sustainability Reports, as such, at the beginning of the 2000s, although many had published environmental reports previously. Some companies started reporting in 2001 (as indicated by Wade), others in 2002 (as indicated by Noesen), while others in 2003 (as indicated by Rittenhouse and Tost). Vijn remarked that *"It takes from 5 to 7 years before companies are having [sic] more advanced systems, getting other people in the company [to understand] what sustainability means. If it's a small company it takes less years."*

SR was recognised to be a key role in the efforts to incorporate CS into administration and strategy. It can help to assess the current state of an organisation and promote communication of the efforts and progress to stakeholders.

As mentioned in the responses to Question 12 in Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, and A. Ivii, it is increasingly being recognised that everybody in a company has to be involved, and make CS part of their every day activities. Yet there are functions and individuals in every company who tend to be more involved with CS than others. Those involved can create multiplier effects.

Table 8-4 Efforts taken to incorporate and take CS forward mentioned by the non-case study interviewees

	Interviewees						
Environmental	**Engel**	**Noesen**	**Rittenhouse**	**Tost**	**Vija**	**von Rimscha**	**Wade**
Linking it to global footprint, e.g. energy and climate change		X	X				X
Linking it with six sigma and design for six sigma		X					
Fomenting eco-efficiency and cleaner production	X		X				
Considering product responsibility, e.g. improving information given to the public, sustainable chemistry that uses more renewable resources and less toxic materials, or solving challenges or fundamental needs		X					
Social							
Contributing to community success and helping them become self-sufficient		X					
Linking it to the human element (Hu)		X					
Performing annual satisfaction employees surveys		X					
Administration and strategies							
Communicating the efforts	X	X	X	X	X	X	X
Making it explicit in the institutional framework, e.g. integrating it into goals and decision-making criteria		X		X			
Having CS discussions			X				
Awarding CS efforts			X				

Leadership was considered to be most involved with CS. Some other functions include:

- EHS;
- Engineering;
- Strategy, and planning; and
- Operations.

In some cases CS started with the EHS function, moving then to the areas of public affairs. From the corporate brand and reputation standpoint, senior leadership and community affairs are involved. Legal affairs was identified as being occasionally involved, mainly on regulatory compliance.

Areas considered as support or staff (*e.g.* administration, sales, finance, marketing, and computer systems) tend to be less or not at all involved. Sometimes the R&D department is also not involved; at other times it is HR and retail lag behind.

The explanations given for such dissimilarities were:

- CS involvement depends on business units;
- Higher CS involvement is usual where there is a threat of disappearance; and
- Less involvement is usual where the connection is difficult to see, or relate to.

Additionally, it was indicated that new business units tend to be more CS oriented than businesses established decades ago.

It is possible to question whether the nature of participating companies might have an impact on why operational functions tend to be more involved.

There has been a partial link of CS to goals, objectives and targets by developing evaluation metrics (see Question 12c in Appendices A. Ii, A. Iiv, A. Iv, and A. Ivii. These are generally at the business and organisation levels. It was recognised that the social aspects are more difficult to manage than environmental ones.

8.4 *Leadership's role and Management Approaches*

Complementing the opinions presented in previous sections indicating that company leadership is important in the CS change process, the interviewees offered the following opinions on top-down and bottom-up approaches (see Question 13 Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii).

Top-down approaches were recognised as important for the efforts to advance, while bottom-up supports the institutionalization. Bottom-up, without the support of the top levels, slows down, or even blocks, its incorporation. Top-down and bottom-up approaches were considered to be important and complementary for CS change. Noesen claimed, "*It doesn't matter where you start. What matters greatly is that you get to the middle and to the other end quick. You can start with a bottom-up approach but if you don't have the support of senior management, the activities will be seen as 'skulk' works, [and] will be shot down fairly quickly. Conversely, if all you have is the top but no systems in place, it becomes more ethereal and less actionable.*" The advantages and disadvantages of each approach mentioned by the interviewees are presented in Table 8-5.

Table 8-5 Top-down and bottom-up advantages and disadvantages identified by the non-case study interviewees

TOP-DOWN	BOTTOM-UP
ADVANTAGES	
• It makes CS a priority • It is more efficient • It makes CS relevant to the company • It provides motivation and encouragement	• It makes a difference in the implementation • It helps achieve lasting change
DISADVANTAGES	
• Ideas might remain as a utopia and not brought down to action • Without the support of systems it makes CS become ethereal and more difficult to implement • The top levels cannot do everything to incorporate CS, they need support form other levels • If it's purely a top-down process it can take a long time to permeate to the other levels or not achieve long-lasting change	• It is more difficult to move forward without top level support • It takes longer time for people to change • It suffers from 're-inventing the wheel', a lack of coherence, and sometimes conflicting approaches

Middle management was seldom identified as playing an important part in CS. When mentioned, it was because of its potential interference with CS efforts, due to short-term financial and operational pressures. As commented by Rittenhouse "*Middle-management is a problem everywhere. They are the ones being pressured to report on*

quarterly progress, as well as balancing all of these challenges. For them sustainability can be very difficult to integrate into what they're doing." This comment presents an opportunity for further research on management approaches: a similar exercise as the one taken for this thesis, with a focus on interviewing middle-level managers.

8.5 Institutional framework

It was commonly recognised that CS needs be integrated into the institutional framework (see Questions 11 and 11a in Appendices A. Ii, A. Iii, A. Iiv, A. Iv, A. Ivi, and A. Ivii). It helps to start the changes, and to communicate them, allowing companies to be more proactive, and providing guiding principles. Noesen opined, *"It's not only necessary to include it, but it's necessary to be specific what you think it is."* In general, the institutional framework was claimed to be fairly representative of the culture and the future of companies.

The interviewees indicated that including CS in the institutional framework for PR reasons only can be dangerous, and more so than not including it. It was also mentioned that the institutional framework needs to be continuously updated and improved. Making CS a more instinctive part of the culture and how companies operate is still considered a challenge; nonetheless it was indicated that the institutional framework can help to incorporate and institutionalise CS.

8.6 CS barriers to change and strategies to overcome them

Tost claimed, "*I don't see any barriers. There is a strategic decision and commitment to actually do it. I wouldn't see any internal barrier*". Nonetheless, he mentioned other barriers in response to different questions during the interview. The barriers mentioned by the interviewees (see Question 9 in Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii) were integrated with those mentioned in answer to other questions during the interviews to generate Tables 8-6, 8-7, and 8-8, which follow the categorisation established in Section 4.5.3.

Table 8-6 Non-case study interviewees' identified individuals' barriers to change

	Change barrier	*Attitude*
Level 1	Fairly difficult concept to explain	Informational
	People do not quite understand what it really means	Informational
	Misconceptions surrounding the concept, *e.g.* only about the environment or related to radical environmentalist groups, only about social investments, or distraction from responsibilities to shareholders	Informational
	Slight negative image of the concept	Emotional
	Being considered as a foreign concept	Emotional
	Considered as a premium	Emotional
	It is difficult to see the connection or relate it everyday activities or jobs	Emotional
Level 3	Cynicism	Emotional
Aspect 1	Lack of time	Emotional
	Perceived as being too expensive to engage	Emotional

From inspecting Table 8-6, it can be seen that the interviewees identified mainly informational and emotional barriers, with some emotional ones. This indicates that the barriers refer to employee knowledge, their feelings, and thought processes.

Table 8-7 Non-case study interviewees' identified groups' barriers to change

Change barrier	*Attitude*
It is difficult to see the connection or relate it everyday activities or jobs	Emotional
Difficult to incorporate into the pragmatic short-term mind set of some employees, *e.g.* line management	Behavioural

From the literature review of CS it was not possible to find any group barriers to change. The ones presented in Table 8-7 provide a foundation for further research.

Organisational barriers to change (Table 8-8) are mostly in accordance with those found in the literature review (see Sections 4.5.3 and 5.5). However, four identified barriers complement those in the literature review:

- Threat of bankruptcy;
- Considered as a price/cost premium, *i.e.* engaging in it departs a company from its core competencies;
- Trade offs between issues or aspects, *e.g.* using less water but more energy, and focusing on environmental aspects at the expense of economic ones; and
- Plant capacity with long life expectancy.

Table 8-8 Non-case study interviewees' identified organisational barriers to change

	Change barrier	*Attitude*
Managerial	Mental discounting, disbelieve or disagreement on possible consequences or results of continuing with "business-as-usual"	Informational
	In many cases determined by the necessity to generate profits for the shareholders in the short-term in the stock markets. This creates challenges for the mid- and long-term, linked to CS	Informational
	Wanting to make money fast	Informational
	Classic financial discounting cash flow, *i.e.* reluctance to invest in the short-term when the benefits would be in the long-term	Informational
	Not seen as a business case	Informational
	Middle management short-term constrain	Informational
	Threat of bankruptcy, which limits the ability to discuss long-term activities	Informational/ Emotional
	Considered as a premium	Emotional
Org.	Difficult to incorporate into the pragmatic short-term mind set of some employees, *e.g.* line management	Behavioural
	Lack of understanding that it is an integral part of the business instead as an add-on function	Systemic
	Systems and scorecards established to reward short-term individual performance	Systemic
	Trade offs, *e.g.* using less water but more energy or *vice versa*	Systemic
Supportive	Threat of diminishing resources to keep on CS efforts	Emotional
	Lack of resources	Behavioural
Historical	Large installed plant capacity with long expected life	Behavioural
	Considered as a fad	Behavioural

Table 8-9 shows the number of barriers to change mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes[31]. These helped to create Figure 8-4, which shows the memework of the barriers to change mentioned by the interviewees. It can be observed that there was high awareness of group emotional barriers; medium awareness of individual and organisational informational ones, low awareness of individual emotional and group behavioural; and very low recognition of organisational emotional, behavioural, and systemic barriers. There was no mention of individual behavioural barriers. The lack of recognition could be due to the barriers being taken for granted, or simply the interviewees not being aware of them.

[31] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

Table 8-9 Non-case study interviewees' barriers to change compared with the total collected in this research

	Informational		*Emotional*		*Behavioural*		*Systemic*	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individuals	3	43%	7	28%	0	0%		
Groups	0	0%	1	100%	1	25%		
Organisational	8	42%	3	14%	3	11%	3	19%

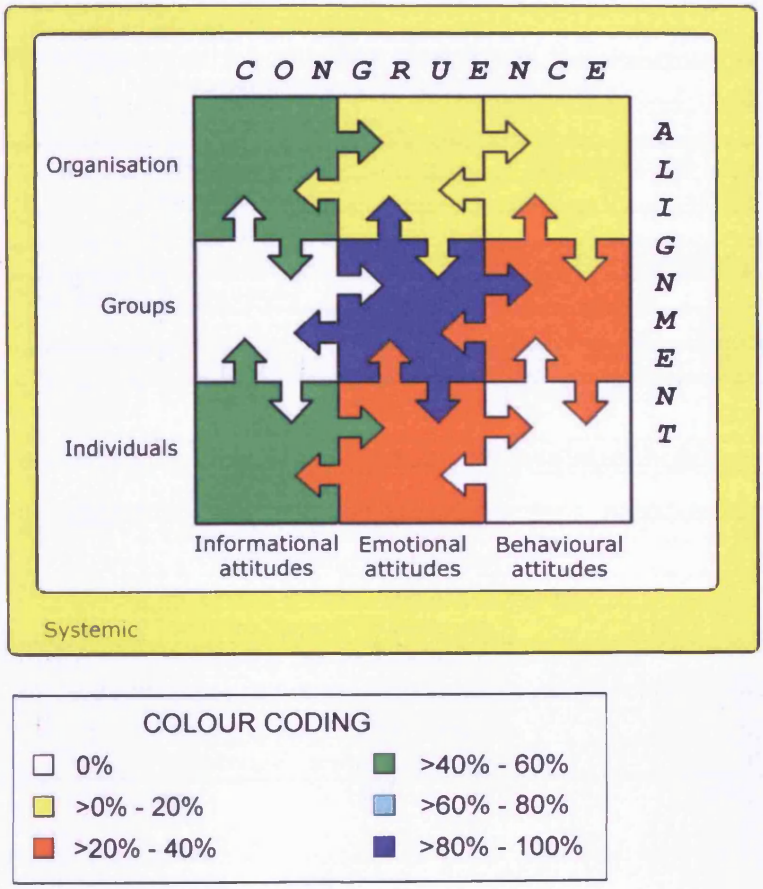


Figure 8-4 Non-case study interviewees' barriers to change MuSIC memework

The following external barriers to change were mentioned:

- Institutional investors not seeing the business case for CS;
- In many cases determined by the necessity to generate profits for the shareholders in the short-term in the stock markets. This creates challenges for the mid- and long-term, linked to CS.

As presented in Table 4-6 and Section 4.5.1, resistance to change can elicit different reactions and effects.

The strategies and approaches identified (see Question 10 in Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii) were integrated with those mentioned in response to other questions during the interviews to generate Tables 8-10, 8-11, and 8-12 which follow the categorisation established in Section 4.5.3.

Table 8-10 Non-case study interviewees' identified individuals' approaches to overcome barriers to change

	Strategy or approach	***Attitude***
Level 1	Education and awareness raising campaigns	Informational
	Communication to employees	Informational
	Education and training	Informational
	Publishing Sustainability Reports	Informational
	CS discussions	Informational/Emotional
	Get people to think about CS	Emotional
Level 2	Convincing people	Behavioural

The identified strategies are confined mainly to the informational barriers. Most of the interviewees indicated communication and education as the best strategies to overcome barriers to change.

Table 8-11 Non-case study interviewees' identified groups' approaches to overcome barriers to change

Strategy or approach	***Attitude***
Restructuring	Behavioural
Champions	Systemic

The strategies mentioned by the interviewees to overcome group barriers to change complement those found in the literature review. Whilst restructuring can help to reduce inefficiencies in the organisation, it might also lower moral.

In general, the strategies to overcome organisational barriers to change concur with those from the literature review (Sections 4.5.3 and 5.5.) There might be some that are implicit in other categories, such as awards which is part of sharing a common vision and ownership; linking it to core values, which is part of policies and governance; and

restructuring, which is part of systems renewals. Using Six Sigma programmes complements the literature review (see Section 4.5.3).

It was indicated that overcoming change barriers through dictatorial mandates increases the resistance to change.

Table 8-12 Non-case study interviewees' identified organisational approaches to overcome barriers to change

	Strategy or approach	***Attitude***
Managerial	Making it compelling to employees	Emotional
	Reporting and showing progress on goals	Behavioural
	Make CS business case	Behavioural
	'Walking the talk'	Behavioural
	Leadership	Systemic
	Champions	Systemic
	Linking it to the company's institutional framework	Systemic
Org.	Restructuring	Behavioural
	Making it part of performance	Behavioural
	Complementing technological changes with socio-cultural ones	Behavioural
	Extending CS to all functional and business units	Behavioural/ Systemic
	Changing and aligning systems to include CS	Systemic
	Deploying more controlled crises	Systemic
Supportive	Using Six Sigma programmes	Behavioural
	Linking to existing programmes	Behavioural
	Incentives, rewards and compensations	Behavioural
	Providing support and resources	Behavioural
External	Stakeholder communication and engagement	Behavioural
	Pressure from regulators or media	Behavioural
	Publishing Sustainability Reports	Behavioural
	Collaboration with other companies	Behavioural

Table 8-13 shows the number of strategies and approaches to overcome barriers to change, mentioned by the interviewees, and their relative percentage to all that were collected during this research, for each specific organisational level relative to their attitudes [32]. These helped to create Figure 8-5[33], which shows the memework of the strategies and approaches mentioned by the interviewees. It can be observed that there is high recognition of individuals informational strategies; medium of organisational systemic; low of individuals emotional, and groups and organisational behavioural;

[32] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

and very low of organisational emotional ones. There is no recognition of individuals behavioural, and groups' emotional strategies and approaches. The lack of recognition could be due to the strategies being taken for granted, or simply the interviewees not being aware of them.

Table 8-13 Non-case study interviewees' approaches to overcome barriers to change compared with the total collected in this research

	Informational		*Emotional*		*Behavioural*		*Systemic*	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individuals	5	71%	2	33%	0	0%		
Groups	0	0%	0	0%	1	33%		
Organisational	0	0%	1	13%	14	35%	6	60%

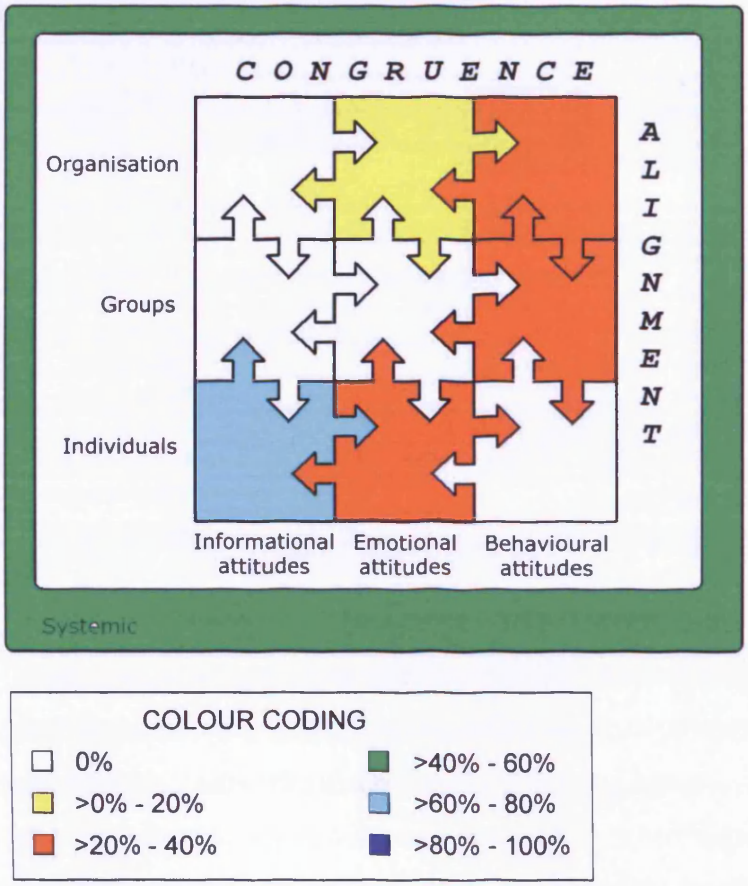


Figure 8-5 Non-case study interviewees' approaches to overcome barriers to change MuSIC memework

Table 8-14 shows the similarities and divergences between the barriers to change and the strategies to overcome them. It can be observed that there is concordance with the

individuals' behavioural, group emotional and behavioural, and organisational emotional and behavioural. There are slight discrepancies between individual informational, and organisational behavioural attitudes, but there are large discrepancies between individual emotional, group emotional, and organisational informational ones. The discrepancies between the barriers to change and the strategies to overcome them appear to be one of the limiting factors in CS incorporation and institutionalization.

Table 8-14 Non-case study interviewees' barriers to change and strategies to overcome them comparison

Level	*Attitude*	*Barriers to change awareness*	*Strategies awareness*
Individuals	*Informational*	Medium	High
	Emotional	Very high	Low
	Behavioural	None	None
Groups	*Informational*	None	None
	Emotional	Very high	None
	Behavioural	Low	Low
Organisations	*Informational*	Medium	None
	Emotional	Very low	Very low
	Behavioural	Very low	Low
	Systemic	Very low	Medium

8.7 CS institutionalization and its acceleration

Institutionalizing CS into a company's culture can take different lengths of time, making it impossible to generalise because, as Vijn stated, *"[it] depends on size, commitment by the board of directors, governance bodies of the corporation, location, sector."* In response to Question 6 in Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii, some interviewees considered that it is not possible to quantify CS institutionalization, others that it takes between 5 to 10 years, while the remainder considered that it would take between 10 and 20 years. Nonetheless, it was recognised that it is an ongoing process.

Rittenhouse said, *"We're working on trying to figure out how to do it [accelerate institutionalization]"*, other interviewees' responses can be found at Question 7 in Appendices A. Ii, A. Iii, A. Iiii, A. Iiv, A. Iv, A. Ivi, and A. Ivii). The key points can be summarised as:

- **Internal**: Incentives; regulations and enforcement; changes in culture and systems; institutional framework; raising awareness; leadership; links to existing programmes; the business case; and communications;
- **External**: Reputation; market positioning; external public policy; and student population awareness raising.

The interviewees offered their personal views when asked how they would take CS forward if they were the CEO of a company.

> "*How do we get sustainability more integrated into our system? How are we looking into broader long-term strategies for what sustainability means for the company? How is sustainability taken into consideration in possible mergers and acquisitions? How are we thinking about how new products, [and] R&D, are moving us towards sustainability?*" (Rittenhouse)

> "*The first thing would be [how] sustainability impacts my company, what are the possible risks, what are the opportunities to develop mid- and long-term scenarios including sustainability.*" (Engel)

> "*I would make more long-term investment money available for effecting change. The availability of cash to back your investment can be very tight. Encourage our investor managers and finance people to be a little bit more tolerant about the value-investment ratio, to lower the VIR hurdle... To encourage longer-term net-value creation, rather that short term optimisation.*" (Wade)

> "*Speed it up in terms of what is demanded in operations performance.*" (Tost)

> "*See sustainability not as a thing but as a philosophy.*" (Noesen)

> "*Make people ashamed of driving a Sports Utility Vehicle (SUV). More marketing, SD has a bit of a negative image.*" (von Rimscha)

Although the interviewees offered diverse responses, these can be interpreted as indicating that Sustainability needs to be better integrated into the systems with a view towards the long-term, and as a philosophy within the company. These would include operations, mergers and acquisitions, marketing, investment, and product development. Additionally, it was mentioned that SD has a 'negative image', where perhaps awareness raising campaigns are either not present, not providing enough or timely enough information, or failing in their purpose.

The answers can be grouped into the following themes:

- **Internal**:
    - *Managerial*: Long-term strategies and scenarios, seeing Sustainability as a philosophy, better integration into systems, detecting possible risks, creating programmes to help implement it, and internal marketing;
    - *Financial*: Corporate funding and long-term investment money to effect change;
    - *Operations*: Integrating it into operations and their performance, new products and R&D helping companies move towards CS; and
- **External**: Taking CS into consideration in mergers and acquisitions.

8.8 Chapter conclusion

This chapter presents the responses from the non-case study interviewees, following the theoretical framework. The interviewees offered insights from their different experiences in CS change efforts, which helped to answer this thesis' research question, as follows:

The evidence that helps to answer the first question (*What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?*) can be found in Section 8.2. The drivers most often mentioned were: proactive leadership; and reputation. Proactive leadership is recognised as one, if not, the key driver of change, especially when it is shown by example.

The non-case study interviewees indicated as significant 5 internal drivers from those recognised in the literature review, out of 16. These were complemented by three others: the business case, a company's culture, and the precautionary principle. From the external drivers, they mentioned 12 out of 18 from the literature, and complemented them with 2 others: raising students' awareness, and environmental and social crises. The drivers are shown in Figure 8-6, which presents those identified in yellow, and the complementary ones in green.

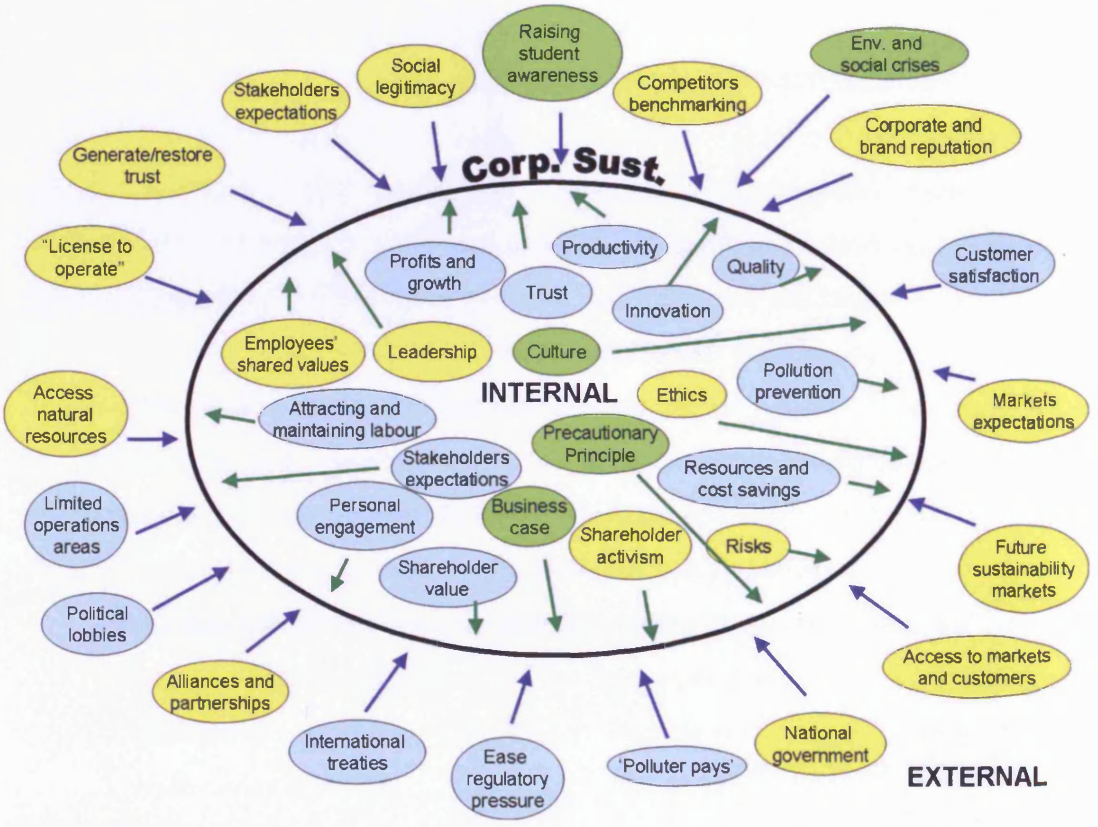


Figure 8-6 CS Drivers identified by the non-case study interviewees

The evidence to help answer the second question (*What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?*) can be found in Sections 8.1, 8.2, 8.3, and 8.5. CS was considered to play a key role in the design, build and operation of plants and facilities; new product development; management of products (*e.g.* chemicals); strategic decisions; investments that consider climate change and global warming; health and safety; benefits for workers and their families; wider impacts in society; and earning the respect of stakeholders.

There has been a transition towards companies making CS a more integral part of their: company culture, operations, strategies, value systems, management philosophies, and their institutional framework (as discussed in Section 5.4, this is part of the process of making it the 'Leitmotiv' throughout companies).

Including CS in the management systems and institutional framework is recognised as helpful in initiating change, and communicating it, through Sustainability Reports. This allows companies to be more proactive, providing guiding principles, and helping to make CS better integrated into the corporate culture and operations.

The answers to the third question (*For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?*) can be found in Sections 8.1, 8.3, 8.4, and 8.7. Top-down approaches were considered needful in initiating CS efforts, and to stimulate bottom-up approaches. Without bottom-up support institutionalization might take longer, or not take place, and without the encouragement of top levels, slow down, or even block incorporation. Both were considered important and complementary when changing companies towards CS. Middle management was seldom recognised as playing an important part in CS. When mentioned, it was because of its claimed potential interference in CS efforts.

Although it is becoming increasingly recognised that everybody in a company ought to be involved, and make CS part of their every day activities, there are functions and individuals in every company who tend to be more involved than others. The most involved functions were recognised to be: leadership; EHS; engineering; operating functions; and strategy and planning. The areas least involved were those considered as support or staff (*e.g.* administration, sales, finance, marketing, and computer systems). The responses indicated that CS is considered less important or relevant in business areas where it is difficult to relate it to everyday activities. Additionally, new business units were identified as being more CS oriented than long-established businesses. The above responses suggest that the experience of incorporating CS into operational areas could be used by leadership, and champions, to create 'multiplier effects'.

Making CS part of a company's culture was claimed to have ranged between 5 and 20 years, but it was also considered to be an ongoing process. The institutionalization process can be accelerated through:

- **Internal**: Incentives; regulations and enforcement; change to culture and systems; institutional framework; awareness raising; leadership; links to existing programmes; the business case; and communications;
- **External**: Reputation; market positioning; public policy; and student population awareness raising.

The answers to the fourth question (*What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?*) can be found in Section 8.6. Different barriers to change were identified. These were mainly individual and organisational informational, individual and group emotional, and organisational behavioural.

The identified group barriers (difficulty in seeing the connection, or relating it to everyday activities or jobs, and difficulty in incorporating it into the pragmatic short-term mind set of some employees) add to those from the literature review (see Section 5.5).

The organisational barriers to change are mostly in accordance with those found in the literature review (see Sections 4.5.3 and 5.5). However, four complementary barriers were mentioned:

- Threat of bankruptcy;
- Considered to be a premium pricing/costing of issues;
- Trade-offs between issues or aspects; and
- Plant capacity with long life expectancy.

The common points made by the interviewees in regards to CS barriers to change are:

- High awareness of group emotional barriers;
- Medium awareness of individual and organisational informational ones;
- Low awareness of individual emotional and group behavioural;

- Very low awareness of organisational emotional, behavioural, and systemic; and
- No recognition of individual behavioural barriers.

This indicates a limited perspective on organisational components and their attitude barriers.

Two external barriers to change were mentioned: Institutional investors not seeing the business case for CS; and profit generation for shareholders in the short-term on stock markets.

The approach most commonly identified to overcome barriers to change was through communication and education. As discussed in Section 4.4.1, there are different approaches, to which triple-loop, higher-level, anticipatory, and action learning, which delve deeper into the cognition processes.

The strategies mentioned by the interviewees to overcome group barriers to change (restructuring, and champions) complement those in the literature review, see Section 4.5.2

In general, the identified strategies to overcome organisational barriers to change concur with those presented in Sections 4.5.3 and 5.5. There were some that were implicit in other categories, such as awards; linking it to core values; and restructuring. The use of Six Sigma programmes complements the literature review (see Section 4.5.3). It was claimed that overcoming change barriers through dictate increases resistance to change.

The common points mentioned by the interviewees regarding CS strategies and approaches to overcome barriers to change were:

- High awareness of individual informational strategies;
- Medium awareness of organisational systemic;
- Low awareness of individual emotional, and group and organisational behavioural;

- Very low awareness of organisational emotional ones; and
- No recognition of individual behavioural, and group emotional.

The low awareness or recognition of strategies to overcome barriers to change could imply that there is a failure to generate strategies, or that there is a lack of awareness of potential strategies, or there is limited awareness of the need for strategies.

When comparing the identified barriers to change, and the strategies and approaches proposed to overcome them, it was found that there is concordance between individual behavioural, group emotional and behavioural, and organisational emotional and behavioural. There are slight discrepancies between individual informational, and organisational behavioural. There are large discrepancies between individual emotional, group emotional, and organisational informational ones. The discrepancies between the barriers to change and the strategies to overcome appear to be one of the limiting factors in the CS incorporation and institutionalization.

The answers to the fifth question (*Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?*) are given in Section 10.2.5 below.

8.9 Follow up on the interviews

Some months after the interviews were conducted, e-mails were sent to follow up on the responses. In some cases there were no major changes to how they were approaching CS. In other cases there had been considerable changes. For example in one company they have made further commitments to fight global warming; increase communications to external stakeholders through a dedicated webpage (Dow, 2007); and to create a new leadership position, Chief Sustainability Officer (CSO), in charge of CS.

9. Empirical data discussion

This chapter provides an analysis and discussion on the data from the case studies and the interviews from the non-case study companies and organisations. It uses the theoretical framework (Chapter 5) and the research questions (Section 6.1) as bases.

The case studies and the non-case study interviewees provided different, yet complementary, perspectives on a common theme: Strategies to help overcome resistance to CS change, and to facilitate its institutionalization. Thus, helping to answer the research questions for this thesis. As presented below.

Within the context of this thesis, the interviewees (see Sections 7.1.2, 7.2.2, 7.3.2, and 8.1) indicated that SD tends to refer to the balance among the economic, environmental, and social aspects, in the broader societal context. CS is increasingly being considered as a company's contributions to SD. It is increasingly being incorporated into company activities, such as operations, relations with government, strategies, and culture. In general, attention to the social aspects tends to lag behind the economic and environmental. In some companies the needs of future generations are also considered to be part of CS, although this is not the norm. Two recurring points found were that CS efforts tend to be based on techno-centric solutions (*e.g.* through eco-efficiency), and compartmentalization. The term CSR tends to be avoided since it is generally equated with charity and philanthropy. In Europe it tends to be equivalent to CS, while in the U.S.A. it tends to be a component of CS.

Table 9-1 lists the issues that were mentioned during the interviews, why these have been engaged, and how they were dealt with.

Table 9-1 CS issues mentioned by the interviewees

	Interviewees											
CS issue	**Andrew**	**Arrellin**	**Chatelain**	**Clarioad**	**Engel**	**Huerta**	**Noesen**	**Rebollado**	**Rittenhouse**	**Tost**	**Wade**	**Werwie**
Economic aspects												
Making sense for shareholders					X				X			
Economic savings				X								
Threat of bankruptcy							X					
Shareholders perspectives that the negative environmental impact of key products could be a liability									X			
Increasing competitiveness with the help of SD				X								
Using economic incentives					X							
Threats from competition in global markets							X					
Environmental aspects												
Pollution prevention												
Using eco-efficiency principles				X	X		X					
Combining short-term eco-efficient with long-term eco-effective activities					X							
Developing more environmentally friendly processes						X						
Pollution prevention transfer programmes							X					
Investing in new technologies				X								
Emissions												
Reduction of air carcinogens and toxics									X			
Reduction of greenhouse gas emissions									X			
Solvents reuse or burning to generate steam for energy				X								
Seeing carbon dioxide emissions as a competitive factor, especially with carbon trading schemes					X							
Monitoring emissions to be lower than national and international standards		X										
Linking climate change and global warming to the long-term strategy											X	
Energy												
Reuse of energy				X								
Maintaining energy usage flat									X			
Sourcing energy from renewable resources									X			

Table 9-1 Cont.

CS issue	Andrew	Arrellin	Chatelain	Clariond	Engel	Huerta	Neeser	Rebollado	Rittenhouse	Tost	Wade	Werwie
Energy (cont.)												
Energy generation from solvents burning					X							
Waste												
Using six sigma and design for six sigma principles to reduce environmental impacts				X			X					
Considerable reductions of hazardous waste									X			
Aiming for zero waste				X								
Water												
Reuse of water				X								
Reduction of water usage per pound of product							X					
Treatment of municipal waste water to be used for industrial processes				X								
Avoiding disastrous accidents							X					
Products									X			
Recycling		X										
Social aspects												
Internal stakeholders												
Health and safety												
Basic health and safety in all operations										X	X	
Safety in the plants from their design, building and operations									X			
Improving safety records and performance in developing countries							X					
Employees												
Success relies on its employees							X					
Being one of the first to provide benefits for workers families and setting up a pension									X			
Improving employees' working-life quality				X								
Fundamental human rights										X	X	
Severance packages							X					
External stakeholders												
Communities relations												
Helping communities become more sustainable	X		X			X						X

Table 9-1 Cont.

CS issue	Andrew	Arrellin	Chatelain	Clarioud	Engel	Huerta	Noesen	Rebollado	Rittenhouse	Test	Wade	Werwie
Communities relations (cont.)												
Helping in different social activities	X		X	X								X
Looking after the well-being of the communities where the company operates		X						X				
Working with communities to help them become self-sufficient		X										
Supporting communities' activities								X				
Contributing and helping to community success							X					
Redeveloping communities and environmental remediation							X					
Understanding what role could the company have in the community and respecting the role of the governments							X					
Nutrition and poverty	X		X				X					X
HIV/AIDS	X		X									X
Relations to governments												
Complying and going beyond national and international legislations		X										
Understanding the 'crisis of boundary condition'							X					
Product responsibility							X					
Partnerships with other companies and organisations										X		

This thesis' literature review proposed the following definition of CS (see Section 3.2): **"Corporate Sustainability addresses the dynamic interactions among economic, environmental, and social impacts and interactions in the short, medium and long-term, through ethical, transparent, responsible and accountable operations, decision-making, and voluntary practices which consider issues of competitiveness, ecological impact, and human development."**

The interviewees indicated, both explicitly and implicitly, that company CS efforts are voluntary, ethical, whilst bearing a responsibility to shareholders and stakeholders (including the environment). These CS efforts are being incorporated into company activities (such as operations, and plant design), relations with government, institutional framework and strategies, and by making it part of the company's culture. This offers an opportunity to modify the above CS definition, as presented in Box 9-1:

Box 9-1 Incorporating concepts from the empirical research into the Corporate Sustainability definition

Corporate Sustainability addresses the company's orchestrated contribution to the dynamic interactions among the economic, environmental, and social facets of the company from the short to the long term. This is accomplished via holistic integration of ethical and transparent accountability throughout the company's system. The company's responsibilities involve actively involving and empowering all stakeholders (including internal, external, and the environment).

The evidence to help to answer the first question (*What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?*) can be found in Sections 7.1.3, 7.2.3, 7.3.3, and 8.2. Leadership is considered to be the main driver. The other drivers can be divided into:

- **Internal**: Shared values, resources and cost saving, company culture; Sustainability Reports; customer demands and expectations; moral and ethical obligations to contribute to CS; and champions;

- **External:** National government; raising student awareness; access to resources; environmental crises; regulations and legislation; raising society awareness; and collaboration with external organisations.

Figure 9-1 shows the drivers mentioned in the empirical research. The ones found in the literature review are presented in yellow; the ones that add to these are in green; while the ones found in the literature review, but not mentioned by the interviewees (both in the case studies and for the non-case study interviewees) are in blue. Compared with those in the literature, see Section 3.2.3, most of the external drivers were identified (14 out of 18), but relatively few internal (6 out of 16) This could indicate that, although it is recognised that corporations need to change from within, external stimuli tend to be more readily identified than internal ones.

The drivers not found in the literature included:

- **Internal**: The business case, company culture, Sustainability Reports, and the precautionary principle; and
- **External**: Raising student awareness, and environmental and social crises.

The evidence to help to answer the second question (*What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?*) can be found in Sections 7.1.2, 7.1.4, 7.1.6, 7.2.2, 7.2.4, 7.2.8, 7.3.2, 7.3.4, 7.3.8, 8.1, 8.3, and 8.5. Change towards CS included: design, build, and operating facilities; developing and managing products; taking strategic decisions; taking into account environmentally friendly investments; enhancing health and safety; improving benefits for workers and their families; considering the wider impacts on society; and earning the respect of stakeholders.

There has been a transition towards companies making CS a more integral part of their: operations and activities; management systems; institutional framework; part of objectives and performance; company culture; and their communication systems, through Sustainability Reports. These reports are considered to play a key role in the effort to incorporate CS. The effort most mentioned to help move toward CS was

raising awareness through communication, training and education. Although it was indicated that the latter sometimes has not given the expected results

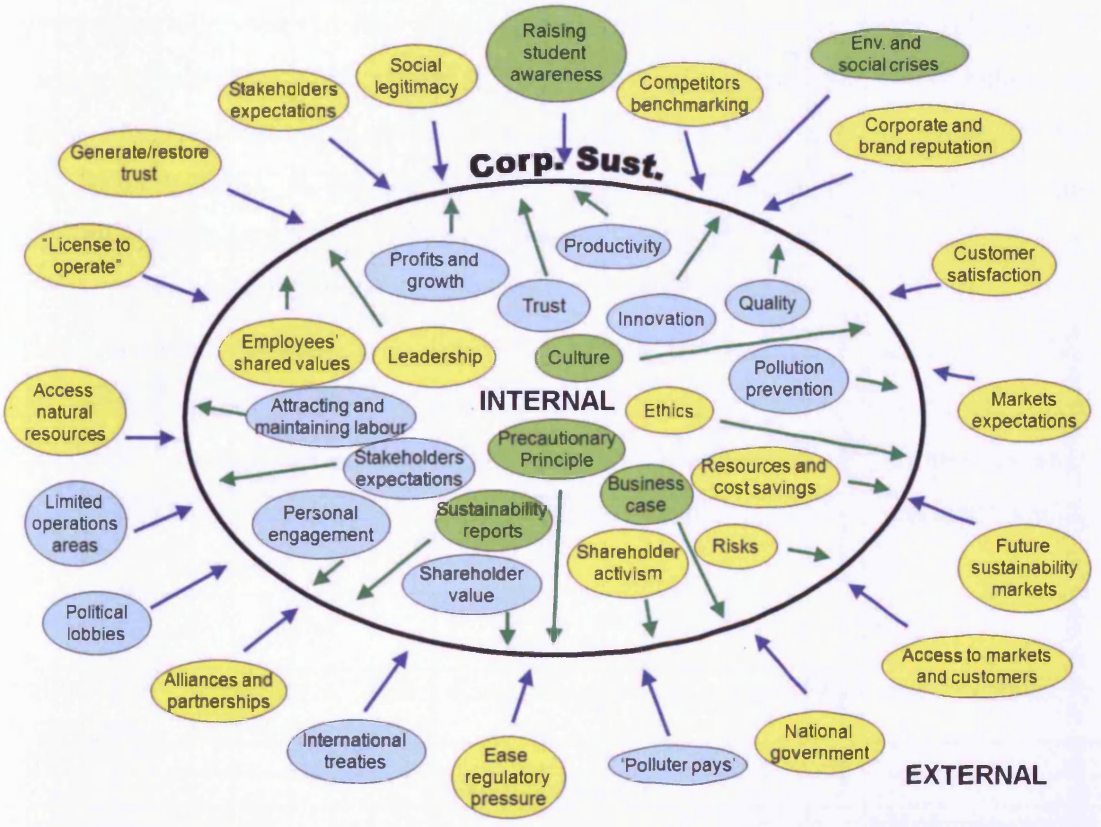


Figure 9-1 CS drivers mentioned in the empirical data

Such internal, and to a large extent planned, changes are recognised as facilitating companies to be more proactive, the better to promote CS and integrate it into company culture. Table 9-2 shows the efforts to incorporate and take CS forward, as mentioned by the interviewees.

Table 9-2 Efforts taken to incorporate and take CS forward mentioned by the interviewees

	Interviewees															
Environmental	**Alvidrez**	**Andrew**	**Arrellin**	**Chatelain**	**Clariond**	**Engel**	**Huerta**	**Noesen**	**Rebollado**	**Rittenhouse**	**Rodriguez**	**Tost**	**Vijn**	**von Rimscha**	**Wade**	**Werwie**
Linking it to global footprint		X		X				X		X					X	X
Linking it with six sigma and design for six sigma		X		X	X			X								X
Fomenting eco-efficiency and cleaner production					X	X				X	X					
Considering product responsibility								X			X					
Having environmental controls			X								X					
Developing more environmentally friendly processes							X									
Social																
Contributing to community success and helping them become self-sufficient			X				X	X	X							
Linking it to supply-chain management, mainly through providers		X		X												X
Helping in different social activities					X											
Linking it to the human element								X								
Performing annual satisfaction employees surveys								X								
Administration and strategies																
Communicating the efforts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Making it explicit in the institutional framework		X		X				X				X				X
Developing partnerships		X		X												X
Having CS discussions										X						
Awarding CS efforts										X						

The answers to the third question (*For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?*) can be found in Sections 7.1.5, 7.1.8 , 7.2.5, 7.2.8, 7.3.5, 7.3.8, 8.4, and 8.7.

It was generally accepted that top-down approaches play a necessary role for CS changes to take place, and to make them part of the culture, while bottom-up approaches are considered to help to institutionalise the changes. It was indicated that these roles need to be complementary. Table 9-3 presents the advantages and disadvantages mentioned for each management approach.

Middle management is seldom identified to play an important part in CS, when mentioned, it is because of its potential interference CS efforts due to short-term financial and operational pressures. This presents an opportunity for further research, where a similar exercise as the one taken for this thesis, with a focus on interviewing middle-level managers.

Table 9-3 Advantages and disadvantages of top-down and bottom-up management approaches

TOP-DOWN	BOTTOM-UP
ADVANTAGES	
• It makes CS a priority • It is more efficient • It makes it flow through the company by being the means and facilitators • It provides the necessary resources and a clear path • It makes CS relevant to the company • There is authority to lead the actions and follow ups • It provides motivation and encouragement	• It can secure and communicate the results • It helps to raise awareness • It consolidates the efforts • It makes a difference in the implementation • It helps achieve lasting change
DISADVANTAGES	
• Ideas might remain as a utopia and not brought down to action • Without convincing the other levels there is no flow It could create resistance if being perceived as orders • Without the support of systems it makes CS become ethereal and more difficult to implement • The top levels cannot do everything to incorporate CS, they need support form other levels • The top levels cannot evaluate what is being done in all parts of the company • If it's purely a top-down process it can take a long time to permeate to the other levels or not achieve long-lasting change	• It is more difficult to move forward without top level support • Little or no resources, support or time are made available • It takes longer time for people to change • It suffers from 're-inventing the wheel', a lack of coherence, and sometimes conflicting approaches • It can lead to feelings of abandonment

In general, it was recognised that leadership tends to be the function most involved with CS, followed by operational functions. The functions least involved tend to be staff and support areas, where CS is seen as less important or relevant to everyday activities. The experience of incorporating CS into the operational areas could be used by leadership and champions to create 'multiplier effects' throughout the company.

It is possible to question whether the nature of the participating companies might have influenced the supremacy of operational functions, for the interviewees. Traditionally, in companies with engineering roots the operational areas tend to be given priority over supporting areas (*e.g.* staff, finance, marketing, and HR).

The data from the case studies showed that the CS meme transfer has taken different paths in the different companies has taken different paths, which affect the involvement and participation of individuals, functions, and the corporation. This could indicate that: companies might not be conscioulsy planning their CS organisational change efforts; a particular path might not be suited for all companies; or what might appear as conflicting institutionalising efforts (as in the case of Peñoles rural and urban efforts, see Section 7.3.8) can work in a complementary way.

The empirical research data point out to CS being institutionalised between 4 and 20 years, although it is recognised that it is an ongoing process. This range can be divided into two: those who consider it to be institutionalised through (1) extensive communication efforts, (2) CS being similar to the company's core values, and (3) achieving a critical mass where the process cannot be stopped. In the second group the interviewees indicated that the efforts have been going for over 10 years, and that it would take between 10 to 20 more years, or might never be achieved, since CS is a journey that can never be completed. Figure 9-2 shows the number of interviewees who mentioned a particular time range.

There is disagreement on whether CS institutionalization can be accelerated. Those who indicated that it cannot, or should not, be accelerated mentioned that it is difficult in diversified companies, or that the number of years taken allowed for a more natural incorporation into the culture.

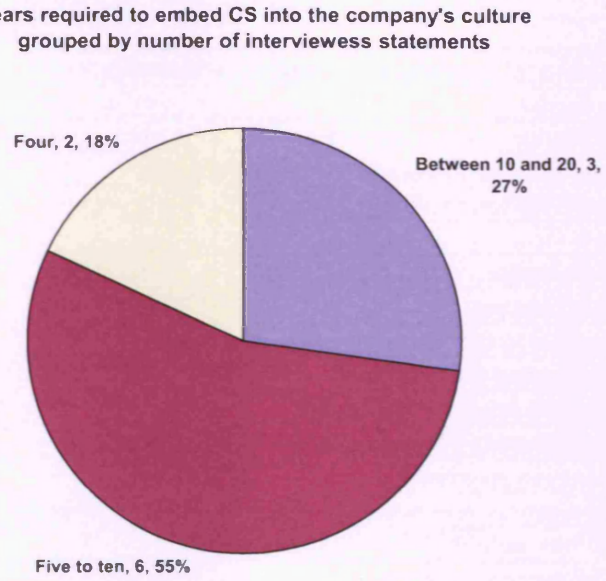


Figure 9-2 Years required to embed CS into the company's culture grouped by number of interviewees' statements

Those who indicated that the institutionalization of CS can be accelerated, mentioned the following factors:

- **Internally**: Incentives; regulations and enforcement; changes in culture and systems; institutional framework; awareness raising; leadership; extension into functional areas; assessment and reporting; investment in technology; links to objectives and performance; links to existing programmes; the business case; and communication systems. Creating 'multiplier effects' can also help to institutionalise CS (see Section 4.2.4)
- **Externally**: Reputation; market positioning; external public policy; and raising awareness among the student population.

The answers to the fourth question (*What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?*) can be found in Sections 7.1.7, 7.2.7, 7.3.7, and 8.6. Tables 9-4, 9-5, and 9-6 present the integration of the barriers identified in the case studies, and non-case study interviews, following the categorisation established in Section 4.5.3.

Table 9-4 Interviewees' individuals' barriers to change

	Change barrier	*Attitude*
Level 1	Fairly difficult concept to explain	Informational
	People do not quite understand what it really means	Informational
	Misconceptions surrounding the concept	Informational
	Ignorance	Informational
	Lack of awareness	Informational
	Lack of information	Informational
	Lack of ability to face the problems	Informational
	Misunderstanding the information	Informational
	Slight negative image of the concept	Emotional
	Being considered as a foreign concept	Emotional
	Considered as a premium	Emotional
	Difficult to see the connection or relate it everyday activities or jobs	Emotional
	People do not understand how to incorporate it	Behavioural
Level 2	Fear of losing core values	Emotional
	Not seen as a priority	Emotional
	Fear of not belonging	Emotional
	Seen as a threat to company core values	Emotional
	The individuals themselves	Behavioural
	Natural human resistance towards change	Behavioural
Level 3	Cynicism	Emotional
Aspect 1	Lack of time	Emotional
	"*Why do something if we're not doing anything wrong*?"	Behavioural
	Laziness	Behavioural
	Perceived as being too expensive to engage	Emotional

As it can be observed from Table 9-4 barriers tend to be mainly related to informational attitudes, and some emotional and behavioural.

Table 9-5 Interviewees' group's barriers to change

Change barrier	*Attitude*
It is difficult to see the connection or relate it everyday activities or jobs	Emotional
Difficult to incorporate into the pragmatic short-term mind set of some employees	Behavioural
Keeping feuds	Behavioural

The group barriers to change presented in Table 9-5 complement those found in the literature review. This provides the bases for further research.

Table 9-6 Interviewees' organisational barriers to change

	Change barrier	*Attitude*
Managerial	Not yet seen as adding value to the company	Informational
	Not seen as related to the financial bottom line	Informational
	Mental discounting, disbelieve or disagreement on possible consequences or results of continuing with "business-as-usual"	Informational
	The necessity to generate profits for the shareholders in the short-term in the stock markets	Informational
	Wanting to make money fast	Informational
	Classic financial discounting cash flow	Informational
	Not seen as a business case	Informational
	Middle management short-term constrain	Informational
	Threat of bankruptcy	Informational/ Emotional
	Seen as a threat to company core values	Emotional
	Considered as a premium	Emotional
Org.	Difficult to measure the effectiveness of the implementation	Systemic
	Lack of holistic focus in operations	Systemic
	Difficult to incorporate into the pragmatic short-term mind set of some employees	Behavioural
	Lack of understanding that it is an integral part of the business instead as an add-on function	Systemic
	Systems and scorecards established to reward short-term individual performance	Systemic
	Trade offs, *e.g.* using less water but more energy or *vice versa*	Systemic
Supportive	Threat of diminishing resources to keep on CS efforts	Emotional
	Lack of resources	Behavioural
	Lack of available technologies to produce more sustainable products	Behavioural
	Not being specifically asked for, thus no resources should be allocated	Behavioural
Historical	Large installed plant capacity with long expected life. This limits the ability to substitute current processes and products with new ones	Behavioural
	Operative profile of the company	Behavioural
	Considered as a fad	Behavioural

The organisational barriers to change (Table 9-6) mostly concur with those found in the literature (see Sections 4.5.3 and 5.5). However, six barriers in addition to those in the literature:

- Threat of bankruptcy;
- Threat to company values;
- Considered as a premium, *i.e.* engaging in it departs from core competencies;
- Trade offs between issues or aspects, *e.g.* using less water but more energy, and focusing on environmental aspects at the expense of economic ones;
- Plant capacity with long life expectancy; and
- Operative profile of the company, where operational areas tend to be given priority over supporting areas.

As presented in Table 4-6 and Section 4.5.1, resistance to change reactions were mentioned:

- There have been no barriers;
- *"I don't see any barriers"*;
- *"There are no barriers or opposition towards CS"*.

The following external barriers to change were mentioned:

- Institutional investors not seeing the business case for CS;
- Market resistance to more sustainable products; and
- Necessity to generate profits for the shareholders in the short-term on the stock market.

Table 9-7 shows the number of barriers to change mentioned by the interviewees, and their percentage relative to the total collected during this research, for each organisational level and its attitudes[34]. These helped to create Figure 9-3, which shows that there was:

- No recognition of group informational barriers;
- Almost no recognition of organisational emotional barriers;
- Low recognition of individual and organisational behavioural barriers, and organisational systemic ones;
- High recognition of individual emotional, group behavioural, and organisational informational barriers; and
- Very high recognition of individual informational and group emotional barriers.

Table 9-7 Empirical data barriers to change compared to the total collected in this research

	Informational		***Emotional***		***Behavioural***		***Systemic***	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	7	100%	11	44%	4	22%		
Group	0	0%	1	100%	2	50%		
Organisational	9	47%	4	18%	7	26%	5	31%

[34] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

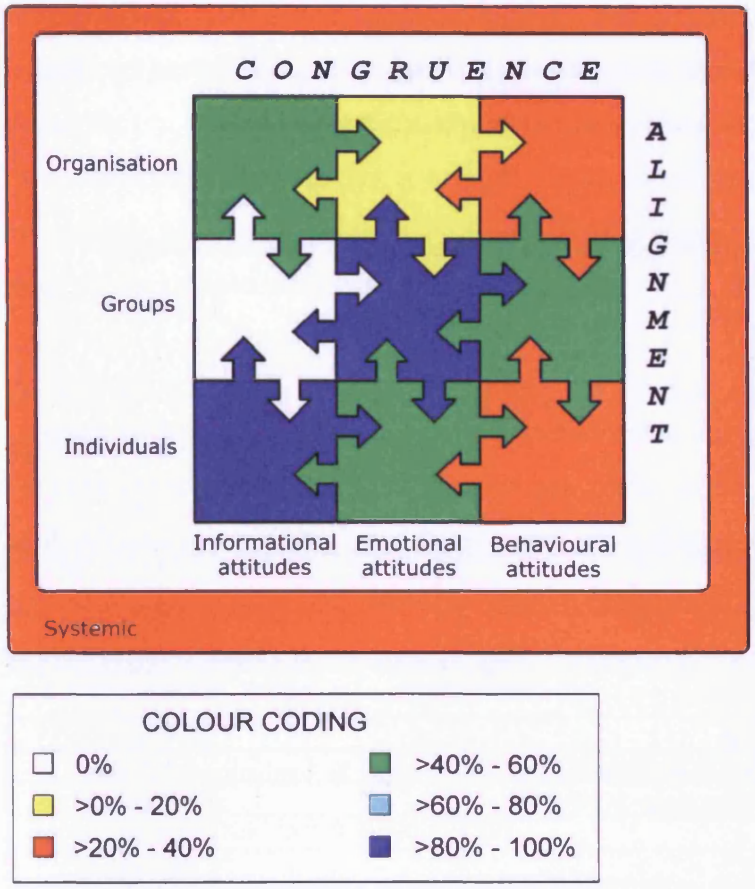


Figure 9-3 Empirical data's barriers to change MuSIC memework

The strategies and approaches mentioned by the interviewees to overcome the barriers to change are presented in Tables 9-8, 9-9, and 9-10, following the categorisation established in Section 4.5.3.

Table 9-8 Interviewees' individuals' approaches to overcome barriers to change

	Strategy or approach	***Attitude***
Level 1	Awareness raising campaigns	Informational
	Communication to employees	Informational
	Examples and local activities	Informational
	Education and training	Informational
	Publishing Sustainability Reports	Informational
	CS discussions	Informational/Emotional
	Get people to think about CS	Emotional
Level 2	Convincing people	Behavioural
	Champions	Systemic

Most of the interviewees indicated that the way to overcome barriers to change is through communication and education. However, these need to be framed by triple-loop, higher-level, anticipatory, and action learning (see Section 4.4.1).

Table 9-9 Interviewees' group's approaches to overcome barriers to change

Strategy or approach	*Attitude*
Restructuring	Behavioural
Champions	Systemic

The strategies mentioned by the interviewees to overcome group barriers to change complement those found in the literature, see Section 4.5.2. Restructuring can help to reduce inefficiencies in the organisation; however this might lower moral. On the other hand, champions can help to reduce inter-group conflicts.

Table 9-10 Interviewees' organisational approaches to overcome barriers to change

	Strategy or approach	*Attitude*
Managerial	Making it compelling to employees	Emotional
	Reporting and showing progress on goals	Behavioural
	Awards	Behavioural
	Firing people	Behavioural
	Managing the change	Behavioural
	Make CS business case	Behavioural
	Adapting external models	Behavioural
	'Walking the talk' and 'Talking the walk'	Behavioural
	Leadership	Systemic
	Champions	Systemic
	Linking it to the company's institutional framework	Systemic
	Strategic planning	Systemic
Org.	Restructuring	Behavioural
	Making it part of performance	Behavioural
	Complementing technological changes with socio-cultural ones	Behavioural
	Extending CS to all functional and business units	Behavioural/ Systemic
	Changing and aligning systems to include CS	Systemic
	Deploying more controlled crises	Systemic
Supportive	Using Six Sigma programmes	Behavioural
	Linking to existing programmes	Behavioural
	Incentives, rewards and compensations	Behavioural
	Use of technology	Behavioural
	Providing support and resources	Behavioural
External	Stakeholder communication and engagement	Behavioural
	Pressure from regulators or media	Behavioural
	Pressure from customers	Behavioural
	Publishing Sustainability Reports	Behavioural
	Collaboration with other companies	Behavioural

In general, the strategies to overcome organisational barriers to change concur with those found in the literature review, see Sections 4.5.3 and 5.5. There are some that are implicit in other categories, such as awards, which are part of a shared common vision and ownership; linking it to core values, which are included in policies and governance; and restructuring, which is part of systems renewal. Using Six Sigma programmes complements the literature (see Section 4.5.3).

The role of champions in overcoming barriers to change can be found in the three organisational components.

Table 9-11 shows the number of barriers to change mentioned by the interviewees, and their relative percentage to the total collected during this research, for each specific organisational level relative to their attitudes [35]. These helped to create Figure 9-4, which shows that there is:

- No recognition of group informational and emotional strategies, and organisational informational ones;
- Very low recognition of individual behavioural strategies, and organisational emotional ones;
- Low recognition of individual emotional, and group behavioural strategies;
- Some recognition of organisational behavioural strategies;
- High recognition of organisational systemic strategies; and
- Very high recognition of individual informational strategies.

Table 9-11 Empirical data approaches to overcome barriers to change compared to the total collected in this research

	Informational		*Emotional*		*Behavioural*		*Systemic*	
	Number	*% of total*	*Number*	*% of total*	*Number*	*% of total*	*Number*	*% of total*
Individual	6	86%	2	33%	1	7%		
Group	0	0%	0	0%	1	33%		
Organisational	0	0%	1	13%	21	53%	7	70%

[35] See Section 6.4 for clarification on the analysis of barriers to change and strategies to overcome them

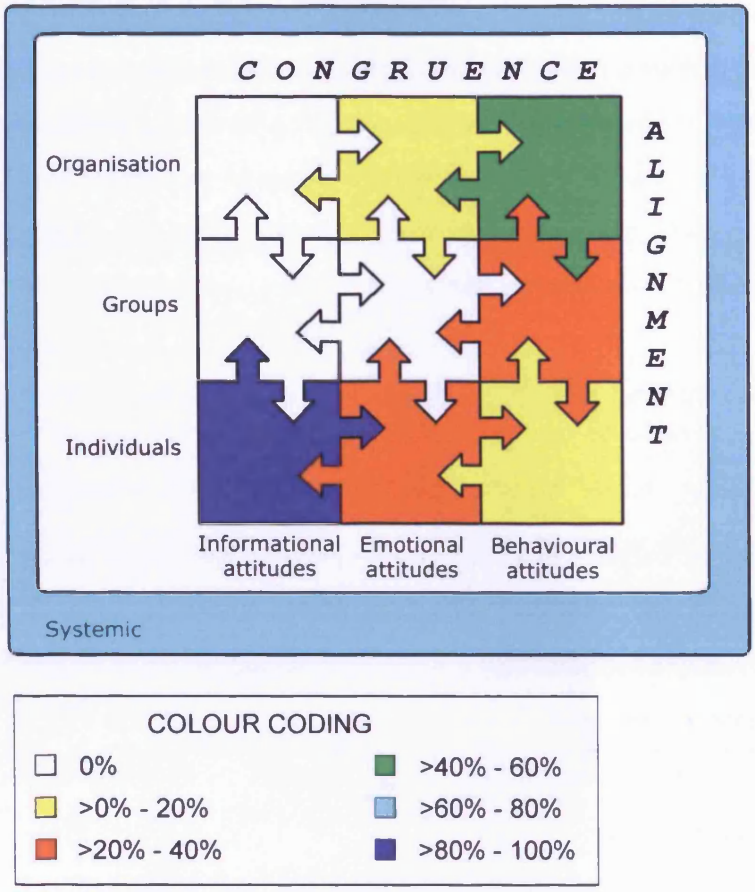


Figure 9-4 Empirical data's approaches to overcome barriers MuSIC memework

In addition to the discussion presented in Sections 7.1.7, 7.2.7, 7.3.7, and 8.6, it is possible to detect discrepancies between the barriers and strategies to overcome them when the empirical data is integrated. Table 9-12 shows concordances between individual barriers and strategies, and group informational ones. There is high recognition of group emotional barriers, but no strategies are offered to overcome them. A few group behavioural barriers are identified, but the strategies to overcome them are fewer. The discrepancies between organisational barriers and strategies are intriguing; where some informational barriers are identified, there are many strategies offered to overcome them; yet emotional barriers are practically unidentified, but many strategies are offered; the behavioural ones do not vary so much.

The discordances between the identified barriers and the strategies being applied to overcome them in the case studies, non-case study interviews, and their integration may be one of the limiting factors in CS incorporation and institutionalization. This

indicates that the divergence between them needs to be reduced to accelerate CS institutionalization.

Table 9-12 Non-case study interviewees' barriers to change and strategies to overcome them comparison

Level	*Attitude*	***Barriers to change awareness***	***Strategies awareness***
Individuals	*Informational*	Very high	Very high
	Emotional	Medium	Low
	Behavioural	Low	Very low
Groups	*Informational*	None	None
	Emotional	Very high	None
	Behavioural	Medium	Low
Organisations	*Informational*	Medium	None
	Emotional	Very low	Very low
	Behavioural	Low	Medium
	Systemic	Low	High

The answers to the fifth question (*Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?*) are given in Section 10.2.5 below.

9.1 Chapter conclusion

This chapter integrates the empirical data from the case studies and the interviews from the non-case study companies and organisations, using the theoretical framework (Chapter 5) as a base to answer this thesis' research questions.

The empirical data indicates that SD tends to refer to the balance among the economic, environmental, and social aspects, in the broader societal context; whilst CS is being considered as a company's contribution to SD. Two recurring points found were that CS efforts tend to be based on techno-centric solutions (*e.g.* through eco-efficiency), and compartmentalization.

CS has been driven by different factors, of which the one considered most important is leadership. Other key drivers include: the perceived value of CS argued from a 'business case' perspective, concern for reputation, company culture, adoption of the precautionary principle, and regulation.

It is being increasingly recognised that internal, and to a large extent planned, changes can allow companies be integrate CS proactively throughout their entire systems including: operations and activities; management systems; institutional framework; objectives setting and performance measurement; company culture; and their communication systems, through Sustainability Reports. The effort most mentioned as helping to move toward CS was raising awareness through communication, training and education.

It is generally accepted that top-down approaches play a necessary role for CS changes to take place, and to make them part of the culture, while bottom-up approaches are considered to help to institutionalise the changes. Middle management is seldom identified as playing an important part in CS, and when mentioned, it was because of its potential interference in CS efforts due to short-term financial and operational pressures.

In addition to leadership, the functions most involved are the operational ones, whilst the least involved tend to be staff and support areas.

The data from the case studies showed that the CS meme transfer has taken different paths in the companies, which affects the involvement and participation of individuals, functions, and the corporation. This could indicate that: companies might not be consciously planning their CS organisational change efforts; a particular path might not be suited for all companies; or what might appear as conflicting institutionalisation efforts (as in the case of Peñoles rural and urban efforts, see Section 7.3.8) are instead complementary ones.

The data from the case studies point to CS taking between 4 and 20 years to become institutionalised, although it is recognised that it is an ongoing process.

The interviewees disagreed on whether CS institutionalization can be accelerated. Those who indicated that it cannot, or should not, be accelerated mentioned that it is difficult in diversified companies, or that taking a number of years taken allowed for a more natural incorporation into the culture. Those who think it can be accelerated recognised factors such as extensive communication, CS being similar to the

company's core values, achieving a critical mass, incentives, changes in culture and systems, institutional framework, leadership and champions, and reputation.

The empirical data shows that barriers to change are being recognised in different levels throughout the organisation's units and their respective attitudes, where there is:

- No recognition of group informational barriers;
- Almost no recognition of organisational emotional barriers;
- Low recognition of individual and organisational behavioural barriers, and organisational systemic ones;
- High recognition of individual emotional, group behavioural, and organisational informational barriers; and
- Very high recognition of individual informational and group emotional barriers.

As with the barriers to change, strategies to overcome them are being recognised at different levels throughout the organisation, where there is:

- No recognition of group informational and emotional strategies, and organisational informational ones;
- Very low recognition of individual behavioural strategies, and organisational emotional ones;
- Low recognition of individual emotional, and group behavioural strategies;
- Some recognition of organisational behavioural strategies;
- High recognition of organisational systemic strategies; and
- Very high recognition of individual informational strategies.

The discrepancies between the identified barriers and the strategies being applied to overcome them in the case studies, non-case study interviews, and their integration may be one of the limiting factors in CS incorporation and institutionalization. This indicates that the divergence between them needs to be reduced to accelerate CS institutionalization.

10. Finale (conclusions and discussion of the literature review and empirical data)

SD and Sustainability have appeared as alternatives to activities that have given priority to economic aspects over environmental and social ones. Sustainability aims to dynamically balance economic, environmental and social aspects, as well as the temporal aspects, encompassing short-, long- and longer-term perspectives. In spite of the recognised urgency of the need for greater Sustainability, change and progress towards it have been slow. Many of the results have tended to be limited in their scope and impact (as in the case of communities and NGOs), or the changes will only become manifest in the future (such as in the case of higher education institutions).

This thesis focuses on large corporations, which have evolved to become the sector of society with the greatest resources, technology, skills and influence. They are increasingly being recognised as having the potential to help make societies more sustainable, as well as contributing to many of the environmental and social challenges that SD seeks to address.

An increasing number of corporations have been addressing and responding to economic, environmental and social challenges through the use of concepts, tools and initiatives (such as Life Cycle Assessment, Eco-efficiency and Cleaner Production, Environmental Management Systems, Sustainability Reporting, and Corporate Social Responsibility), and by incorporating SD and Sustainability principles into their product development, business processes, management systems, and strategic planning. Nonetheless, in many cases such efforts have been limited by their focus on a particular Sustainability issue, 'hard' technocentric solutions, integration of economic and environmental aspects, reactive to crises or governmental legislation, decoupled from the corporation's management and culture, or not effectively planned and integrated into organisational change processes. Recently, the concept of Corporate Sustainability (CS) has emerged as an alternative to address or even avoid such drawbacks.

The main objective of this thesis has been to provide a deeper understanding of how to 'orchestrate' change in large corporations that would help to accelerate CS

incorporation and institutionalization, throughout the organisation's components, and attitudes. This has been done in four 'movements': **Firstly,** the gathering and integration of primary and secondary data through literature review (Chapters 2 to 5), case studies (Chapter 7), and non-case study experts interviews (Chapter 8).

Secondly, the application of tools to help recognise, and better understand CS drivers, barriers to change, and strategies to overcome those barriers (Chapters 6, 7, and 8).

Thirdly, the use of innovative methods, and the development of new analytical frameworks in the context of CS to better understand and express the nature of planned change CS strategies (Chapters 6, 7, and 8).

Fourthly, the integration of the findings from the literature review, case studies, and interviews, with the help of the constant comparative analysis of Grounded Theory (Chapters 9 and 10).

The research aimed to be exploratory, and to tackle the challenges of changing organisational mind-sets and practices in order to help a corporation to implement changes that will enable progress towards CS. This provided opportunities to search for creative ways of framing the challenge of organisational change strategies for CS, and to devise new approaches to better understand and address it. Although the constraints of a single PhD do not provide enough scope to follow through and develop, test or refine many of these approaches, nevertheless they provided an opportunity to test some propositions, and set the starting point for other, future, research efforts by the author, and others working in the field.

10.1 Research methodology

A combination of critical realism and pragmatic philosophies was used for this thesis because of its potential to reduce, and if possible avoid, the reductionism of traditional approaches. These latter are limited in their ability to address the subjects, questions, and challenges that this research faced (such as organisational behaviour strategies, collaboration within and without the corporation, and the holistic and trans-disciplinary nature of Sustainable Development (SD) and Corporate Sustainability

(CS)). This combination also offers the potential to balance research conventions with the reality of meaningful research, and to bridge theory and practice.

This thesis' questions are:

1. What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?
2. What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?
3. For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?
4. What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?
5. Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?

The limited academic research on the research questions, the issues and their inter-relations called for a combination of exploratory and explanatory research. The choice of case studies, GT, and interviews as research design and data collection were selected as the most appropriate to address the methodological conditions (this thesis' research questions, limited access and control by the researcher, and the current context of CS), the dimensions (the complex nature of CS, and the generalisation of the developed theories and strategies), and other factors (such as Cardiff University's regulations, and limited available resources).

10.1.1 Use of case studies

Case studies are useful in helping to analyse contemporary real-life events, where behaviours cannot be manipulated, and when the dynamics of the system under consideration, and its phenomena cannot be separated from their contexts. The case studies for this research were deliberately chosen as recognised leaders in CS, to help

elucidate how they planned organisational change towards CS. The criteria used to select the case studies were:

- A large corporation, preferably with a presence in several countries;
- A market leader within its sector and a consolidated company within a mature industry;
- Having worked formally with Sustainability for some years and/or published Sustainability Reports on a frequent base; and
- Preferably a self-recognised Sustainability leader and/or a member of one of the major CS organisations.

In accordance with the criteria for the case studies, three companies agreed to participate: Grupo IMSA, JCI, and Peñoles.

10.1.2 Use of interviews

Semi-structured interviews were chosen from the different available types of data collection methods. These offered the potential to address exploratory and explanatory research, and produce a good balance between possible valuable insights, and resources needed for data collection. The interviews involved: (1) company employees from the case studies, mainly top-level executives, who offered specific insights; and (2) non-case study experts on CS from corporations, academia and NGOs, who helped complement the GT. These allowed multiple perspectives on, and triangulation of, CS. Accessibility was one of the main challenges.

10.1.3 Use of constant comparative methods and analysis tools

The data collected from the case studies and interviews were analysed following the GT constant comparative method. Different tools were used for the comparative analysis:

The CAQDAS NVivo versions 2.0 and 7.0, which provided an indispensable help in managing large amounts of information, and allowed the separation of the information into different nodes or categories (see Appendix A. VI). This was a critical part of the analysis, since many of the issues inter-relate.

The MuSIC memework (Lozano, 2006b, 2008a) helped to illustrate the identified barriers to change and strategies to overcome them. The MuSIC memework was created using a relative percentage of the empirital data in respect to the total barriers and strategies to overcome them (see Section 10.2.4).

During the constant comparative analysis of the interpretation of the companies' interviewees' responses, it was detected that the MuSIC memework could also be used to illustrate the CS meme transfer within the companies. This is illustrated in Figure 10-1, showing an example where it started from the emotional attitudes of leadership, being then transferred to individual informational and behavioural attitudes, then to group behavioural attitudes, and finally to the organisation behavioural attitudes. This analysis can show which parts of a company's components and attitudes are involved in CS, and those that still need to be engaged.

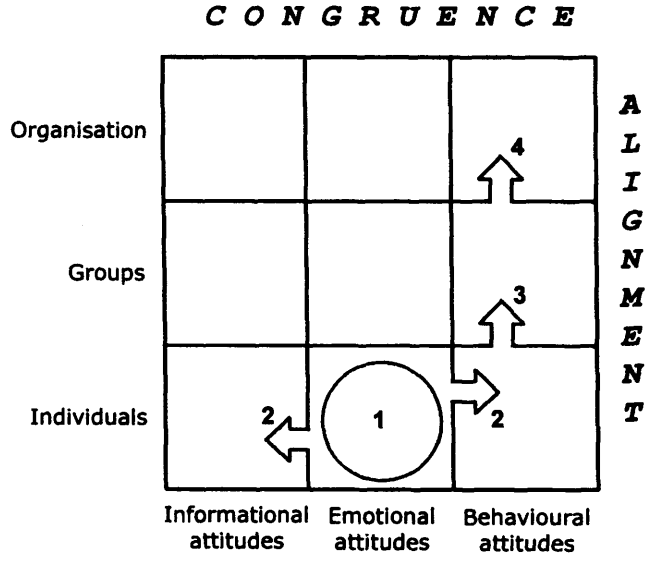


Figure 10-1 Example of Corporate Sustainability meme transfer

10.2 Theory proposals for Orchestrating Organisational Change for Corporate Sustainability

This section integrates, with the help of GT's constant comparative analysis, the evidence from the literature review and empirical data to provide answers to this thesis' research questions.

10.2.1 What drivers do top-level managers recognise as fostering 'Sustainability' in their corporations?

The discussion of the literature review (Sections 2.3.3 and 3.2.3) helped to propose a model attempting to depict the myriad CS drivers, as depicted in Figure 3-2, where the drivers are divided into internal and external. The importance of leadership was confirmed by the empirical data as one, if not the main, CS internal driver. During the empirical research it was not possible to detect the type of leadership present in the case studies. This presents an interesting topic for future research.

Empirical research confirmed the existence of many, but not all, of the drivers highlighted in the literature, see Section 3.2.3. Most of the external drivers were identified (14 out of 18), but relatively few internal (6 out of 16). This could indicate that, although there is recognition that corporations need to change from within, external stimuli tend to be better identified than internal ones, or that there is a reactive mentality, instead of a proactive one. The empirical research also provided new drivers not mentioned in the literature. The drivers are presented in Figure 10-2, where those that were mentioned in the literature are highlighted in yellow, and those that add to it are highlighted in green.

The empirical data helps a better understanding of CS drivers, thus a new category of 'connecting drivers' is added to Figure 3-2. This includes corporate brand and reputation, operation areas, access to natural resources, 'licence to operate', access to markets and customers, and environmental and social crises. The outcome is a more integrative and holistic model of CS drivers, where internal and external are linked by connecting drivers, as shown in Figure 10-3.

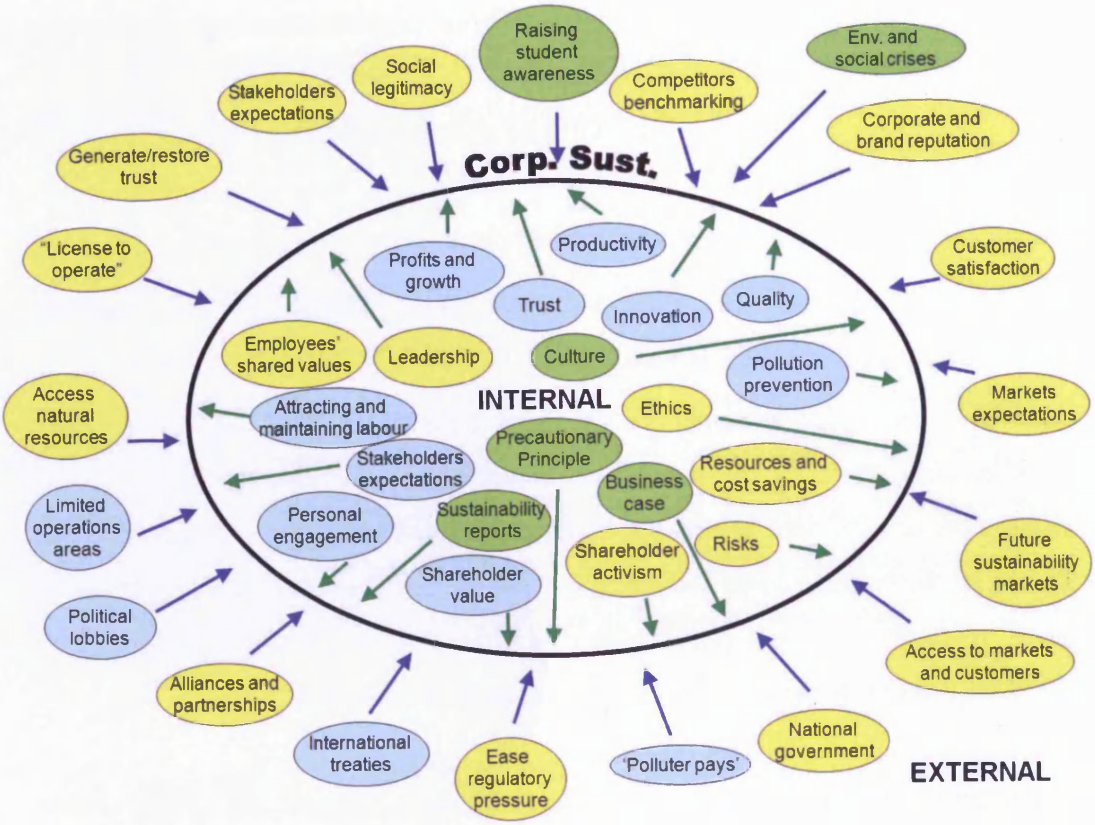


Figure 10-2 CS drivers mentioned in the primary data

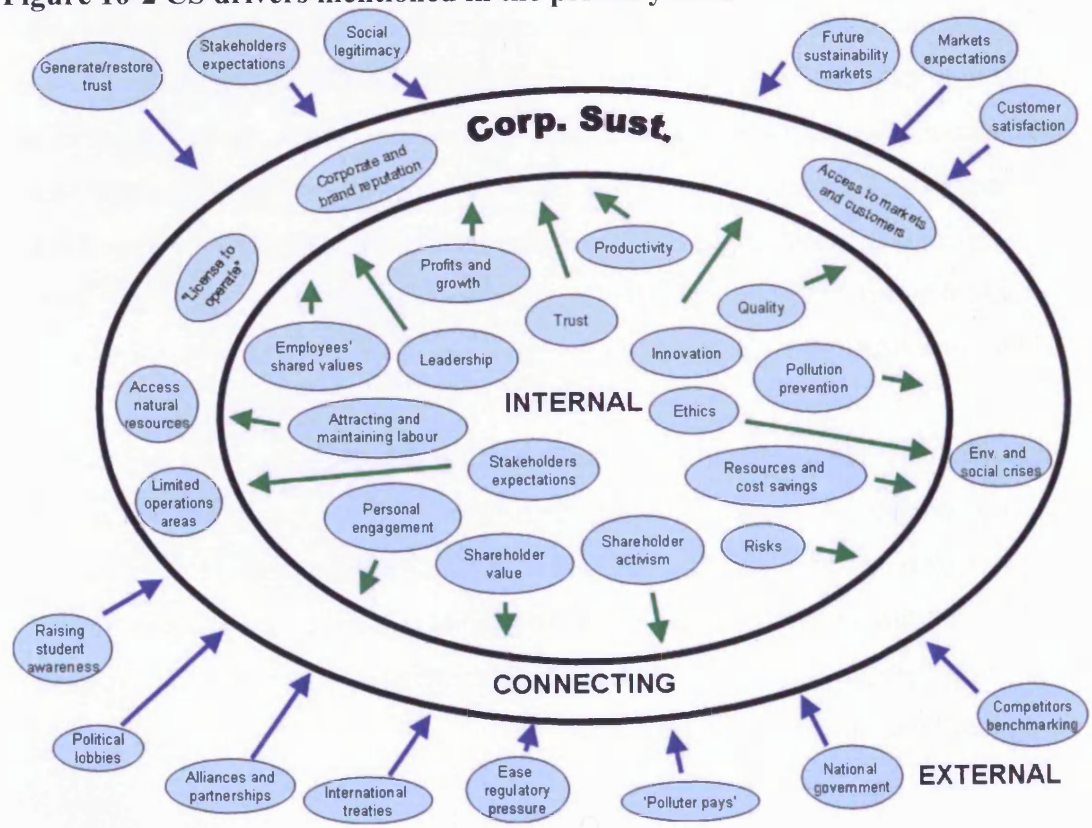


Figure 10-3 Corporate Sustainability driver model

The drivers mentioned as helping CS move forward are presented in Table 10-1. They are organised according to the number of interviewees who mentioned them, and divided according to the convention set up in Figure 10-3. Figures 10-4, 10-5, and 10-6 present the number of interviewees who mentioned a particular driver. The ones mentioned most frequently were: proactive leadership, and the business case (in internal drivers); reputation (in connecting drivers); and customer demands, and regulation and legislation (in external drivers).

Table 10-1 Internal, connecting, and external drivers mentioned by the interviewees

Internal drivers	***Number of interviewees who mentioned the driver***
Proactive leadership	10
Business case	7
Precautionary principle	4
Company's culture	4
Moral and ethical obligation to the contribute to CS	3
Avoiding risk	3
Champions	2
Demands from employees about companies CS efforts	2
Economic considerations	1
Connecting drivers	***Interviewee(s)***
Reputation	6
Access to resources	2
Environmental or social crises	2
Market opportunities	1
Market positioning	1
External drivers	***Interviewee(s)***
Customer demands and expectations	6
Regulation and legislation	5
Society's raising awareness	3
Collaboration with external parties	2
raising awareness in the student population	2
Negative publicity	2
NGOs activism	2
National or regional contexts	2
Shareholder activism	1
Institutional shareholders	1
Peer-pressure	1
Market demands for non-financial information	1

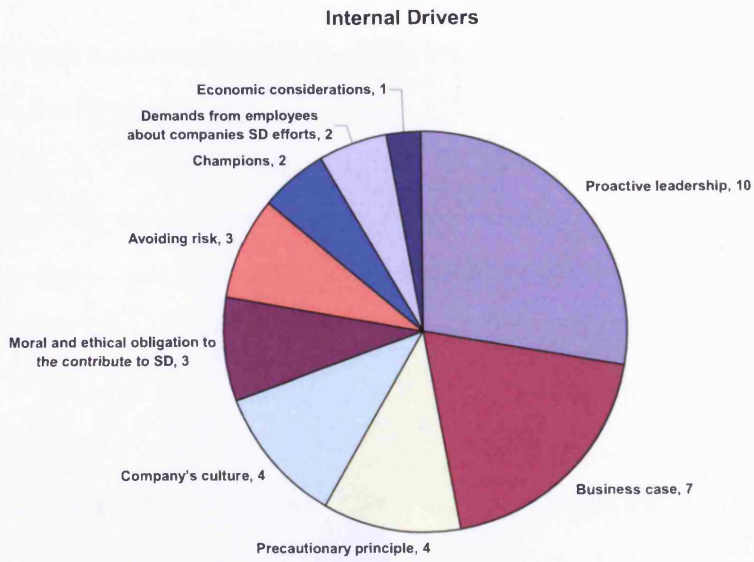


Figure 10-4 Number of interviewees who mentioned each internal driver

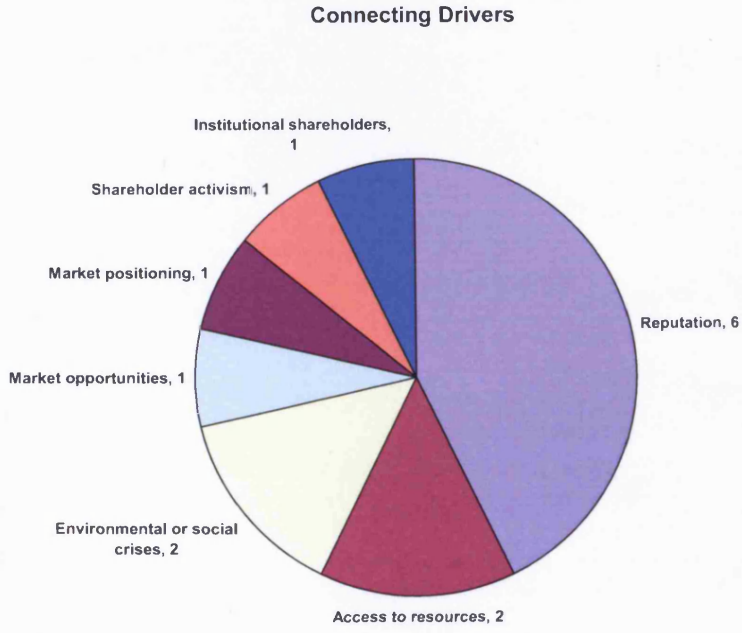


Figure 10-5 Number of interviewees who mentioned each connecting driver

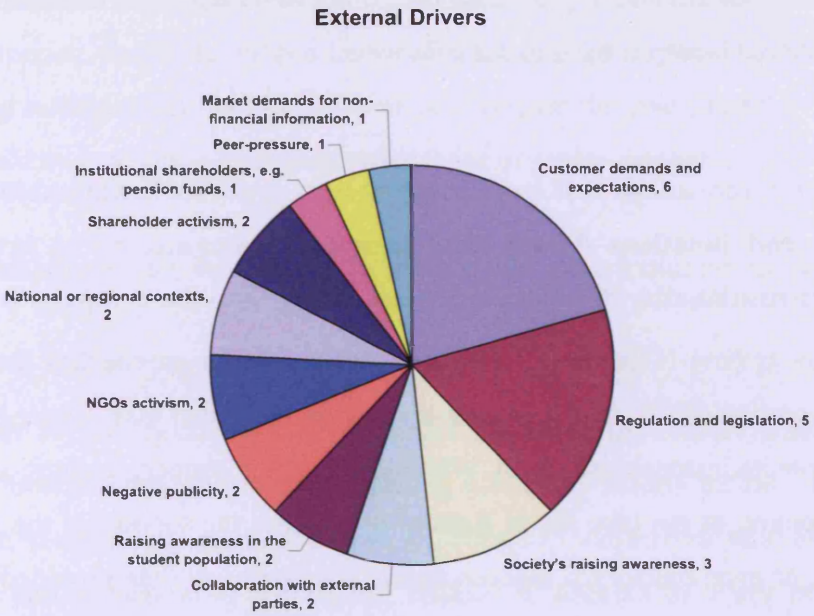


Figure 10-6 Number of interviewees who mentioned each external driver

10.2.2 What changes in corporate systems, organisational policies, strategies, and structures are being used by top-level managers to promote the transition to 'Corporate Sustainability' in their companies?

The empirical data showed that companies have been aiming to make CS a more integral part of their operations and activities, management systems, values systems, internal and external communication, through Sustainability Reports, and explicit in the institutional framework. Awareness raising and learning was frequently mentioned as helping to promote CS.

The literature review (Section 5.4) indicated that the institutional framework helps to guide the corporation's efforts towards CS, especially if it is made an integral part, such as a 'Golden Thread' (or 'Leitmotiv'). The institutional framework should contain at least: a set of principles and policies implementing international standards (such as the UN Global Compact); a set of targets linked to measurable performance indicators, developed and audited with stakeholder participation; and clear management, accounting and reporting structures, to ensure implementation. The

interviewees indicated that the institutional framework helps to maintain stability during transitional changes, by framing behaviour.

10.2.3 For corporations that have engaged in 'Corporate Sustainability', what approaches and functions do top-level managers recognise to be involved in helping to institutionalise 'Corporate Sustainability' into the company's culture?

The literature review (Chapter 5) indicates that top-down approaches can lead to faster incorporation of CS, whilst bottom-up approaches might take longer but would better facilitate its institutionalization. Without bottom-up support, institutionalization might take longer, or not take place. Bottom-up without the support of the top levels slows down, or even blocks CS incorporation. The empirical data provided evidence for such claims, as presented in Table 10-2. Ultimately, both approaches were perceived to be complementary.

Table 10-2 Top-down and bottom-up advantages and disadvantages

TOP-DOWN	BOTTOM-UP
ADVANTAGES	
• It makes CS a priority • It is more efficient • It makes it flow through the company by providing the means and facilitators • It provides the necessary resources and a clear path • It makes CS relevant to the company • There is authority to lead the actions and follow ups • It provides motivation and encouragement	• It can secure and communicate the results • It helps to raise awareness • It consolidates the efforts • It makes a difference in the implementation • It helps achieve lasting change
DISADVANTAGES	
• Ideas might remain as a utopia and not brought down to action • Without convincing the other levels there is no flow It could create resistance if being perceived as orders • Without the support of systems it makes CS become ethereal and more difficult to implement • The top levels cannot do everything to incorporate CS, they need support form other levels • The top levels cannot evaluate what is being done in all parts of the company • If it's purely a top-down process it can take a long time to permeate to the other levels or not achieve long-lasting change	• It is more difficult to move forward without top level support • Little or no resources, support or time are made available • It takes longer time for people to change • It suffers from 're-inventing the wheel', a lack of coherence, and sometimes conflicting approaches • It can lead to feelings of abandonment

The role of middle management was not a significant theme in the literature review, but it featured in the empirical data, albeit not frequently. When mentioned, it was in the context of its potential interference with CS efforts, in terms of short-term

financial and operational pressures. This presents an opportunity for further research, where an exercise, similar to the one undertaken for this thesis, could be completed by interviewing middle-level managers. Their opinions on the role played by corporate leaders would be interesting to contrast with those of senior managers.

The different interactions throughout the system that were indicated are presented in Table 10-3.

The literature review (Section 3.2.2) recognised Sustainability Report as an important help when incorporating and institutionalizing CS. Other efforts include: leadership; investing in technology; making it part of company objectives and performance evaluation; getting people to participate; making it relevant to every position and everyday activities; giving economic incentives and rewards to those who contribute to CS; establishing decision-making criteria based on Sustainability; and creating reputation campaigns.

Table 10-3 Interactions in the organisational system, among individuals, groups and organisations

	Individuals	***Groups***	***Organisation***
Individuals	Inter-personal: from individuals within the same group, or different groups in the organisation (Luthans, 2002)	Intra-group (I-G), or the individual serving as an agent to interact with another group (Stacey, 1993)	Intra-organisational (I-O): from the individuals to the organisation (Andersson *et al.*, 2005; Carr, 2001; L. W. Porter *et al.*, 1975)
Groups	Intra-group (G-I), or the group serving as an agent to interact with an particular individual (Stacey, 1993)	Inter-group: from groups within the same organisation (Freeman, 1984; L. W. Porter *et al.*, 1975)	Intra-organisational (G-O): from the groups to the organisation (Lozano, 2006b, 2008a)
Organisation	Intra-organisational (O-I): from the organisations to individuals (Andersson *et al.*, 2005; Carr, 2001; L. W. Porter *et al.*, 1975)	Intra-organisational (O-G): from the organisation to groups (Lozano, 2006b, 2008a)	Inter-organisational (interaction with the external environment) (Lozano, 2006b, 2008a)

The literature review (Chapter 5) indicates that to succeed, CS needs to be incorporated into: operations and production, management and strategy, organisational systems, and procurement and marketing. The empirical data concurs with the literature, where it indicated that leadership is the function most involved with CS, see Section 5.3 (Birch & Littlewood, 2004; Coelho *et al.*, 2003; DeSimone & Popoff, 2000; Doppelt, 2003a). The operational functions were also identified to be highly involved with CS; while support and staff functions tended to be least involved. This could be because, in engineering companies, operational areas tend to be given priority over supporting areas (*e.g.* staff, finance, marketing and HR). It is possible to question whether the nature of the participating companies might have an impact on why the operational functions tend to be more involved. Nonetheless, leadership and champions could use the experience gathered in engaging and incorporating CS in the operational functions to create 'multiplier effects', thus helping to incorporate CS into support and staff areas.

The literature does not provide any means or insights for analysing the CS meme transfer in corporations, *i.e.* there are limited explanations of CS institutionalization. The use of MuSIC memework in the case studies proved to be useful in explaining and graphically depicting this process. The transfer of the CS meme in the case study companies has taken different paths, which affects the involvement and participation of individuals, groups, and the corporation. This is exemplified in Figure 10-7, where the meme started from [1] the emotional attitude of the organisation, [2] being then transferred to the organisation informational and behavioural attitudes, [3] then to groups, [4] followed by the connection among group attitudes, [5] then to individuals, and [6] finally among the individual attitudes. To a great extent it is not relevant where the transfer initiates, as long as it reaches all the different levels of the corporation and their attitudes.

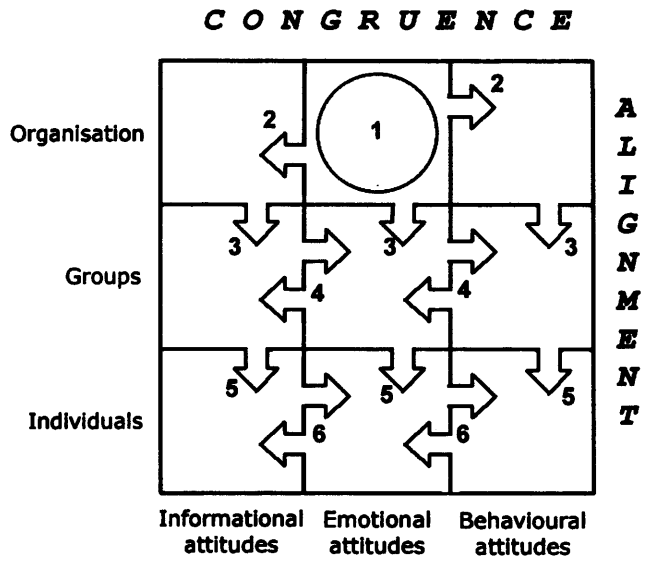


Figure 10-7 Example of Corporate Sustainability meme transfer

The literature review did not provide information on institutionalization time or rate. The empirical data indicated between 4 and 20 years, although it was recognised as being an ongoing process. This range can be divided into two groups. In the first group the interviewees indicated that CS had been institutionalized through extensive communication efforts, being similar to the company's core values, and achieved a critical mass. In the second group, the interviewees indicated that the efforts had been going on for over 10 years, and that it would take another 10 to 20 years more, or might never even be achieved.

There was disagreement on whether CS institutionalization can be accelerated. Those who indicated that it could not, or should not, be accelerated, indicated that it was difficult in diversified companies, or that the number of years required allowed for an easier incorporation into the company's culture.

Those who indicated that CS could be accelerated pointed to the following possible mechanisms:

1. **Internally**: Incentives; regulations and enforcement; changes in culture, systems, and the institutional framework; leadership; extension to functional areas; awareness raising; assessment and reporting; investment in technology;

links to programmes, objectives and performance; the business case; and communication. Creating 'multiplier effects' can also help to institutionalize Sustainability (see Section 4.2.4)

2. **Externally**: Reputation; market positioning; external public policy; and student population awareness raising.

10.2.4 What barriers to 'Corporate Sustainability' have been encountered by top-level managers, and what approaches can be taken (or are available) to overcome them?

The literature review on resistance to change (see Section 4.5 and 5.5) helped to analyse the barriers identified in the empirical research. Tables 10-4, 10-5, and 10-6 integrate individual, group, and organisational barriers to change that were identified from the literature review and the empirical. Table 10-4 follows the categorisation discussed in Section 4.5.1, which uses Maurer's (1996) categorisation and Lozano's (2006d) aspects. Table 10-6 follows the categorisation discussed in Section 4.5.3 (Managerial, Organisational, Supportive, Historical, and External). The interviewees mentioned only a few barriers to change. This could due to the small number of interviewees, the barriers being taken for granted, the interviewees not being aware of them, or having ignored them, as unimportant.

Table 10-4 Individuals' barriers to change to CS orientated change

Level 1	Ignorance of CS	Informational
	Lack of awareness of CS	Informational
	Lack of information about CS	Informational
	CS being perceived as fairly difficult concept to explain	Informational
	Misunderstanding/Lack of communication about CS	Informational
	Lack of ability to face the problems	Informational
	Surprise	Emotional
	Fear of a poor outcome	Emotional
	Perceived Lack of relevance	Emotional
	Dislike of the change	Emotional
	Slight negative image of the CS concept	Emotional
	Not invented here syndrome	Emotional
	Considered likely to incur cost/price premiums	Emotional
	Difficult to see the connection or relate it everyday activities or jobs	Emotional
	Denial about operations' effects on the environment and societies	Emotional
	Inertia	Behavioural
	People do not understand how to incorporate it	Behavioural
	Poor training	Behavioural

	Lack of empowerment towards the change	Behavioural
	Flaws in change strategy	Behavioural
	Lack of help and support	Behavioural
	Failure of senior management to 'walk the talk'	Behavioural
	Lack of time or bad timing	Systemic
Level 2	Linear thinking	Informational / Emotional
	Fear of losing core values	Emotional
	CS not seen as a priority	Emotional
	CS seen as a threat to company core values	Emotional
	Emotional side effects	Emotional
	Lack of trust	Emotional
	Fear of failure/Loss of respect	Emotional
	Fear/despair about needed changes and how to deal with them	Emotional
	Perceived threat to job status/security	Emotional
	Fear of not belonging	Emotional
	Uncertainty	Emotional
	Bureaucratic culture	Emotional / Behavioural
	Belief in the *status quo*	Behavioural
	Lack of commitment	Behavioural
	Work group break-up	Behavioural
	Peer pressure	Behavioural
	Unsupportive punishment and rewards systems	Behavioural
	Extra work added to day to day activities	Behavioural
Level 3	Cynicism	Emotional
	Conflicting values and vision	Emotional
	Personality conflicts	Behavioural
	Historic animosity towards CS	Behavioural
Aspect 1	Lack of time or bad timing	Emotional
	Perceived as being too expensive to engage	Emotional
	"Why do something if we're not doing anything wrong?"	Behavioural
	Laziness	Behavioural
Aspect 2	Power struggles	Behavioural

Table 10-5 Groups' barriers to change to CS orientated change

It is difficult to see the connection or relate it everyday activities or jobs	Emotional
Ignoring institutions in the group	Behavioural
Individual – Group conflict	Behavioural
Difficult to incorporate into the pragmatic short-term mental models of some functions	Behavioural
Keeping feuds	Behavioural
Group culture	Systemic

Table 10-6 Organisational barriers to change to CS orientated change

Managerial	Short-term and discounting perspectives focusing on economic aspects	Informational
	No clear business case	Informational
	Not yet seen as adding value to the company	Informational
	Not seen as related to the financial bottom line	Informational
	Disbelieve or disagreement on possible consequences or results of continuing with 'business-as-usual'	Informational
	Narrow focus of Sustainability	Informational
	Need to generate profits for the shareholders in the short-term in the stock markets	Informational
	Wanting to make money fast	Informational
	Middle management short-term constrain	Informational
	Linear thinking	Informational
	Cause - effect confusion	Informational
	Lack of communication	Informational
	Lack of strategy/long term plans	Informational
	Economic assumptions of free goods	Informational / Emotional
	Threat of bankruptcy	Informational / Emotional
	Economic focus that disregards environmental and social aspects or consider them as costs	Informational / Emotional / Behavioural
	Lack of motivation amongst middle- and lower-level staff	Emotional
	Lack of systems thinking	Emotional
	Patriarchal thinking and structures	Emotional
	Lack of rationale and purpose clarity	Emotional
	Faith on technological solutions	Emotional
	Lack management commitment	Emotional
	Faith on market solutions	Emotional
	Reticence or fear of transparency and reporting	Emotional
	Status quo	Emotional
	Seen as a threat to company core values	Emotional
	Considered likely as price/cost premiums	Emotional
	Insular thinking and acting	Emotional / Behavioural
	Purely economic focus	Behavioural
	Costs externalisation	Behavioural
	Lack of top management commitment/'walking the talk'	Behavioural
	Failing to have short term wins	Behavioural
	Failing to institutionalize changes	Behavioural
	Departmentalism	Behavioural
	Lack of employee engagement/empowerment	Behavioural
	Lack of champions	Systemic
Org.	Insufficient mechanisms for learning	Informational
	Lack of trans-disciplinarity	Emotional / Behavioural
	Failing to alter cultural traits	Behavioural
	Difficult to incorporate into the pragmatic short-term mind set of some employees	Behavioural
	Failure to institutionalize Sustainability	Behavioural
	Purely managerial change efforts	Behavioural
	Lack of holistic focus in operations	Systemic
	Organisational structures inhibiting collaboration	Systemic
	Lack of alignment in the organisation	Systemic

	Bureaucracy/Patriarchal models	Systemic
	Politics	Systemic
	Lack of measurement	Systemic
	Difficult to measure the effectiveness of the implementation	Systemic
	Lack of understanding that it is an integral part of the business	Systemic
	Systems and scorecards established to reward short-term individual performance	Systemic
	Trade offs	Systemic
Supportive	Lack of trained employees	Informational
	Lack of organisational knowledge and skills	Informational
	No clear vision of Sustainability that leads to mere compliance with regulations	Emotional
	Threat of diminishing resources to keep on CS efforts	Emotional
	Lack of support (managerial and financial)	Behavioural
	Lack of resources	Behavioural
	Lack of incentives	Behavioural
	Lack of available technologies to produce more sustainable products	Behavioural
	Not being specifically asked for, thus no resources should be allocated	Behavioural
	Inappropriate technology	Systemic
	Lack of communication	Systemic
	Lack of systems, tools and instruments for operationalisation and implementation	Systemic
	Lack of incorporating Sustainability in core policies and procedures	Systemic
Historical	Too many failed changes	Emotional
	Complacency	Emotional
	Lack of responsibility and accountability	Emotional / Behavioural
	Unsuccessful incorporation attempts	Behavioural
	Employees "retired on the job"	Behavioural
	Too much or little compliance	Behavioural
	Large installed plant capacity with long expected life	Behavioural
	Operative profile of the company	Behavioural
	Considered as a fad	Behavioural
External	Timing related to external events	Behavioural
	Competitors 'strength	Systemic

Table 10-7 shows the total number of barriers to change collected from the literature review, case studies, and non-case study interviews. Table 10-7 shows that there is a focus on the organisation, and the emotions and actions of individuals; but groups tend to be neglected. As discussed in the literature review (see Section 4.5.2), further research on groups is needed.

Table 10-7 Total number of barriers to change identified from the literature review, case studies, and non-case study interviews

	Attitudes			
System levels	***Informational***	***Emotional***	***Behavioural***	***Systemic***
Individuals	7	25	18	
Groups	0	1	4	
Organisation	19	22	27	16

Tables 10-8, 10-9, and 10-10 integrate the individual, group, and organisational strategies and approaches to overcome barriers to change that were identified in the literature review, and the empirical research. Table 10-8 follows the categorisation discussed in Section 4.5.1, which uses Maurer's (1996) categorisation and Lozano's (2006d) aspects. Table 10-10 follows the categorisation discussed in Section 4.5.3 (Managerial, Organisational, Supportive, Historical, and External).

The strategies and approaches offered are not prescriptive with respect to each of the barriers to change, rather they must be understood as a 'toolkit', where the strategies at a particular level are applied to barriers at the same level. No single approach to overcome the barriers will work in all circumstances.

Table 10-8 Strategies to overcome individuals' barriers to CS orientated change

Level 1: The idea itself	Discussion	Informational
	Education/Providing new information/Communication	Informational
	Examples and local activities	Informational
	Facilitation	Informational
	Financial benefits	Informational
	Empirical-rational	Emotional
	Political support	Behavioural
Level 2: Deeper issues	Resolving discrepancies	Emotional
	Manipulation	Emotional / Behavioural
	Co-opting approach	Behavioural
	Negotiation	Behavioural
	Normative-re-educative	Behavioural
	Use of champions	Systemic
Level 3: Deeply embedded	Use of fear	Emotional / Behavioural
	Influence of peers and friends	Behavioural
	Normative-re-educative	Behavioural
	Participation	Behavioural
	Power-Coercive	Behavioural
Aspect 1: Procrastination	Discussion	Informational
	Facilitation	Informational
	Use of fear	Emotional / Behavioural
	Co-opting approach	Behavioural
	Influence of peers and friends	Behavioural
	Normative-re-educative	Behavioural
	Participation	Behavioural
Aspect 2: Power	*	

* None of the presented approaches and strategies can be used to reduce or eliminate the power struggles.

Table 10-9 Strategies to overcome groups' barriers to CS orientated change

Group participation in the change design and development	Behavioural
Restructuring	Behavioural
Individual – Group interactions	Emotional / Behavioural
Group meetings and communication	Informational
Champions	Systemic
Reducing group standards/Changing group values	Systemic

Table 10-10 Strategies to overcome organisational barriers to CS orientated change

Managerial	Engage top levels and obtain support	Emotional / Behavioural
	Internalising environmental and social costs	Emotional
	Making it compelling to employees	Emotional
	Sharing a common vision	Emotional
	Changes in governance	Behavioural
	'Walking the talk' and 'Talking the walk'	Behavioural
	Adapting external models	Behavioural
	Applying know-how	Behavioural
	Awards	Behavioural
	Better work-life balance	Behavioural
	Developing new strategies, policies and frameworks	Behavioural
	Equal pay for equal jobs	Behavioural
	Firing people, as last resort	Behavioural
	Give managers responsibility	Behavioural
	Greater work force diversity	Behavioural
	Identifying champions	Behavioural
	Make CS business case	Behavioural
	Managing the change	Behavioural
	Profit sharing and share ownership schemes	Behavioural
	Reporting and showing progress on goals	Behavioural
	Set goals and objectives	Behavioural
	Transparency	Behavioural
	Using power and authority	Behavioural
	Champions	Systemic
	Leadership	Systemic
	Linking it to the company's institutional framework	Systemic
	Strategic planning	Systemic
Org.	Changing organisational paradigms	Emotional
	Using game theory and collaboration	Emotional
	Aggregation/Collaboration	Behavioural
	Challenging politics	Behavioural
	Complementing technological changes with socio-cultural ones	Behavioural
	Empowerment of employees	Behavioural
	Improvements and renewals of systems	Behavioural
	Making it part of performance	Behavioural
	New metrics for assessment and reporting	Behavioural
	Restructuring	Behavioural
	Extending CS to all functional and business units	Behavioural / Systemic
	Alignment in all key factors, *e.g.* leadership, vision, attitudes,	Systemic

	and the system	
	Changing and aligning systems to include CS	Systemic
	Changing attitudes	Systemic
	Collaboration and shared values among individuals, groups and society	Systemic
	Deploying more controlled crises	Systemic
Supportive	Better information through the company	Informational
	Build awareness	Informational
	Educated workers	Informational
	Life long learning	Informational
	Providing new information and skills	Informational
	Changing mental models	Emotional
	Create and make support	Behavioural
	Giving incentives	Behavioural
	Incentives, rewards and compensations	Behavioural
	Linking to existing programmes	Behavioural
	Multiplier effects	Behavioural
	Peer pressure	Behavioural
	Providing support and resources	Behavioural
	Use of technology	Behavioural
	Using Six Sigma programmes	Behavioural
Historical	Increasing sense of urgency	Emotional / Behavioural
	Collaboration with other companies	Behavioural
	Job security	Behavioural
	Pressure from customers	Behavioural
	Pressure from regulators or media	Behavioural
	Publishing Sustainability Reports	Behavioural
	Stakeholder communication and engagement	Behavioural

Table 10-11 shows the total number of strategies and approaches to overcome barriers to change collected from the literature review, case studies, and non-case study interviews. Table 10-11 shows that the efforts to overcome barriers are focused mainly on organisational actions, some are on the actions of individuals and the system as a whole. The learning and values of individuals, groups, and the organisation are not being identified. The low recognition of group strategies opens the opportunity for further research.

Table 10-11 Total number of strategies to overcome barriers to change collected from the literature review, case studies, and non-case study interviews

	Attitudes			
System levels	***Informational***	***Emotional***	***Behavioural***	***Systemic***
Individuals	7	6	15	
Groups	1	1	3	
Organisation	5	8	40	10

Comparing Tables 10-9 and 10-13, it can be observed that, in some cases, there are discrepancies between the identified CS barriers to change and the strategies to overcome them. For example, on individual emotional attitudes (25 barriers to change and 6 strategies), and on organisational behavioural attitudes (27 barriers and 40 strategies). This implies that parts of the organisation are considered to be more prone to resisting change, whilst actions taken on the overall organisational level are expected to incorporate and institutionalize CS. In addition, there is a lack of identification of group barriers to change and strategies to overcome them. This shows that groups are not considered integral when discussing CS organisational change.

The MuSIC memework was useful in depicting graphically the identified CS barriers to change and strategies to overcome them, at the particular organisational levels with their respective attitudes. The memework provides a quick visual comparison to detect where barriers to change and strategies to overcome them are poorly, or in some cases, not recognised, and to detect discrepancies between them.

Comparing the identified barriers to change and the strategies and approaches proposed to overcome them, it was found that where a few informational barriers were identified, there were many strategies offered; the emotional ones were practically not identified, but many strategies were offered; the behavioural ones did not vary so much. The discordances between the identified barriers and the strategies being applied to overcome them, in the case studies, and non-case study interviews, may be one of the limiting factors in CS incorporation and institutionalization. This indicates that the divergence between barriers and strategies needs to be reduced to accelerate CS institutionalization.

10.2.5 Based upon the lessons learned, what approaches can help corporations participate increasingly in the 'Corporate Sustainability' journey?

This thesis' research follows the premise (theoretical and empirical) that corporations are capable of planning internal changes to better contribute to SD, since their ability to control external factors tends to be limited, or in some cases non-existent.

The following paragraphs integrate what has been learnt during this research for 'Orchestrating' corporate strategies to institutionalize CS, through theory and practice.

Although a range of current initiatives has been used to address parts of the SD agenda, they tend not encapsulate the full SD spectrum, and its implications for corporations. Recently, the term Corporate Sustainability (CS) has emerged as an alternative to remedy this. CS, as a concept, is being increasingly recognised in the search for the equilibria among economic, environmental, and social impacts in the short-, medium, and long-term. This is being done through voluntarily incorporation of CS into company operations, the institutional framework, strategies, and culture. It is also being recognised that corporations have responsibilities towards their internal, external, social, and non-social stakeholders. In addition to this, corporations have yet to consider seriously the time dimension, where CS goes beyond normal corporate planning timescales.

Strategic planning for CS organisational change could help to incorporate and institutionalize CS, by moving from the *status quo* (SQ) to a More Sustainability Orientated State (MSOS), in an iterative process, *i.e.* once the institutionalization period is over a new transition period begins. Figure 10-8 proposes a model, utilising the insights generated by this thesis, to help plan such changes. The iterative process is shown in the bottom right part of Figure 10-8, where each period makes the corporation more Sustainability orientated.

The implication of the model proposed in Figure 10-8 is that, in order for CS orientated changes to occur and succeed within an organisation, the CS drivers (on the left side of Figure 10-8) need to be recognised and acknowledged. These provide the leverage to temporarily break inertia and stability.

The barriers to change may slow, or even block, the drivers' efforts. The consolidation of the barriers to change from the literature review and empirical research (see Tables 10-6, 10-7, and 10-8) provide guidance on the organisation's levels that block CS efforts. Identifying and recognising the barriers can help to apply appropriate strategies to overcome them (see Tables 10-10, 10-11, and 10-12). Using the MuSIC memework to compare the parts of an organisation graphically, where

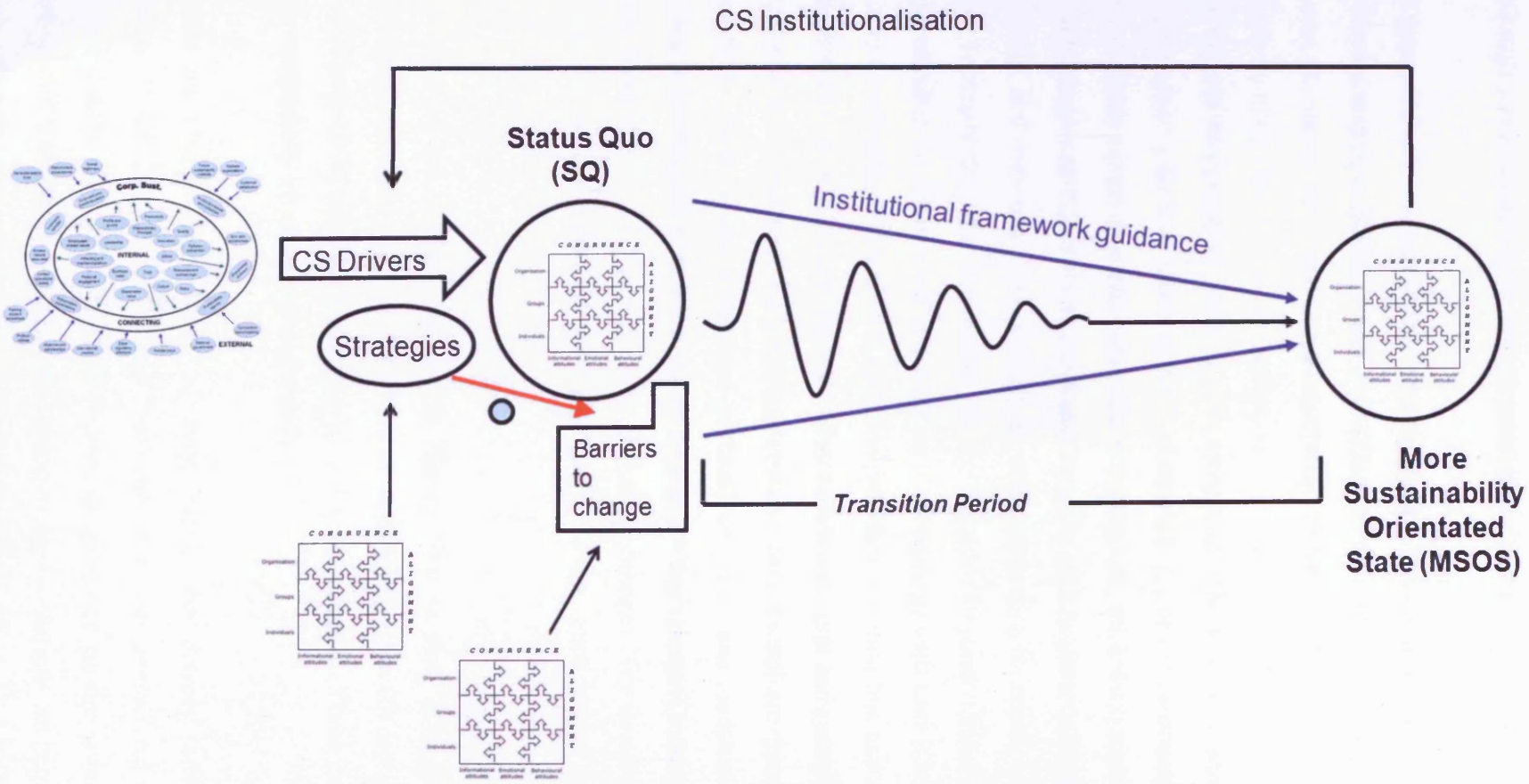
barriers to change and strategies to overcome them are identified. This can help reduce discrepancies, and give a better focus to plan efforts to institutionalize CS.

The MuSIC memework also provides a way of mapping how the CS meme has, or can be, transferred throughout the organisation. This can help to pinpoint the initiating parts, and those that have not yet been engaged or reached.

Using champions can create 'multiplier effects', and help to translate CS into the lexicon of business, making it relevant in the day-to-day activities of the corporation. This can be facilitated by reporting on CS activities and results (*e.g.* through the Sustainability Reports), and by using pincer movements and multi-directional change initiatives.

Embedding CS into the organisation's institutional framework, as a 'Leitmotiv', can guide behaviour and maintain stability, and thus facilitate CS institutionalization. This is usually faster when it is considered to be relevant and consistent with attitudes and beliefs by company leaders and employees. Where CS is perceived to be too radical, institutionalization can be facilitated by incremental and developmental implementation, '*Tempus fugit sed festina lente*' (Time flies, but make haste slow).

Figure 10-8 Iterative model of the elements that affect organisational changes for CS



10.3 Limitations of the research

Any exploratory research is bound by a number of limitations. This research had, to a great extent, a narrow focus on large publicly traded corporations of an engineering nature based in the West[36]. This may limit the applicability of the results and insights generated for other types of organisations, such as those of other industrial sectors, SME's, state-owned or private companies, governments, or NGOs, or those operating in other contexts or geographical regions.

Morgan's (1997) 'Flux and transformation' metaphor is based on concepts of self-organisation, change being difficult to manage, managers as agents of change, and organisations being considered as closed, autonomous systems of interactions. Applying this perspective narrows the research focus to internal organisational change being pursued by companies when moving towards CS. Under such considerations external changes, such as changes in laws or regulations, or those coming from the lower-levels of the organisation, might be neglected. Nonetheless, the 'Flux and transformation' metaphor appeared to offer the best possibility for exploring organisational change for CS, especially when it is voluntary and proactive. The metaphor was also useful in managing, focusing, and structuring the analysis.

This thesis uses 'Weak' and 'Institutional' Sustainability perspectives, the dominant ones in the literature and in practice, to look at organisational change for CS. This may not be applicable for changes in organisations that adopt a 'Strong' or 'Ideological' perspective, which may lead to quicker results, especially towards environmental protection. However, the 'Weak' and 'Institutional' perspectives tend to generate less resistance to change, and more stability during the change process.

The choice of critical realism and pragmatism, as followed for this thesis, may have resulted in the research being shaped by the researcher's experiences and the formulation of the research questions. Traditional positivist or interpretivist positions rely on a reductionist approach, which renders them limited in their potential for addressing this thesis' research topic, *i.e.* organisational changes for CS.

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[36] The West here refers to contexts in North America and Western Europe

Case study-based research has limitations in terms of generalizability, however it provides insights into company dynamics. Although it is usually recommended that 5 to 10 be used for a PhD (Yin, 1984), the use of only three case studies in this thesis may have resulted in limited data, where the results may not be fully applicable to other large corporations. Additionally the choice of case studies may have introduced some 'self-selection' bias since they were chosen as leaders in CS. However, this gave the opportunity to have access to companies that have worked with CS for some time. This provided considerable insights, which could serve as bases for other companies to engage and orchestrate CS organisational change efforts applicable to their own case.

Although, it might not be possible to create grand theories from the GT results obtained in this research, these nevertheless provide a baseline for future research into organisational changes for CS.

The small number of interviewees from top-level management positions for the three case studies might not provide a complete or entirely accurate perspective on companies and their organisational change processes towards CS. This might have skewed the results towards the perception that leadership is the most important driver, or that other organisational levels might not play an important role in the process. Senior management may also be relatively unlikely to be critical of the strategies and organizational processes that they are the authors and architects of, which may lead to an over-emphasis on successful initiatives. However, the interviewees provided the opportunity to do research in a relatively sensitive topic in the context of large publicly traded corporations, and the role of senior management in such processes.

The interpretation and analysis of the data, such as the drivers, barriers to change, strategies to overcome them, and their corresponding attitudes, were circumscribed by the interpretation of the researcher. Such results may differ from those of other researchers; however, the proposals and findings provide a platform, obtained from exploratory research, for further testing.

Although the tools developed by the author in this thesis and used to illustrate the results, such as the MuSIC memework, are still not thoroughly tested and validated,

they provide a conceptual base for further research, where potential problems of reliability and validity could be reduced, and even eliminated.

Despite the suggested limitations, this research generated considerable insights into the importance of 'soft' issues (drivers, barriers to change and strategies to overcome them, and engaging with individual, groups, the organisation as a whole, and their respective attitudes), as opposed to 'hard', technocentric approaches, when orchestrating organisational change for CS.

10.4 Opportunities for further research

The limitations, typologies, models, and analytical tools associated with this research can provide interesting opportunities for further research. Some of which are presented below.

There is considerably limited research and recognition of organisational group barriers to change and strategies to overcome them. This provides an opportunity to explore this field further.

In spite of the advantages that SR offers to the incorporation of CS, it is constrained by its inherent problems, such as considering aspects as independent, neglecting the time perspective, and showing little or no organisational change processes. Further research needs to take place to detect those issues that may affect others, such as eco-efficiency and Cleaner Production.

The data from the case study companies point to CS being institutionalized over a period of between 4 and 10 years. Further research needs to take place to detect if company characteristics, such as location, number of employees, and profits, could provide a guide to an average number of years needed to institutionalize CS, which could be of use to companies considering CS incorporation.

During the empirical research it was not possible to analyse the type of leadership in operation in the case studies. This presents an interesting topic for future research.

Middle management is seldom identified to play an important part in CS, when mentioned, it was because of its potential interference with CS efforts. This also presents an opportunity for further research, where a similar exercise as the one undertaken for this thesis, but interviewing middle-level managers.

The MuSIC memework appears to have potential to act as an analytical tool to identify barriers to change, strategies to overcome them, and change institutionalization with the help of 'meme' transfer. This creates opportunities to apply the memework to a larger sample of companies, or other organisations. An interactive tool could be developed to evaluate CS drivers, barriers to change, and strategies to overcome them, and display these graphically using the MuSIC memework.

The CS stakeholder value system typology could help to map which stakeholders are being benefited by company CS efforts, and those that could potentially be improved. An exercise, where a number of companies are studied with the typology, could provide insights into current company efforts towards CS.

This PhD research indicates that there are similarities in the drivers, barriers to change, and strategies to overcome them between corporations and universities (see Lozano-Ros, 2003). It would be interesting to do similar research into governments, communities, consumers, and international organisations (*e.g.* the ILO or UN). This thesis' findings could also be followed up by research in regions that have not been included (*e.g.* Asia, Africa, and Eastern Europe). An interesting exercise would be to do a cross-region comparative analysis.

A exercise, similar to the one followed for this thesis, could be performed on the following, preferably with a larger sample of companies:

- Small and Medium Size Enterprises;
- Service sector, *e.g.* hospitality, travel, and banking;
- Retail sector, *e.g.* food, and clothing companies;
- Information and communication sector, *e.g.* mobile phone companies; and

- The sugar industry, integrating it with sustainable production, fair trade, and sustainable communities.

10.5 Coda

Grupo IMSA was sold to Ternium, a steel-manufacturing leader in Latin America, on the 26th of July 2007. It would be interesting to explore how this will affect Grupo IMSA's CS efforts in the short- and long-terms.

Bibliography

Aftalion, F. (2001). *A history of the international chemical industry. From the "early days" to 2000* (O. T. Benfey, Trans. Second ed.). Philadelphia: Chemical Heritage Press.

Afuah, A. (2003). *Innovation management. Strategies, implementation, and profits* (Second ed.). New York: Oxford University Press.

Aldag, R. J., & Stearns, T. M. (1991). *Management* (2nd ed.). Cincinnati, OH: South-Western Publishing.

Amoroso, B. (2003). *Globalization: the Economic and Social Sustainability of Markets and Production Systems - The Classic Example of Agriculture.* Paper presented at the Agricultural policy reform and the WTO: where are we heading?, Capri (Italy).

Anderson, D., & Ackerman Anderson, L. (2001). *Beyond change management.* San Francisco, CA: Jossey-Bass/Pfeiffer (Wiley).

Anderson, S., & Cavanagh, J. (2000). *Top 200. The rise of corporate global power.* Washington, DC: Institute for Policy Studies.

Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting Ecological Sustainability in the MNC: A Test of an Adapted Value-Belief-Norm Framework. *Journal of Business Ethics, 59*, 259-305.

Andrew, R. (2006). Blue Sky Update. In R. Lozano (Ed.) (Presentation ed.). Milwaukee, Wisconsin, U.S.A.

Argadoña, A. (1998). The stakeholder theory and the common good. *Journal of Business Ethics, 17*, 1093-1102.

Argyris, C. (1977). Double loop learning in organizations. *Harvard Business Review, September-October*, 115-125.

Arora, A., Landau, R., & Rosenberg, N. (Eds.). (1998). *Chemicals and long-term economic growth: Insights from the chemical industry.* New York: John Wiley & Sons, Inc.

Arthaud-Day, M. L. (2005). Transnational corporate social responsibility: A tri-dimensional approach to international CSR research. *Business Ethics Quarterly, 15*(1), 1-22.

Atkinson, G. (2000). Measuring corporate sustainability. *Journal of Environmental Planning and Management, 43*(2), 235-252.

Avi-Yonah, R. S. (2005). *The cyclical transformations of the corporate form: A historical perspective of corporate social responsibility.* Michigan: University of Michigan.

Ayres, E. (2004). The hidden shame of the global industrial economy. *Worldwatch, January/February,* 19-29.

B.R.A.S.S. (2004). *History of Corporate Social Responsibility and Sustainability*: The ESRC Centre for Business Relationships, Accountability, Sustainability and Society, Cardiff University.

Ball, A., Owen, D. L., & Gray, R. (2000). External transparency or internal capture? The role of third-party statements in adding value to corporate environmental reports. *Business Strategy and the Environment, 9*, 1-23.

Barnes, L. B. (1969). Approaches to organizational change. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Bartelmus, P. (1999a). *Economic growth and patterns of sustainability* (PDF): Wuppertal Institute.

Bartelmus, P. (1999b). *Sustainable Development - Paradigm or paranoia?* (PDF): Wuppertal Institute.

Bartlett, C., & Ghoshal, S. (1998). *Managing across borders: the transnational solution* (Second ed.). Boston: Harvard Business School Press.

Baskerville, R. F., & O'Grady, W. (2001). *Does Darwin belong in business? The danger and comfort of the evolutionary metaphor.* Paper presented at the Third Asian Pacific Interdisciplinarity Research in Accounting, Adelaide, Australia.

BBC. (2007). Hartz sentenced in VW bribe case. Retrieved 14 February, 2007, from http://news.bbc.co.uk/1/hi/business/6299597.stm

Beer, M., Eisenstat, R. A., & Spector, B. (1990). Why change programs don't produce change. *Harvard Business Review, November-December*, 158-166.

Behrman, J. N. (1981). Transnational Corporations in the New International Economic Order. *Journal of International Business Studies, 12*(1), 29-42.

Benne, K. D., & Birnbaum, M. (1969). Principles of changing. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Bennis, W. G. (1969a). Changing organizations. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Bennis, W. G. (1969b). Theory and method in applying behavioral science to planned organizational change. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Bennis, W. G., Benne, K. D., & Chin, R. (Eds.). (1969). *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Berle, A. A., & Means, G. C. (1997). *The modern corporation & private property.* New Brunswick: Transaction Publishers.

Bhaskar, V., & Glyn, A. (1995). *The north the south and the environment. Ecological constraints and the global economy* (First ed.). London: Earthscan Publications Limited.

Bieker, T., & Gminder, C.-U. (2001). *Towards a Sustainability Balanced Scorecard.* St. Gallen: Oikos. University of St. Gallen.

Birch, D., & Littlewood, G. (2004). Corporate Citizenship. Some perspectives from Australian CEOs. *Journal of Corporate Citizenship, 16*, 61-69.

Biscaccianti, A. (2003). Business ethics and profit - The impact of corporate social responsibility programs on corporate strategic planning. *Cahiers du CEREN*, 14-27.

Bleischwitz, R. (2002). *Cognitive and Institutional Perspectives of Eco-Efficiency. A New Research Landscape Towards Factor Four (or more).* Wuppertal: Wuppertal Institute for Climate, Environment and Energy.

Boatright, J. R. (1996). Business ethics and the theory of the firm. *American Business Law Journal, 34*, 217-238.

Booth, W. C., Colomb, G. G., & Williams, J. M. (1995). *The craft of research.* Chicago: The University of Chicago Press.

Bovey, W. H., & Hede, A. (2001). Resistance to organisational change: the role of defence mechanisms. *Journal of Managerial Psychology, 16*(7), 534-548.

Brooks, S. (1987). The mixed ownership corporation as an instrument of public policy. *Comparative Politics, 19*(2), 173-191.

Brorson, T., & Larsson, G. (1999). *Environmental Management.* EMS AB, Stockholm, Sweden. Third Edition.

Brown, L. R., Larsen, J., & Fischlowitz-Roberts, B. (2002). *The Earth Policy Reader.* New York: W. W. Norton & Company.

Bryman, A. (2004). *Social Research Methods* (Second edition ed.). Oxford: Oxford University Press.

Buchholz, R. A., & Rosenthal, S. B. (2005). Toward a Contemporary Conceptual Framework for Stakeholder Theory. *Journal of Business Ethics, 58*, 137-148.

Busse, M. (2004). Transnational Corporations and Repression of Political Rights and Civil Liberties: An Empirical Analysis. *KYKLOS, 57*(1), 45-66.

C.E.C. (2001). *Promoting a European framework for Corporate Social Responsibility.* Brussels: Commission of the European Communities.

C.E.C. (2002). *Corporate social responsibility: A business contribution to sustainable development* (PDF): Commission of the European Communities.

Cairns, J., Jr. (2004). Will the real sustainability concept please stand up? *Ethics in Science and Environmental Politics*, 49-52.

Cañas, A. J., Novak, J. D., Miller, N. L., Collado, C., Rodríguez, M., Concepción, M., *et al.* (2006). Confiabilidad de una taxonomía toplógica para mapas conceptuales, *Proc. of the Second Int. Conference on Concept Mapping.* San José, Costa Rica.

Cannon, T. (1994). *Corporate responsibility. A textbook on business ethics, governance, environment: roles and responsibilities.* London: Pitman publishing.

Carley, M., & Christie, I. (2000). *Managing sustainable development* (Second ed.). London: Earthscan Publications Ltd.

Carr, A. (2001). Understanding emotion and emotionality in a process of change. *Journal of Organizational Change, 14*(5), 421-434.

Carroll, A. B. (1998). The Four Faces of Corporate Citizenship. *Business and Society Review, 100/101*, 1-7.

Carroll, A. B. (1999). Corporate Social Responsibility: Evolution of a Definitional Construct. *Business Society, 38*(3), 268-295.

Carson, R. (2000). *Silent Spring.* London: Penguin Books.

Castro Laszlo, K. (2001). *The evolution of business: Learning, innovation and sustainability in the 21st century* (PDF): EGADE, ITESM.

Charreaux, G., & Desbrières, P. (2001). Corporate Governance: Stakeholder Value Versus Shareholder Value. *Journal of Management and Governance, 5*, 107-128.

Chatelain, M. P. (2006). Sustainability @ Johnson Controls. In R. Lozano (Ed.) (Presentation ed.). Milwaukee, Wisconsin, U.S.A.

Chatelain, M. P. (2007). Update about SD at JCI. In R. Lozano (Ed.) (E-mail answering question about update at JCI ed.). Cardiff.

Checkland, P. (1999). *Soft systems methodology: A 30-year retrospective.* Chichester: Wiley.

Cheney, H., Nheu, N., & Vecellio, L. (2004). *Sustainability as social change: Values and power in sustainability discourse.* Paper presented at the Sustainability and Social Science: Round Table Proceedings.

Chilosi, A. (2003). *Coordination, cooperation, and the extended Coasean approach to economic policy.* Pisa: Facolta di Scienze Politiche.

Chin, R. (1969). The utility of system models and developmental models for practitioners. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Chin, R., & Benne, K. D. (1969). General strategies for effecting changes in human systems. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Clark, W. C. (2001). *Research Systems for a Transition Toward Sustainability.* Paper presented at the Challenges of a Changing Earth, Amsterdam, NL.

Clarke, S., & Roome, N. (1999). Sustainable Business: Learning - action networks as organizational assets. *Business Strategy and the Environment, 8*, 296-310.

Coase, R. H. (1937). The nature of the firm. *Economica, 4*(16), 386-405.

Coch, L., & French, J. R. P., Jr. (1948). Overcoming resistance to change. *Human Relations, 1*(4), 512-532.

Coelho, P. R. P., McClure, J. E., & Spry, J. A. (2003). The social responsibility of corporate management: A classical critique. *Mid - American Journal of Business, 18*(1), 15-24.

Cole, L. (2003). *Assessing Sustainability on Canadian University Campuses: Development of a Campus Sustainability Assessment Framework.* Unpublished M. A. Environment and Management, Royal Roads University, Victoria, Canada.

Collins, J., & Porras, J. I. (2002). *Built to last. Successful habits of visionary companies.* New York: HarperBusiness Essentials.

Costanza, R. (1994) "Environmental Performance Indicators, Environmental Space and the Preservation of Ecosystem Health" Global Change and Sustainable Development in Europe Manuscript on file at the Wuppertal Institute, Nordrhein-Westfalen, Germany.

Corbin, J., & Strauss, A. L. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology, 13*(1).

Corcoran, P. B., Walker, K. E., & Wals, E. J. (2004). Case studies, make-your-case studies, and case stories: a critique of case-study methodology in sustainability in higher education. *Environmental Education Research, 10*(1), 7-21.

CorporateRegister. (2008). Global Report Output by Type. Retrieved 02 February, 2009

CorporateRegister. (2009). Global Report Output by Year. Retrieved 02 February, 2009

CorpWatch. (2001). Corporate Globalization. Retrieved 10th December, 2004, from http://www.corpwatch.org/article.php?id=378

CorpWatch. (2004). Coke with Yet Another New Twist: Toxic Cola. Retrieved 14 February, 2007, from http://www.corpwatch.org/article.php?id=9568

Costanza, R. (1991). *Ecological Economics. The Science and Management of Sustainability.* New York: Columbia University Press.

Costanza, R. (2000). Commentary Forum: The ecological footprint. The dynamics of the ecological footprint concept. *Ecological Economics*, 32, 3410345

Cropper, M., & Griffiths, C. (1994). The interaction of population growth and environmental quality. *The American Economic Review, 84*(2), 250-254.

Currie-Alder, B. (1997). *Barriers to Sustainability: Problems inhibiting the success of SANREM-Ecuador.*

Dalal-Clayton, B., & Bass, S. (2002). *Sustainable development strategies* (First ed.). London: Earthscan Publications Ltd.

Daly, H. E. (1991). Elements of environmental macroeconomics. In R. Costanza (Ed.), *Ecological economics. The science and management of sustainability.* New York: Columbia University Press.

Daly, H. E. (2002). Sustainable Development: Definitions, Principles, Policies. Retrieved 7th February, 2003

Dasgupta, I., & Kanbur, R. (2003). *Community and anti-poverty targeting.*

Dawe, G. F. M., Vetter, A., & Martin, S. (2004). An overview of ecological footprinting and other tools and their application to the development of sustianability process. Audit and methodology at Holme Lacy College, UK. *International Journal of Sustainability in Higher Education, 5*(4), 340-371.

Dawkings, R. (1978). *The selfish gene.* London: Oxford University Press.

Dawson, P. (1994). *Organizational change. A processual approach.* London: Paul Chapman Publishing Ltd.

Dechant, K., & Altman, B. (1994). Environmental leadership: From compliance to competitive advantage. *Academy of Management Executive, 8*(3), 7-20.

Denise, L. (1999). Collaboration vs. C-Three (Cooperation, Coordination, and Communication). *Innovation, 7*(3).

Dent, E. B., & Galloway Goldberg, S. (1999). Challenging "Resistance to Change". *The Journal of Applied Behavioral Science, 35*(1).

DeSimone, L. D., & Popoff, F. (2000). *Eco-Efficiency. The Business Link to Sustainable Development*: MIT Press.

di Gregorio, S. (2000). Using NVivo for your literature review, *Strategies in qualitative research: Issues and results from analysis using QSR NVivo and NUD*IST.* London: Institute of Education.

Diesendorf, M. (2000). Sustainability and sustainable development. In D. Dunphy, J. Benveniste, A. Griffiths & P. Sutton (Eds.), *Sustainability: The corporate challenge of the 21st century* (Vol. 2, pp. 19-37). Sydney: Allen & Unwin.

Dillon, J., & Reid, A. (2004). Issues in case-study methodoloy in investigating environmental and sustainability issues in higher education: towards a problem-based approach? *Environmental Education Research, 10*(1), 23-37.

Dobers, P., & Wolff, R. (2000). Competing with 'soft' issues - from managing the environment to sustainable business strategies. *Business Strategy and the Environment, 9*, 143-150.

Dobes, V. (2001). *EMS and change of guiding ideas in direction of sustainability.* Lund: The International Institute for Industrial Environmental Economics (IIIEE). Lund University.

Dobes, V. (2003). Why is slow spread of CP natural and possibilities of EMS in speeding up this process limited and which new approaches can be utilised for higher uptake and effectiveness of CP and EMS? Unpublished Manuscript. IIIEE, Lund University.

Dodd, E. M., Jr. (1932). For whom are corporate managers trustees? *Harvard Law Review, XLV*(7), 1145-1163.

Doppelt, B. (2003a). *Leading change toward sustainability. A change-management guide for business, government and civil society.* Sheffield: Greenleaf Publishing.

Doppelt, B. (2003b). Overcoming the seven sustainability blunders. *The Systems Thinker, 14*(5), 2-7.

Dow. (2007). News Centre. Retrieved 24 August, 2007, from http://news.dow.com/dow_news/index.htm

Dresner, S. (2002). *The principles of sustainability* (First ed.). London: Earthscan Publications Ltd.

Drucker, P. (2002). They're not Employees, They're People. *Harvard Business Review, February*, 71-77.

Drucker, P. (2005). Managing oneself. *Harvard Business Review, January*, 71-77.

Drury, D. H., & Farhoomand, A. (1999). Innovation diffusion and implementation. *International Journal of Innovation Management, 3*(2), 133-157.

Dubrin, A. J., & Ireland, R. D. (1993). *Management and organization* (2nd ed.). Cincinnati, OH: South-Western Publishing.

Dunphy, D., Griffiths, A., & Benn, S. (2003). *Organizational change for corporate sustainability*. London: Routledge.

Duraiappah, A. K. (1998). Poverty and environmental degradation: A review and analysis of the nexus. *World Development, 26*(12), 2169-2179.

Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment, 11*, 130-141.

Eason, K. (1988). *Information technology and organisational change*. London: Taylor & Francis.

ECSF. (2004). European Corporate Sustainability Framework Retrieved 25 January, 2007, from http://www.ecsf.info/ecsf/

Ehrlich, P. R. (1968). *The population bomb*. New York: Ballantine Books.

Ekins, P. (2005). Eco-efficiency. Motives, Drives, and Economic Implications. *Journal of Industrial Ecology, 9*(4).

Elkington, J. (2002). *Cannibals with forks*. Oxford: Capstone Publishing Limited.

Elkington, J. (2005). Enter the Triple Bottom Line. In A. Henriques & J. Richardson (Eds.), *The triple bottom line. Does it all add up?* London: Earthscan.

Elkington, J. (2006). Timelines. The wave diagram. Retrieved 12 February, 2007, from http://johnelkington.com/timelines-wave-diagram.htm

Elton, L. (2003). Dissemination of innovations in higher education: A change theory approach. *Tertiary Education and Management*(9), 199-214.

European Commission. (1998). *Managing Change.* (Report): European Commission. Employment & social affairs.

European Commission. (2003). *The new SME definition. User guide and model declaration*. Luxembourg: European Commission.

Fadeeva, Z. (2004). Promise of sustainability collaboration - potential fulfilled? *Journal of Cleaner Production, 13*, 165-174.

Farmer, R. N., & Hogue, W. D. (1973). *Corporate Social Responsibility*. USA: Science Research Associate.

Fiala, N. (2008). Measuring sustainability: Why the ecological footprint is bad economics and bad environmental science. Ecological Economics. 67(1), pp. 519-525

Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). The Sustainability Balanced Scorecard - Theory and application of a tool for value-based, *Greening of Industry Network*. Gothenburg.

Fitzgerald, L. A., & van Eijnatten, F. M. (2002). Reflections: Chaos is organizational change. *Journal of Organizational Change, 15*(4), 402-411.

Flavin, C. (2001). Rich Planet, Poor Planet. In L. Starke (Ed.), *State of the World 2001*. New York: W. W. Norton & Company.

Flynn, M., Dooley, L., O'Sullivan, D., & Cormican, K. (2003). Idea management for organisational innovation. *International Journal of Innovation Management, 7*(4), 417-442.

Fokkema, J., Jansen, L., & Mulder, K. (2005). Sustainability: necessity for a prosperous society. *International Journal of Sustainability in Higher Education, 6*(3), 219-228.

Fontrodona, J., & Sison, A. J. G. (2006). The Nature of the Firm, Agency Theory and Shareholder Theory: A Critique from Philosophical Anthropology. *Journal of Business Ethics, 66*(1), 33-42.

Forbes. (2005a). 2005's most notorious trials. Bernie Ebbers Former CEO WorldCom. Retrieved 14th February, 2007, from http://www.forbes.com/business/2004/12/16/cx_lr_trialslide_6.html?thisSpeed=6000

Forbes. (2005b). 2005's most notorious trials. Kenneth Lay Former CEO Enron Retrieved 14th February, 2007, from http://www.forbes.com/business/2004/12/16/cx_lr_trialslide_3.html?thisSpeed=6000

Frankental, P. (2001). Corporate social responsibility - a PR invention? *Corporate Communications: An International Journal, 6*(1), 18-23.

Frederick, W. C. (1994). From CSR1 to CSR2. *Business and Society, 33*(2), 150-164.

Freeman, R. E. (1984). *Strategic management. A stakeholder approach.* Boston: Pitman Publishing Inc.

Freeman, R. E., Wicks, A. C., & Parmar, B. (2004). Stakeholder theory and "The Corporate Objective Revisited". *Organization Science, 15*(3), 364-369.

Frehs, J. (2003). *Corporate social responsibility: Lessons learned*: Natural Resources Canada.

French, W. L., Bell, C. H., Jr., & Zawacki, R. A. (Eds.). (1994). *Organization development and transformation* (Fourth ed.). Boston: Irwin McGraw-Hill.

Friedman, M. (1970). The social responsibility of business is to increase its profits. *The New York Times Magazine.*

Fukukawa, K., & Moon, J. (2004). A Japanese model of Corporate Social Responsibility? *Journal of Corporate Citizenship, 16*, 45-59.

Fullan, M. (2002). The change leader. *Educational Leadership, May*(16-20).

Galea, C. (Ed.). (2004). *Teaching business sustainability* (Vol. 1: From theory to practice). Sheffiled: Greenleaf Publishing Limited.

Garvin, D. A., & Roberto, M. A. (2005). Change through persuasion. *Harvard Business Review, February*, 104-112.

Genefke, J. (2000). *Collaboration costs!* Aarhus: University of Aarhus. Department of Management.

Gill, R. (2003). Change management - or change leadership? *Journal of Change Management, 3*(4), 307-318.

Gladwin, T. N., Kennelly, J. J., & Krause, T.-S. (1995). Shifting Paradigms for Sustainable Development: Implications for Management Theory and Research. *The Academy of Management Review, 20*(4), 874-907.

Glaser, B. G. (1998). *Doing grounded theory: Issues and discussions.* Mill Valley, CA: Sociology Press.

Glaser, B. G. (2002). Conceptualization: On theory and theorizing using grounded theory. *International Journal of Qualitative Methods, 1*(2).

Glaser, B. G. (2004). Remodeling Grounded Theory. *Forum: Qualitative Social Research, 5*(2).

Glaser, B. G., & Strauss, A. L. (1999). *The discovery of grounded theory: Strategies for qualitative research.* New York: Aldine de Gruyter.

Glazebrook, M. (2005). The social construction of Corporate Citizenship. *Journal of Corporate Citizenship, 17*, 53-67.

Gleckman, H. (1995). Transnational Corporations' Strategic Responses to "Sustainable Development". In H. O. Bergesen, G. Parmann & Ø. B. Thommessen (Eds.), *Green Globe Yearbook of International Co -operation on Environment and Development* (pp. 93-106). Oxford: Oxford University Press.

Global Sustainability Institute. (2002). Global Sustainability Time Line. Retrieved 14 March, 2006, from http://www.global.rmit.edu.au/resources/gstimeline.php

Goldin, I., & Winters, L. A. (Eds.). (1995). *The economics of sustainable development*: OECD

Cambridge University Press.

Goldsmith, E., Allen, R., Allaby, M., Davoll, J., & Lawrence, S. (1972). A blueprint for survival. *The Ecologist, 2*(1), 1-43.

Goodin, R. E. (1994). Selling environmental indulgences. *Kyklos, 47*(4), 573-596.

Gorman, J. T. (1993). The road to Kyosei: Government and industry must work together to create an "export vision". *Industry Week, 242*(7).

Gowdy, J., & Erickson, J. D. (2005). The approach of ecological economics. *Cambridge Journal of Economics, 29*, 207-222.

Greiner, L. E. (1965). *Organizational Change and Development* (Unpublished Ph.D dissertation). Boston: Harvard University.

Gremmen, B., & Jacobs, J. (1997). Understanding sustainability. *Man and World, 30*, 315-327.

GRI. (2006). *Sustainability Reporting Guidelines version 3.0 (G3)*. Amsterdam: Global Reporting Initiative.

GRI. (2007). Reports database. Retrieved 25 January, 2007, from http://www.globalreporting.org/ReportsDatabase/

Griffin, R. W. (1993). *Management* (4th ed.). Boston: Houghton Mifflin.

Grinker, R. R., Sr. (Ed.). (1967). *Toward a unified theory of human behavior* (Second ed.). New York: Basic Books, Inc.

Grubbs, J. W. (2000). Cultural imperialism. A critical theory of interorganizational change. *Journal of Organizational Change, 13*(3), 221-234.

Grupo IMSA. (2004). *Grupo IMSA Informe Anual 2004 (Grupo IMSA Annual Report 2004)*. San Pedro Garza García, Mexico: Grupo IMSA.

Grupo IMSA. (2005). *Grupo IMSA Informe Anual 2005 (Grupo IMSA Annual Report 2005)*. San Pedro Garza García, Mexico: Grupo IMSA.

Grupo IMSA. (2007). Inversionistas (Investors). Retrieved 16 April, 2007, from http://www.grupoimsa.com/XStatic/Default.asp?strPageName=HomeInversionistas&intSiteLanguageId=1

Guillén, M. F. (2001). Is Globalization Civilizing, Destructive or Feeble? A Critique of Five Key Debates in the Social Science Literature. *Annu. Rev. Sociol., 27*, 235-260.

Gulbrandsen, L. H., & Moe, A. (2005). Oil company CSR collaboration in 'New' Petro-States. *Journal of Corporate Citizenship, 20*, 53-64.

Hamann, R. (2003). Mining companies' role in sustainable development: the 'why' and 'how' of corporate social responsibility from a business perspective. *Development Southern Africa, 20*(2), 234-254.

Hansen, M. W. (1998). *Economic Theories of Transnational Corporations, Environment and Development*. Copenhagen: Copenhagen Business School.

Hanson, R. C., & Song, M. H. (1998). Shareholder wealth effects of free trade: U.S. and Mexican stock market response to NAFTA. *International Review of Economics and Finance, 7*(2), 209-224.

Hardi, P., & Zdan, T. (1997). *Assessing Sustainable Development. Principles in Practice.* Winnipeg, Manitoba: International Institute for Sustainable Development (IISD).

Hardin, G. (1968). The Tragedy of the Commons. *Science, 162*(3859), 1243-1248.

Harrison, M. I. (1987). *Diagnosing organizations. Methods, models, and processes.* Newbury Park, California: SAGE Publications, Inc.

Hart, S. (2000a). Beyond greening. Strategies for s sustainable world. In *Harvard Business Review on Business and the Environment* (pp. 105-129). Boston, MA: Harvard Business School Press.

Hart, S. (2000b). Beyond greening: Strategies for a sustainable world. *Harvard Business Review*, 66-76.

Harvard Business Review (Ed.). (2000). *Harvard Business Review on Business and the Environment.* Boston, MA: Harvard Business School Press.

Hasnas, J. (1998). The normative theories of business ethics: A guide for the perplexed. *business Ethics Quarterly, 8*(1), 19-42.

Henderson, D. (2004). *The role of business in the modern world. Progress, pressures, and prospects for the market economy.* Washington, D.C.: Competitive Enterprise Institute.

Henderson, D. (2005). The role of business in the world of today. *Journal of Corporate Citizenship, 17*, 30-32.

Henriques, A., & Richardson, J. (Eds.). (2005). *The triple bottom line. Does it all add up?* London: Earthscan.

Hill, C. W., & Jones, G. R. (2001). *Strategic Management: An integrated approach* (Fifth ed.). U.S.A.: Houghton Mifflin Company.

Hitchcock, D., & Willard, M. (2006). *The business guide to sustainability. Practical strategies and tools for organizations.* London: Earthscan.

Hockerts, K., & Moir, L. (2003). *Communicating corporate responsibility to investors. The changing role of the investor relations function* (PDF). Fontainblue: INSEAD.

Hockerts, K. N. (2003). *Sustainability Innovations. Ecological and Social Entrepreneurship and the Management of Antagonistic Assets.* Unpublished Doctoral Thesis, St. Gallen University, St. Gallen.

Hodge, R. A., Hardi, P., & Bell, D. V. J. (1999). *Seeing change through the lens of sustainability.* Costar Rica: The International Institute for Sustainable Development.

Holliday, C. O. J., Schmidheiny, S., & Watts, P. (2002). *Walking the Talk. The Business Case for Sustainable Development.* Sheffield: Greenleaf Publishing.

Holme, R., & Watts, P. (2000). *Corporate social responsibility: making good business sense*: WBCSD.

Hölzl, W. (2005). *The evolutionary theory of the firm: Routines, complexity and change.* Vienna: Vienna University of Economics and Business Administration.

Hopkins, M. J. D. (2002). Sustainability in the internal operations of companies. *Corporate Environmental Strategy, 9*(2), 1-11.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable Development: Mapping different approaches. *Sustainable Development*, 13, 38-52

Houlder, V. (2007, August 27 22:02). One-third of biggest UK businesses pay no tax. *Financial Times*.

Huczynski, A., & Buchanan, D. (2001). *Organizational behavior. An introductory text* (Fourth ed.). Essex: Pearson Education Limited.

Hunt, S. D., & Duhan, D. F. (2002). Competition in the third millennium: efficiency or effectiveness? . *Journal of Business Research, 55*(2), 97-102.

Huse, E. (1980). *Organizational Development and Change*. Minneapolis/St. Oaul: West.

Hussey, D. M., Kirsop, P. L., & Meissen, R. E. (2001). Global Reporting Initiative Guidelines: An Evaluation of Sustainable Development Metrics for Industry. *Environmental Quality Management*, 1-20.

Husted, B. W., & Salazar, J. d. J. (2006). Taking Friedman Seriously: Maximizing Profits and Social Performance. *Journal of Management Studies, 43*(1), 75-91.

IISD. (2006). The Sustainable Development Timeline. Retrieved 12 February, 2007

Ite, U. E. (2004). Multinationals and corporate social responsibility in developing countries: A case study of Nigeria. *Corporate Social Responsibility and Environmental Management, 11*, 1-11.

IUCN, UNEP, & WWF. (1980). *Word Conservation Strategy. Living Resource Conservation for Sustainable Development*: International Union for Conservation of Nature and Natural Resources (IUCN)

United Nations Environment Programme (UNEP)

World Wildlife Fund (WWF).

Jansen, L. (2003). The challenge of sustainable development. *Journal of Cleaner Production, 11*, 231-245.

JCI. (2004). *Living our values. 2003 Sustainability report* (Sustainability report). Milwaukee, Wisconsin: Johnson Controls, Inc.

JCI. (2005a). *2005 Report* (Financial performance. Sustainability.). Milwaukee, Wisconsin: Johnson Controls, Inc.

JCI. (2005b). *Living our values. 2004 Sustainability report* (Sustainability report). Milwaukee, Wisconsin: Johnson Controls, Inc.

JCI. (2005c). *United States Securities and Exchange Commission. Form 10-K* (Annual report pursuant to section 13 or 15(d) of the Securities Exchnage Act of 1934). Milwaukee, Wisconsin: Johnson Controls, Inc.

JCI. (2006a). Blue Sky. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/bluesky/

JCI. (2006b). Corporate Governance. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/governance/governance_guidelines.htm

JCI. (2006c). Corporate Governance Committee Charter. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/governance/charter_corpgov.htm

JCI. (2006d). Disclosure Committee Charter. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/governance/charter_disclosure.htm

JCI. (2006e). Executive Committee Charter. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/governance/charter_execcom.htm

JCI. (2006f). Fact Sheet. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/CorpComm/glance.htm

JCI. (2006g). Finance Committee Charter. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/governance/charter_finance.htm

JCI. (2006h). A History of Exceeding Expectations. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/CompanyHistory/

JCI. (2006i). Our Values. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/corpvalues/foundation.htm
JCI. (2006j). Sustainability. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/sustainability.asp
JCI. (2006k). *United States Securities and Exchange Commission. Form 10-K* (Annual report pursuant to section 13 or 15(d) of the Securities Exchnage Act of 1934). Milwaukee, Wisconsin: Johnson Controls, Inc.
JCI. (2007). Ethics Policy. Retrieved 16 April, 2007, from http://www.johnsoncontrols.com/corpvalues/ethics.htm
Jenkins, H., & Hines, F. (2003). *Shouldering the burden of Corporate Social Responsibility: What Makes Business get Committed?* (Working paper). Cardiff: The Centre for Business Relationships Accountability, Sustainability and Society (BRASS).
Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *the Journal of Finance, 48*(3).
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.
Jenssen, J. I., & Jørgensen, G. (2004). How do corporate champions promote innovations? *International Journal of Innovation Management, 8*(1), 63-86.
Johnson, G. (1990). Managing strategic change. *British Journal of Management, 1*, 183-200.
Judson, A. S. (1966). *A manager's guide to making changes*. London: John Wiley & Sons Ltd.
Jupp, V. (Ed.). (2006). *The SAGE dictionary of social research methods*. London: SAGE publications.
Kahn, C. H. (1979). *The art and thoughts of Heraclitus. An edition of the fragments with translation and commentary*. Cambridge: Cambridge University Press.
Kaku, R. (2003). The path of Kyosei. In *Harvard Business Review on Corporate Responsibility*. Boston: Harvard Business School Press.
Kaler, J. (2003). Differentiating stakeholder theories. *Journal of Business Ethics, 46*, 71-83.
Kanter, R. M. (1999). *The change masters*. London: International Thomson Business Press.
Kanter, R. M. (2003). From spare change to real change. In *Harvard Business Review on Corporate Responsibility*. Boston, Massachusetts: Harvard Business School Publishing Corporation.
Kelman, H. C. (1969). Processes of opinion change. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.
Kilbourne, W. E., Beckmann, S. C., & Thelen, E. (2002). The role fo the dominant social paradigm in environmental attitudes. A multinational examination. *Journal of Business Research, 55*, 193-204.
King, N., & Anderson, N. (2001). *Innovation and change in organizations*. New York: Routledge.
Kirkby, J., O'Keefe, P., & Timberlake, L. (1995). *The earthscan reader in sustainable development* (First ed.). London: Earthscan Publications Ltd.
Korhonen, J. (2002a). The dominant economics paradigm and corporate social responsibility. *Corporate Social Responsibility and Environmental Management, 9*, 67-80.

Korhonen, J. (2002b). The dominant economics paradigm and corporate social responsibility. *Corporatare Social Responsiblity and Environmental Management, 9*, 67-80.

Korhonen, J. (2003). Should we measure corporate social responsibility? *Corporate Social Responsibility and Environmental Management, 10*, 25-39.

Korten, D. C. (2001). *When Corporations Rule the World* (2nd edition ed.). Bloomfield, Connecticut: Kumarian Press Inc.

Kotler, P., & Armstrong, G. (2001). *Principles of marketing* (Ninth ed.). New Jersey: Prentice Hall.

Kotter, J. P. (1996). *Leading change*. Boston: Harvard Business School Press.

Kotter, J. P., & Schlesinger, L. A. (1979). Choosing strategies for change. *Harvard Business Review*.

KPMG. (2005). *KPMG International survey of corporate responsibility reporting 2005*. Amsterdam

Kreitner, R. (1992). *Management* (5th ed.). Boston: Houghton Mifflin.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: The University of Chicago Press.

Kuhndt, M., & Liedtke, C. (2003). *Translating a Factor X into Praxis*. Wuppertal: Wuppertal Institute Laffer, A. B., Coors, A., & Winegarden, W. (2004). *Does corporate social responsibility enhance business profitability?* : Laffer Associates.

Langer, M. E., & Schön, A. (2003). *Enhancing Corporate Sustainability. A framework based evaluation tools for sustainable development*. Vienna: Forschungsschwerpunkt Nachhaltigkeit und Umweltmanagement, Wirtschaftsuniversität Wien.

Langtry, B. (1994). Stakeholders and the moral responsibilities of business. *Business Ethics Quarterly, 4*(4).

Lantos, G. (2001). The boundaries of strategic corporate social responsibility. *Journal of Consumer Marketing, 18*(7), 595-630.

Larkin, T. J., & Larkin, S. (1996). Reaching and changing frontline employees. *Harvard Business Review, May-June*.

Lessard, D. R., & Amsden, A. H. (1996). *The Multinational Enterprise as a Learning Organization*.

Levitt, T. (1958). The dangers of social responsibility. *Harvard Business Review, September-October*, 41-50.

Lewin, K. (1947). Frontiers in group dynamics. Concept, method and reality in social science; social equilibria and social change. *Human Relations, 1*(1), 5-41.

Lindfelt, L.-L. (2002). *Corporate social responsibility in the new global economy* (Occasional paper). Uppsala: Företagsekonomiska Institutionen Uppsala Universitet.

Litvin, D. (2003). *Empires of profit. Commerce, conquest and corporate responsibility*. London: TEXERE Publishing Limited.

Lorenzi, N. M., & Riley, R. T. (2000). Managing change: An overview. *Journal of the American Medical Informatics Association, 7*(2), 116-124.

Lovins, A. B., Lovins, L. H., & Hawken, P. (2000). A road map for natural capitalism. In *Harvard Business Review on Business and the Environment*. Boston, MA: Harvard Business School Press.

Lozano-Ros, R. (2003). *Sustainable Development in Higher Education. Incorporation, assessment and reporting of sustainable development in higher education institutions*. Unpublished Master thesis, Lund University, Lund.

Lozano, R. (2006a). Collaboration as pathway for Sustainability, *Environmental Management for Sustainable Universities*. Stevens Point, Wisconsin.

Lozano, R. (2006b). Developing Collaborative & Sustainable Organisations, *Environmental Management for Sustainable Universities*. Stevens Point, Wisconsin.

Lozano, R. (2006c). Envisioning Sustainability three-dimensionally, *Greening of Industry Network*. Cardiff, UK.

Lozano, R. (2006d). Incorporation and institutionalization of SD into universities: breaking through barriers to change. *Journal of Cleaner Production, 14*(9-11), 787-796.

Lozano, R. (2006e). A tool for a Graphical Assessment of Sustainability in Universities (GASU). *Journal of Cleaner Production, 14*(9-11), 963-972.

Lozano, R. (2007). Collaboration as a Pathway for Sustainability. *Sustainable Development, 15*(6), 370-381.

Lozano, R. (2008a). Developing collaborative and sustainable organisations. *Journal of Cleaner Production, 16*(4), 499-509.

Lozano, R. (2008b). Envisioning sustainability three-dimensionally. *Journal of Cleaner Production, 16*(17), 1838-1846.

Ludwig, D., Walker, B., & Holling, C. S. (1997). Sustainability, stability, and resilience, *Conservation Ecology* (Vol. 1).

Luthans, F. (2002). *Organizational Behavior*. New York: McGraw-Hill.

Machiavelli, N. (1966). *The Prince. The Discourses*.

MacLean, R. (2000). Corporate environmental reports - Three dimensions to success. *EM Magazine*, 23-26

MacLeod, S., & Lewis, D. (2004). Transnational Corporations. Power, Influence and Responsibility. *Global Social Policy, 4*(I), 77-98.

Magretta, J. (2000). Growth through global sustainability. An interview with Monsanto's CEO Robert B. Shapiro. In *Harvard Business Review on Business and the Environment*. Boston, MA: Harvard Business School Press.

Manimala, M. J., Jose, P. D., & Thomas, K. R. (2006). Organizational constraints on innovation and intrapreneurship: Insights from public sector. *The Journal for Decision Makers, 31*(1), 49-60.

Mann, M. (1997). Has globalization ended the rise and rise of the nation-state? *Review of International Political Economy, 4*(3), 472-496.

Mardjono, A. (2005). A tale of corporate governance: lessons why firms fail. *Managerial Auditing Journal, 20*(3), 272-283.

Marsland, F., Stump, A., & Wang, S. (2004). Who profits from profit in a global world? Retrieved 15 February, 2007, from http://www.ssn.flinders.edu.au/global/glob1002/2002book/globalisation%20website/converted/chess.html

Martin, R. (1998). Changing the mind of the corporation. In *Harvard Business Review on Change*. Boston: Harvard Business School Press.

Martin, R. L. (2003). The virtue matrix: Calculating the return on corporate responsibility. In *Harvard Business Review on Corporate Responsibility*. Boston: Harvard Business School Press.

Martin, S. (2003). *Sustainability, systems thinking and professional practice*. Worcester.

Mascarenhas, B. (1989). Domains of State-Owned, Privately Held, and Publicly Traded Firms in International Competition. *Administrative Science Quarterly, 34*(4), 582-597.

Matten, D., & Moon, J. (2004). Corporate Social Responsibility Education in Europe. *Journal of Business Ethics, 54*, 323-337.

Maurer, R. (1996). *Beyond the wall of resistance. Unconventional strategies that build support for change*. Austin, Texas: Bard Book, Inc.

McAleer, S. (2003). Friedman's stockholder theory of corporate moral responsibility. *Teaching Business Ethics, 7*(4), 437-451.

McGahan, A. M. (2004). How industries change. *Harvard Business Review, 82*(10), 86-94.

McIntosh, M., Leipziger, D., Jones, K., & Coleman, G. (1998). *Corporate citizenship. Successful strategies for responsible companies*: Financial Times. Pitman Publishing.

Meadows, D. H., Meadows, D. L., Randers, J., & Bherens, W. W., III. (1974). *The limits to growth*. London: Pan Books Ltd.

Mebratu, D. (1998). Sustainability and sustainable development: Historical and conceptual review. *Environmental Impact Assessment Review, 18*, 493-520.

Meyerson, D. E. (2001). Radical change, the quiet way. *Harvard Business Review, 79*(9), 92-100.

Miesing, P. (1985). A comparison of five business philosophies. *Journal of Business Ethics, 4*(6), 465-476.

Miller, D. (1990). *The Icarus paradox. How exceptional companies bring about their own downfall*. U.S.A.: HarperBusiness.

Miller, G. T. (2002). *Living in the Environment* (12th ed.). Belmont, California: Thomson Learning, Inc.

Millon, D. (1990). Theories of the corporation. *Duke Law Journal*, 201-262.

Milne, M. J., & Ball, A. (2005). *Business and sustainability: Agenda for change of soothing palliatives?*

Milne, M. J., Kearins, K., & Walton, S. (2003). *Business makes a 'Journey' out of 'Sustainability': Creating adventures in wonderland?* (Unpublished work).

Mintzberg, H. (1979). *The structuring of organizations*. New Jersey: Prentice-Hall, Inc.

Mintzberg, H. (1983). The case for Corporate Social Responsibility. *Journal of Business Strategy, 4*(2), 3-13.

Mintzberg, H. (1989). *Mintzberg on management. Inside our strange world of organizations*. New York: The Free Press.

Mitchel, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review, 22*(4), 853-886.

Monsen, R. J. (1972). Social responsibility and the corporation: Alternatives for the future of capitalism. *Journal of Economic Issues, 6*(1), 125-141.

Morgan, G. (1997). *Images of organization*. Thousand Oaks, California: SAGE Publications, Inc.

Murcott, S. (1997). Appendix A: Definitions of Sustainable Development. Retrieved 19th July, 2003, from http://www.sustainableliving.org/appen-a.htm

Nelson, R. R. (2002). Bringing institutions into evolutionary growth theory. *Journal of Evolutionary Economics, 12*, 17-28.

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge, Massachusetts: Harvard University Press.

NGLS, & UNRISD. (2002). *Voluntary approaches to corporate responsibility. Readings and a resource guide*. Geneva: UN Non-Governmental Liaison Service.

Nguyen Cam, C. (2004). A conceptual framework for socio-techno-centric approach to sustainable development. *International Journal of Technology Management and Sustainable Development, 3*(1), 59-66.

Norton, B. G. (1991). Ecological health and sustainable resource management. In R. Costanza (Ed.), *Ecological economics. The science and management of sustainability*. New York: Columbia University Press.

NTSC. (1995). *Bridge to a sustainable future*. Washington: The National Science and Technology Council.

Odero, K. K. (2002). *Collective action, inaction and the global commons*.

OECD, & European Patent Office. (2006). Compendium of patent statistics. Retrieved 31 August, 2007, from http://www.oecd.org/dataoecd/5/19/37569377.pdf

Ogbonna, E., & Harris, L. C. (1998). Managing organizational culture: Compliance or genuine change? *British Academy of Management, 9*, 273-288.

Ogilvie, J. R., & Stork, D. (2003). Starting the HR and change conversation with history. *Journal of Organizational Change, 16*(3), 254-271.

Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal, 18*(9), 697-713.

Oppenheimer, A. N. (2003). *Questionnaire Design, Interviewing and Attitude Measurement*. London: Continuum.

Orr, D. W. (1992). *Ecological Literacy*. New York: State University of New York.

Oskarsson, K., & von Malmborg, F. (2005). Integrated Management Systems as a Corporate Response to Sustainable Development. *Corporate Social Responsibility and Environmental Management, 12*, 121-128.

Papmehl, A. (2004). Culture change and organic growth. *CMA Management, 78*(6), 16-18.

Parente, S. L., & Prescott, E. C. (1999). Monopoly Rights: A Barrier to Riches. *The American Economic Review, 89*(5), 1216-1233.

Parkinson, J. E. (2000). *Corporate power and responsibility. Issues in the Theory of Company Law*. Oxford: Oxford University Press.

Peñoles. (1998). *Annual Report* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (1999). *Renewed commitment* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2000). *The challenge of a new era* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2001a). *Adding value in a sustainable manner* (Environmental report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2001b). *Mining value from adversity* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2002a). *Exploring new ways to create value* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2002b). *Towards a sustainable development* (Environmental report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2003a). *Advancing our commitment* (Sustainability report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2003b). *Positioned to exploit the upside* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2004a). *Consolidating our position* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.

Peñoles. (2004b). *Consolidating Sustainability* (Sustainability report). Mexico City: Industrias Peñoles S.A. de C.V.
Peñoles. (2005). *Walking the talk* (Sustainability report). Mexico City: Industrias Peñoles S.A. de C.V.
Peñoles. (2006a). *Delivering results today and continuing to invest in tomorrow* (Annual report). Mexico City: Industrias Peñoles S.A. de C.V.
Peñoles. (2006b). *Economic, social and environmental balance: Our way of life* (Sustainability report). Mexico City: Industrias Peñoles S.A. de C.V.
Peñoles. (2007). Peñoles. Retrieved 05 March, 2007, from http://www.penoles.com.mx/penoles/ingles/index.php
Pettigrew, A. (1985). *The awakening giant. Continuity and change in ICI.* Oxford: Basil Blackwell Ltd.
Pettigrew, A. (Ed.). (1987). *The management of strategic change.* Oxford: Basil Blackwell Ltd.
Pettigrew, A., & Whipp, R. (1991). *Managing change for competitive success.* Oxford: Blackwell Publishers Ltd.
Phillips, M. J. (1996). How much does corporate theory matter? A response to Professor Boatright. *American Business Law Journal, 34*, 239-244.
Pitelis, C. N., & Sugden, R. (Eds.). (1991). *The nature of the transnational firm.* London: Routledge.
Planet Ark. (1999). Mexico orders mining firm to pay for major cleanup. Retrieved 14th February, 2007, from http://www.planetark.org/dailynewsstory.cfm/newsid/573/newsDate/10-May-1999/story.htm
Planet Ark. (2000). U.S. says Alcoa to pay $8.8 mln environmental fine. Retrieved 14th February, 2007, from http://www.planetark.com/dailynewsstory.cfm?newsid=5970&newsdate=14-Mar-2000
Planet Ark. (2002). Angola fines Chevron $2 mln for pollution - agency. Retrieved 14th February, 2007, from http://www.planetark.com/dailynewsstory.cfm/newsid/16638/newsDate/1-Jul-2002/story.htm
Porter, L. W., Lawler, E. E., III, & Hackman, J. R. (1975). *Behavior in organizations.* New York: McGraw-Hill.
Porter, M. E., & Kramer, M. R. (2003). The competitive advantage of corporate philanthropy. In *Harvard Business Review on Corporate Responsibility.* Boston: Harvard Business School Press.
Porter, M. E., & van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *The Journal of Economic Perspectives, 9*(4), 97-118.
Porter, M. E., & van der Linde, C. (2000). Green and competitive. Ending the stalemate. In *Harvard Business Review on Business and the Environment.* Boston: Harvard Business School Press.
Posch, A., & Steiner, G. (2006). Integrating research and teaching on innovation for sustainable development. *International Journal of Sustainability in Higher Education, 7*(3), 276-292.
Potoski, M., & Prakash, A. (2004). The regulation dilemma: Cooperation and conflict in environmental governance. *Public Administration Review, 64*(2), 153-163.
Princen, T. (2003). Principles for Sustainability: From Cooperation and Efficiency to Sufficienty. *Global Environmental Politics, 3*(1), 33-50.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*(9), 1102-1114.

QSR. (2002a). *Getting started in NVivo*. Doncaster, Victoria, Australia: QSR International Pty Ltd.

QSR. (2002b). NVivo 2 (Version 2.0.163): QSR International,.

QSR. (2006). NVivo 7 (Version 7.0.247.0): QSR International.

Quazi, H. A. (2001). Sustainable development: integrating environmental issues into strategic planning. *Industrial Management & Data Systems, 101*(2), 64-70.

Ragsdell, G. (2000). Engineering a paradigm shift? An holistic approach to organisational change management. *Journal of Organizational Change, 13*(2), 104-120.

Raynard, P., & Forstater, M. (2002). *Corporate social responsibility. Implications for Small and Medium Enterprises in Developing Countries* (PDF). Vienna: United Nations Industrial Development Organization.

Rees, W. E. (2002). An Ecological Economics Perspective on Sustainability and Prospects for Ending Poverty. *Population and Environment, 24*(1), 15-46.

Reid, D. (1995). *Sustainable development. An introductory guide* (First ed.). London: Earthscan Publications Ltd.

Reiffers, J.-L., Cartapanis, A., Experton, W., & Fuguet, J.-L. (1982). *Transnational corporations and endogenous development. Effects on culture, communication, education, and science and technology*. Paris: United Nations Educational, Scientific and Cultural Organization (UNESCO).

Reinhardt, F. L. (2000). Bringing the environment down to Earth. In *Harvard Business Review on Business and the Environment*. Boston: Harvard Business School Press.

Reinhardt, F. L. (2004). *Sustainability and the firm* (Ocassional paper). Zurich: University of Zurich.

Remenyi, D., Williams, B., Money, A., & Swatz, E. (2000). *Doing Research in Business and Management*. London: Sage Publications.

Robert, K.-H. (2000). Tools and concepts for sustainable development, how do they relate to a general framework for sustainable development, and to each other? *Journal of Cleaner Production, 8*, 243-254.

Robert, K.-H., Schmidt-Bleek, B., Aloisi de Larderel, J., Basile, G., Jansen, J. L., Kuehr, R., *et al.* (2002). Strategic sustainable development - selection, design and synergies of applied tools. *Journal of Cleaner Production, 10*, 197-214.

Rogers, E. M. (1995). *Diffusion of innovations* (Fourth ed.). New York: Free Press.

Rondinelli, D. A., & Berry, M. A. (2000). Environmental Citizenship in Multinational Corporations: Social Responsibility and Sustainable Development. *European Management Journal, 18*(1), 70-84.

Roodman, D. M. (2002). Trade slows. In Worldwatch Institute (Ed.), *Vital Signs 2002. The trends that are shaping our future* (Vol. W.W. Norton & Company). New York

London.

Roorda, N. (2001). *AISHE: Auditing Instrument for Sustainable Higher Education*: Dutch Committee for Sustainable Higher Education.

Rosner, W. J. (1995). Mental models for sustainability. *Journal of Cleaner Production, 3*(1-2), 107-121.

Rothman, J., & Havelock, R. G. (1980). *Using research in organizations. A Guide to Successful Application*. Beverly Hills: Sage Library of Social Research.

Rupp, D. E., Ganapathi, J., Aguilera, R. V., & Williams, C. A. (2006). Employee reactions to corporate social responsibility: an organizational justice framework. *Journal of Organizational Behavior, 27*, 537-543.

SAI. (2007). Overview of SA 8000. Retrieved 12 June, 2007, from http://www.sa-intl.org/index.cfm?fuseaction=Page.viewPage&pageId=473

Salzmann, O., Ionescu-Somers, A., & Steger, U. (2003). *The business case for corporate sustainability - Review of the literature and research options* (PDF): IMS/CSM.

Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research methods for business students* (Third ed.). Harlow, England: Prentice Hall/Financial Times.

Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods for business students* (Fourth ed.). Harlow, England: Pearson Education Limited.

Schaefer, A. (2004). Corporate Sustainaibility - Integrating environmental and social concerns? *Corporate Social Responsibility and Environmental Management, 11*, 179-187.

Schaltegger, S., & Wagner, M. (Eds.). (2006). *Managing the business case for sustainability. The integration of social, environmental and economic performance.* Sheffield: Greenleaf Publishing Limited.

Schermerhorn, J. R., Jr. (1989). *Management for productivity* (3rd ed.). New York: John Wiley.

Schmidt, M. G. (2002). Political performance and types of democracy: Findings from comparative studies. *European Journal of Political Research, 41*(1), 147-163.

Schmidt-Bleek, F. (1993). The Fossil Makers. Chapter 3 MIPS: A New Ecological Measure. Wuppertal, Germany: Wuppertal Institute.

Schmidt-Bleek, F. (2000). The Factor 10/MIPS-Concept. Bridging Ecological, Economic, and Social Dimensions with Sustainability Indicators. Wuppertal, Germany: Wuppertal Institute.

Schnotz, W. (2002). Towards an integrated view of learning from text and visual displays. *Educational Psychology Review, 14*(1), 101-120.

Scholz, R. W., Lang, D. J., Wiek, A., Walter, A. I., & Stauffacher, M. (2006). Transdiciplinary case studies as a means of sustainability learning. Historical framework and theory. *International Journal of Sustainability in Higher Education, 7*(3), 226-251.

Scholz, R. W., & Tietje, O. (2002). *Embedded case study methods, integrating quantitative and qualitative knowledge.* Thousand Oaks, CA: Sage.

Schütz, J. (2000). Sustainability, systems and meaning. *Environmental Values, 9*, 373-382.

Seiffert, M. E. B., & Loch, C. (2005). Systemic thinking in environmental management: support for sustainable development. *Journal of Cleaner Production, 13*, 1197-1202.

Senge, P. M. (1996). Rethinking leadership in the learning organization. *The Systems Thinker, 7*(1).

Senge, P. M. (1999a). Creative tension. *Executive excellence, 16*(1), 12-13.

Senge, P. M. (1999b). The discipline of innovation. *Executive excellence, 16*(6), 10-11.

Senge, P. M. (1999c). *The Fifth Discipline. The Art & Practice of the Learning Organization.* London: Random House Business Books.

Senge, P. M. (2002). Three leaders. *Executive excellence, 19*(2), 5-6.

Senge, P. M., & Kaeufer, K. H. (2000). Creating change. *Executive excellence.*

Senior, B. (1997). *Organisational change.* Essex: Pearson Education Limited.

Shearer, T. (2002). Ethics and accountability: from the for-itself to the for-the-other. *Accounting, Organizations and Society, 27*, 541-573.

Shelton, R.D. (1994), Hitting the green wall: why corporate programs get stalled. *Corporate Environmental Strategy*, 2(2), 5-11.

Shephard, H. A. (1969). Innovation-resisting and innovation-producing organizations. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Sherry, L. (2003). Sustainability of Innovations. *Journal of Interactive Learning Research, 13*(3), 209-236.

Smith, C. (2003). The new corporate philanthropy. In *Harvard Business Review on Corporate Responsibility*. Boston: Harvard Business School Press.

SOED, (2007) *Shorter Oxford English Dictionary.* Oxford: Oxford University Press

Spence, W. R. (1994). *Innovation: The Communication of Change in Ideas, Practices, and Products* London: Chapman & Hall.

Stacey, R. D. (1993). *Strategic management and organisational dynamics*. London: Pitman Publishing.

Stainer, A., & Stainer, L. (1997). Ethical dimensions of environmental management. *European Business Review, 97*(5), 224-230.

Stavins, R. N., Wagner, A. F., & Wagner, G. (2003). Interpreting sustainability in economic terms: dynamic efficiency plus intergenerational equity. *Economic Letters, 79*, 339-343.

Stephens, B. (2002). The amorality of profit: Transnational corporations and human rights. *Berkeley Journal of International Law, 20*, 45-90.

Stone, L. (2000). When case studies are not enough: the influence of corporate culture and employee attitudes on the success of cleaner production initiatives. *Journal of Cleaner Production, 8*, 353-359.

Strauss, A. L. (1995). Notes on the Nature and Development of General Theories. *Qualitative Inquiry, 1*(7).

Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research. Techniques and procedures for developing grounded theory* (Second ed.). Thousand Oaks, California: SAGE Publications.

Strebel, P. (1998). Why do employees resist change? In *Harvard Business Review on Change*. Boston: Harvard Business School Press.

Svedberg Nilsson, K. (2003). *The (ir)responsible organisation. A note on the quest for socially responsible corporations.* Paper presented at the NFF Conference, Reykjavik.

Swift, T., & Zadek, S. (2002). *Corporate Responsibility and the Competitive Advantage of Nations*. Copenhagen: The Copenhagen Centre

Accountability.

Szekely, F., & Knirsch, M. (2005). Responsible Leadership and Corporate Social Responsibility: Metrics for Sustainable Performance. *European Management Journal, 23*(6), 628-647.

Szilagyi, M. N. (2001). Solutions to realistic presioners' dilemma games. *IEEE.*

Takeya, M., Sasaki, H., Nagaoka, K., & Yonezawa, N. (2004). A performance scoring method based on quantitative comparison of concept mpats by a teacher and students. In A. J. Cañas, J. D. Novak & F. M. González (Eds.), *First International Conference on Concept Mapping*. Pamplona, Spain.

Tansey, S. D., & Jackson, N. (2008). *Politics. The basics* (Fourth ed.). London: Routledge

Taylor, M., & Thrift, N. (Eds.). (1982). *The Geography of Multinationals. Studies in the Spatial Development and Economic Consequences of Multinational Corporations*. London: Croom Helm.

The Economist. (2005). The good company. A survey of corporate social responsibility. *The economist.*

The Natural Step Canada. (2007). The Four System Conditions. Retrieved 23rd January, 2007, from http://www.naturalstep.ca/systemconditions.html

Thomas, A. S., & Simerly, R. L. (1994). The chief executive officer and corporate social performance: An interdisciplinary examination. *Journal of business ethics, 13*(12), 959-968.

Thomas, L., Evans, M., & Peattie, K. (Eds.). (2004). *Strategic Management* (First ed.). Essex, UK: Pearson Education Limited.

Tschopp, D. J. (2005). Corporate social responsibility: A comparison between the United States and the European Union. *Corporate Social Responsibility and Environmental Management, 12*, 55-59.

Tunstall, D. (2005). Re: About the communication pyramid. In R. Lozano-Ros (Ed.).

U.S. E.P.A. (1999). Department of Justice announced that Royal Caribbean Cruises Ltd., has agreed to pay a $18 million criminal fine. Retrieved 14 February, 2007, from http://yosemite.epa.gov/opa/admpress.nsf/0/d4cf84427956628e852567b50070ccaf?OpenDocument

UN. (1992). Agenda 21. Rio de Janeiro: United Nations.

UN. (1997). UN Conference on Environment and Development (1992). Retrieved 3rd September, 2006, from http://www.un.org/geninfo/bp/enviro.html

UN. (2002). World Summit on Sustainable Development. Retrieved 12 February, 2007, from http://www.un.org/events/wssd/

UNCTAD. (1999). *The Social Responsibility of Transnational Corporations*. Geneva: United Nations Conference on Trade and Development.

UNCTAD. (2004). *World Investment Report 2004. The Shift Towards Services*. New York

Geneva: United Nations Conference on Trade and Development.

UNEP. (1972). Declaration of the United Nations Conference on the Human Environment. Retrieved 7th August, 2003, from http://www.unep.org/Documents/Default.asp?DocumentID=97&ArticleID=1503

UNEP. (2000). International Declaration on Cleaner Production. Retrieved 25 January, 2007, from http://www.uneptie.org/pc/cp/declaration/pdfs/english.pdf

UNEP. (2001). Cleaner Production (CP) Activities. Retrieved 25 January, 2007, from http://www.uneptie.org/PC/cp/home.htm

UNGC. (2008). The ten principles. Retrieved 18 January, 2008, from http://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/index.html

UNIDO, & Development, W. S. o. S. (2002). *Corporate Social Responsibility. Implications for Small and Medium Enterprises in Developing Countries* (PDF). Viena: United Nations Industrial Development Organization (UNIDO).

UNU. (2007). Factor X. Retrieved 24 January, 2007, from http://www.ias.unu.edu/ecology/g_economy/factorx.htm

USDOJ. (1999a, May 4, 1999). German company and chief executive officer each agree to pay record fines for international conspiracy fines are largest in antitrust history. Retrieved 14th February, 2007, from http://www.usdoj.gov/opa/pr/1999/May/171at.htm

USDOJ. (1999b, July 21, 1999). Royal Caribbean to pay record $18 millino criminal fine for dumping oil and hazardous chemicals, making false statements. Retrieved 14th February, 2007, from http://www.usdoj.gov/opa/pr/1999/July/316enr.htm

USPTO. (1997). *Patenting by organizations 1996*. Alexandria, VA, U.S.A.: United Stated Patent and Trademark Office.

USPTO. (2007). *Patenting by organizations 2006*. Alexandria, VA, U.S.A.: United Stated Patent and Trademark Office.

Vagts, D. F. (2003). The UN Norms for Transnational Corporations. *Leiden Journal of International Law, 16*, 795-802.

van Berkel, R. (2006). Cleaner Production and Eco-Efficiency. In D. Marinova (Ed.), *Handbook on Environmental Technology Management*. Chelthenham, UK: Edward Elgar Publications.

van de Ven, A. H., Polley, D. E., Garud, R., & Venkataraman, S. (1999). *The innovation journey*. Oxford: Oxford University Press.

van Knippenberg, B., Martin, L., & Tyler, T. (2006). Process-orientation versus outcome-orientation during organizational change: The role of organizational identification. *Journal of Organizational Behavior, 27*, 685-704.

van Maanen, J., Dabbs, J. M., Jr, & Faulkner, R. R. (1982). *Varieties of qualitative research*. Beverly Hills: Sage Publications.

van Marrewijk, M., & Hardjono, T. W. (2003). European corporate sustainability framework for managing complexity and corporate transformation. *Journal of business ethics, 44*(2/3), 121.

Vázquez Huerga, A. (2002). A Balanced Differential Learning algorithm in Fuzzy Cognitive Maps. Departament de Llenguatges i Sistemes Informátics, Universitat Politécnica de Catalunya (UPC).

Velazquez, L., Munguia, N., & Sanchez, M. (2005). Deterring sustainability in higher education institutions. An appraisal of the factors which influene sustainability in higher education institutions. *International Journal of Sustainability in Higher Education, 6*(4), 383-391.

Verdeyen, V., Put, J., & van Buggenhout, B. (2004). A social stakeholder model. *international Journal of Social Welfare, 13*, 325-331.

von Weizsäcker, E., Lovins, A. B., & Lovins, L. H. (1998). *Factor Four. Doubling wealth, halving resource use*. London: Earthscan.

Waclawski, J., & Church, A. H. (Eds.). (2002). *Organization development. A data-driven approach to organizational change*. San Francisco: Jossey-Bass.

Waddel, S. (2005). *Societal learning and change. How governments, buisness and civil society are creating solutions to complex multi-stakeholder problems*. Sheffield: Greenleaf Publishing Ltd.

Waddock, S. (2000). The multiple bottom lines of corporate citizenship: social investing, reputation and responsibility audits. *Business and Society Review, 105*(3), 323-345.

Waddock, S., & Bodwell, C. (2007). *Total responsibility management*. Sheffield: Greenleaf.

Walley, N., & Whitehead, B. (2000). It's not easy being green. In *Harvard Business Review on Business and the Environment*. Boston, MA: Harvard Business School Press.

Walton, R. E. (1969). Two strategies of social change and their dilemmas. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

Walton, S., & Galea, C. E. (2005). Some considerations for applying business sustainability practices to campus environmental challenges. *international Journal of Sustainability in Higher Education, 6*(2), 147-160

Watson, G. (1969). Resistance to change. In W. G. Bennis, K. D. Benne & R. Chin (Eds.), *The Planning of Change* (Second ed.). New York: Holt, Rinehart and Winston, Inc.

WBCSD. (2004). *Eco-efficiency Sustainability module. First draft.* Geneva: World Business Council for Sustainable Developmet.

WCED. (1987). *Our Common Future* (First ed.). Oxford: Oxford University Press.

Welford, R. (2005). Corporate Social Responsibility in Europe, North America and Asia. 2004 Survey Results. *Journal of Corporate Citizenship, 17*, 33-52.

Wells, P. E., & Darby, L. (2006). Re-writing the ecological metaphor, Part 2: the example of diversity. *Progress in Industrial Ecology, 3*(1/2), 129-147.

Weymes, E. (2004). Management Theory. Balancing individual freedom with organisational needs. *Journal of Corporate Citizenship, 16*, 85-98.

Wheelwright, P. (1959). *Heraclitus*. Princeton, New Jersey: Princeton University Press.

White, A. L. (2004). Lost in Transition? The Future of Corporate Social Responsibility. *Journal of Corporate Citizenship, 16*, 19-24.

Wilenius, M. (2005). Towards the age of corporate responsibility? Emerging challenges for the business world. *Futures, 37*, 133-150.

Willard, B. (2002a). *The Sustainability Advantage*. Gabriola Island, Canada: New Society Publishers.

Willard, B. (2002b). *The sustainability advantage. Seven business case benefits of a triple bottom line*: New Society Publishers.

Wong, V., & Saunders, J. (1993). Business orientations and corporate success. *Journal of Strategic Marketing, 1*(1), 20-40.

World Bank. (1992) World Development Report: Development and the Environment. Oxford University Press, New York

Worldwatch Institute. (2002). *Vital Signs 2002. The trends that are shaping our future* (Vol. W.W. Norton & Company). New York

London.

Wysokinska, Z. (2003). Competitiveness and its relationships with productivity and sustainable development. *Fibres & Textiles in Eastern Europe, 11*(3).

Yang, L.-F. (2002). *Sustainability as corporate strategy* (Working paper). St. Gallen: University of St. Gallen.

Yin, R. K. (1984). *Case Study Research: Design and Methods*. Beverly Hills, California: Sage.

Yu, T. F.-L. (1999). Towards a praxeological theory of the firm. *Review of Austrian Economics, 12*, 25-41.

Zadek, S. (1999). Stalking sustainability. *GMI, 26*, 1-11.

Zadek, S. (2004). The path to corporate responsibility. *Harvard Business Review, December*, 125-132.

Zessner, W. W. (1998). *The tragedy of the global commons: Dynamic aspects of a knowledge ecology and sociocultural entropy* (PDF). Toronto: George Brown College.

Appendices

A. I Morgan's (1997) metaphors

The first metaphor is 'Organisations as Machines', where organisations are considered as rational systems that operate as efficient as possible through routines. Individuals are expected to perform a predetermined set of activities during a set schedule. This type of organisations is usually called bureaucracies. The strengths of this metaphor are: (1) applies to organisations where there is a straightforward task to perform; (2) the environment is stable; (3) there is no major variation in the product range; (4) precision is at a premium; and (5) when the individuals perform their duties as requested. The limitations of this 'metaphor' are: (1) it can create organisations that have great difficulty in adapting to changing circumstances; (2) can result in mindless and unquestioning bureaucracy; (3) the interests of those working in the organisation take precedence over the organisational goals; and (4) it can dehumanise the employees; especially those at the lower levels of the organisational hierarchy.

The second metaphor is 'Organisations as Organisms', where organisations are considered to be 'open' to their environment[37] and must enter an appropriate relation with it to survive. Informal groups, based on friendship groups and unplanned interactions, play an important role, alongside the formal ones. This type of organisations adapt, through self-organisation, to stimuli from the environment. The strengths of this metaphor are: (1) it places an emphasis on understanding the relations between organisations and the environment; (2) it emphasises survival as the key aim; (3) it identifies different organising and management forms to deal with the environment; (4) it stresses the virtue of organic forms of organisations in the process of innovation; (5) it contributes to the theory and practice of organisations through a focus on 'ecology' and inter-organisational relations. The limitations are: (1) organisations are considered to have links to the environment, but their effects on it are not considered; (2) it assumes 'functional unity'; (3) it presents the danger of becoming an ideology.

The third is 'Organisations as Brains', where organisations are considered to be information and communication systems. They can sense, monitor, and scan significant aspects of their environment. They must relate this information to the operating norms. They must be able to detect significant deviations from the norms and initiate corrective action when discrepancies are detected. These organisations have to develop skills and mind-sets to challenge and change the basic rules of their strategic and operational levels to better respond to environmental stimuli. The main strengths of this metaphor are: (1) it contributes to the creation of 'learning organisations'; and (2) it identifies the requirements of 'learning organisations' in a comprehensive way and how different elements need to support each other. The limitations are: (1) leadership needs to be diffused rather than centralised; (2) there is a danger of overlooking conflicts that can arise between learning and self-organisation and the realities of power and control; and (3) it has a strong normative bias.

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[37] Environment here refers to the broader context of environment (society and nature), and not as in other sections of this thesis where environment refers to the natural environment.

The fourth metaphor is 'Organisations as Cultures', where organisations are mini-societies with their own patterns of culture and sub-culture. They are sustained by belief systems that emphasise the importance of rationality. Their legitimacy depends on their ability to demonstrate rationality and objectivity in action. The mains strengths of this metaphor are: (1) it directs attention to the symbolic significance of organisational life; (2) it shows how organisations ultimately rest in shared systems of meaning; (3) it posits that the relations between an organisation and its environment are socially constructed; (4) it considers that effective change needs to go beyond technological and structural changes, by addressing values, norms and culture. The main limitation is that management can fall into a process of ideological manipulation and control, or 'values engineering'.

The fifth is 'Organisations as Political Systems', where organisations are political systems, where order and direction needs to be created among people with potentially diverse and conflicting interests. Conflicts, interpersonal intrigues, and power plays occupy centre stage. These are generally resolved through power (such as formal authority, control of resources and decisions processes, and regulations). The strengths of this metaphor are: (1) it makes obvious organisational politics; (2) it questions organisational rationality based on goals and efficient and effective management; (3) it helps to overcome the limitation that organisations are functionally integrated systems; and (4) it helps to recognise the socio-political implications of the organisation. The limitations are: (1) it can lead to an increase politicisation of the organisation; (2) it breeds mistrust and encourages the idea of 'winners and losers'; and (3) it assumes pluralism (*e.g.* of interests and power holders).

The sixth metaphor is 'Organisations as Psychic Prisons', where organisations are created and sustained by conscious and unconscious processes, with the notion that people can actually become imprisoned by favoured organisational illusions, perceptions, ideologies and behaviours. This is also described as 'group-thinking'. The strengths of this metaphor are: (1) it offers a powerful set of perspectives for exploring the hidden meaning of 'taken-for-granted' worlds; (2) it shows that change initiatives often attack unconscious psychological defences; (3) it highlights the relation between the 'rational' and 'irrational'; and (4) it draws attention to the ethical dimension of organisations. The limitations are: (1) it confines the individual within socially constructed worlds that prevent the emergence of other worlds; (2) it places considerable emphasis on understanding and dealing with unconscious patterns of behaviour and control, but not on explicit ideological factors; and (3) it relies heavily on the role of cognitive processes in creating, sustaining, and changing organisations.

The seventh is 'Organisations as Flux and Transformation', where organisations are closed, autonomous systems of interaction. Each element simultaneously combines the maintenance of itself with the maintenance of others. Organisations do not recognise how they are part of their environment. The role of managers is to create 'contexts' where self-organisation can occur. In this type of organisations transformational change involves the use of leverage and the creation of 'new contexts' that can break from the *status quo*. The strengths of this metaphor are: (1) it seeks to fathom the nature and source of change so that its logic can be understood; (2) change management is a product of self-awareness; and (3) change is self-

organising and an emergent phenomenon that cannot be predetermined or controlled. The main limitation is that the self-organisation of change is difficult to manage.

The eight is 'Organisations as Instruments of Domination', where organisations are considered to dominate society by imposing their will through corporate growth or increase profitability. They are divided societies that perpetuate class warfare in the workplace. Examples of this type of organisations include multi-nationals' negative impact on their employees and environment. The strengths of this metaphor are: (1) it explicitly addresses values and ideological premises; and (2) it recognises that domination may be intrinsic to organisation and not an unintended side effect. The limitations are: (1) its link with crude conspiracy theory; (2) it asserts equivalence between domination and organisation, which indicates that non-dominating may not be possible.

A. II Corporate voluntary efforts to promote Sustainability

Corporate voluntary efforts to promote Sustainability can be separated according to their focus: Firstly, **social focus**, which is predominantly concerned with, for example, socio-efficiency, which describes the relation between a firm's value added and social impacts; socio-effectiveness, where business conduct needs to be judged not on a relative scale but rather in relation to the absolute positive social impact a firm could reasonably have achieved (Dyllick & Hockerts, 2002); and CSR, see Section 2.3. These are complemented by, secondly, **environmental focus**, addressing mainly environmental problems and concerns. It can be sub-divided into: *product stewardship*, which focuses on minimising environmental impacts associated with the entire life cycle of a product or service, including design and disposal (see Table A-1); *process stewardship*, which aims to change processes from "end-of-pipe" solutions to whole-systems preventive approaches (see Table A-2); and *system stewardship*, which is based on the redesign and reinvention of entire systems (see Table A-3). And thirdly, **combined focus**, which addresses the incorporation of environmental and social aspects into the economic ones (see Table A-4).

The division between product, process and system stewardship is made for explanatory purposes. However, the efforts, or their results, may overlap, relate to or influence another stewardship or focus.

Table A-1 Environmental initiatives with a product stewardship focus descriptions

Initiative	*Brief description*
Life Cycle Assessment (LCA)	• Evaluation of all processes involved with a certain product or service, from downstream, i.e. extraction, to upstream, i.e. disposal, including use and disposal (DeSimone & Popoff, 2000; Holliday, Schmidheiny, & Watts, 2002; Robert, 2000)
Design for Environment (DfE) or Eco-design	• Inclusion of environmental factors and considerations into the design of the product or service (Holliday et al., 2002)

Table A-2 Environmental initiatives with a process stewardship focus descriptions

Initiative	*Brief description*
Eco-efficiency and Eco-effectiveness	• Voluntary management philosophy linking environmental excellence to business excellence (DeSimone & Popoff, 2000; Doppelt, 2003; Ekins, 2005; Hamann, 2003; Holliday et al., 2002; Jansen, 2003) • Fundamentally a ratio of some economic value added to some measure of environmental impacts (Ehrenfeld, 2005) • Eco-effectiveness refers to absolute terms instead of relative (Dyllick & Hockerts, 2002), i.e. focusing on the entire system and not on one unit
Cleaner Production (CP)	• Continuous use of integrated preventive strategies to process products and services, efficient use of raw materials, e.g. energy and water, to reduce wastes at source, and minimise risks to the environment and society (DeSimone & Popoff, 2000; Dobes, 2001; Robert et al., 2002; UNEP, 2000, 2001).
Factor X	• Eco-efficiency initiatives Factor 4 and Factor 10 originated by the Wuppertal Institute (Robert, 2000; UNU, 2007). Based on reductions of the turnover of resources on a global scale (Robert, 2000), i.e. increasing by X factor the amount of wealth that is extracted from one unit of a natural resource (DeSimone & Popoff, 2000; Holliday et al., 2002; Kuhndt & Liedtke, 2003)
Material Inputs per Unit of Service (MIPS) and the Ecological Rucksack	• Methodologies to help calculate the total mass of material flows activated by an item in the course of its life-cycle (Kuhndt & Liedtke, 2003), e.g. 500 tons of non-renewable nature are used to gain 1 ton of the refined metal (Robert et al., 2002)
Ecological Footprint (EF)	• Methodology to estimate the total resource consumption and waste assimilation requirements in terms of a corresponding area of productive land of individuals, companies, cities, nations, and the global community (Cairns, 2004; Dalal-Clayton & Bass, 2002; Doppelt, 2003; M. J. Milne, K. Kearins, & S. Walton, 2003). • Provides a tangible way to communicate directly how life-styles and technical competences relate to sustainability performance and (Robert, 2000)

Table A-3 Environmental initiatives with a system stewardship focus descriptions

Initiative	*Brief description*
Industrial Ecology	• An interconnected industrial system where new products evolve out of, or consume, available waste streams, and processes are developed to produce usable wastes from other companies or industries (Ayres, 2004; DeSimone & Popoff, 2000), as if they were natural, mature, end-of-succession ecosystems (Wells, 2006)
The Natural Step (TNS) framework	• Aims to discourage people from cause-effect relationships, and instead take the natural step of reducing potential causes of environmental problems (Doppelt, 2003; Robert et al., 2002; Willard, 2002). • Built on back-casting, i.e. envisioning a desirable future and working to move to that point (Robert et al., 2002). • It works on a three step process: 1. The funnel metaphor 2. The four system conditions of a sustainable society; 3. A strategy to avoid the walls of the funnel, and reach its opening. (Robert et al., 2002; The Natural Step Canada, 2007)
Environmental Management Systems (EMS)	• Administrative tools aimed at assessing the environmental impact of operations of organisations, mainly corporations, and improving their environmental performance of organisations (Brorson & Larsson, 1999; Dobes, 2001; Robert, 2000).

	• Main ones ISO14000 Series and EMAS. (Brorson & Larsson, 1999; Jenkins & Hines, 2003; Robert, 2000). The two schemes are fairly similar, with both following the five main elements. The main differences are that ISO is internationally recognised while EMAS is only European, and that EMAS sets stricter requirements in some areas (Brorson & Larsson, 1999)
	• Five main elements can be found common to all EMS:
	  • Identifying company impacts on the environment;
	  • Understanding current and future legal obligations;
	  • Developing plans for improvement;
	  • Assigning responsibility for implementation of plans;
	  • Periodic monitoring of performance. (DeSimone & Popoff, 2000).

Table A-4 Combined environmental and social focus initiatives

Initiative	*Brief description*
Corporate Citizenship (CC)	• Corporations have a social rights and responsibilities to their stakeholders beyond wealth maximisation (Carroll, 1998; Leisinger, 2003; McIntosh, Leipziger, & Jones, 1998; Millon, 1990; Smith, 2003; UNCTAD, 1999; Zadek, 2001). • Synonym to concepts such as CSR (Carroll, 1998; Frankental, 2001; Hamann, 2003; Jenkins & Hines, 2003; Langer & Schön, 2003; Matten & Moon, 2004; Svedberg Nilsson, 2003); Business Ethics, Sustainability, Corporate Environmental Management, Business and Society, and Business and Governance (Hopkins, 2002; Matten & Moon, 2004; Swift & Zadek, 2002).
Triple Bottom Line (TBL)	• Focuses on incorporating environmental and social performance indicators, complementing and balancing economic ones, into a company's management, measurement and reporting processes (Atkinson, 2000; Elkington, 2002; Frankental, 2001; Laffer, Coors, & Winegarden, 2004; MacLean, 2000; M. Milne, K. Kearins, & S. Walton, 2003; Wilenius, 2005). • TBL aims to question a company's values, strategies and practices and how these can be used to achieve SD (M. Milne et al., 2003). • For some companies TBL has become the concept representing their actions and contribution to SD (Cheney, Nheu, & Vecellio, 2004; M. Milne et al., 2003; Verdeyen, Put, & van Buggenhout, 2004). However, reporting on TBL, specially in the case of incomplete practices, should not be confused with moving towards sustainability (M. Milne et al., 2003).
European Corporate Sustainability Framework (ECSF)	• Management model that addresses corporate sustainability, corporate responsibility, and corporate change according to four focus points: constitutional, conceptual, behavioural, and evaluative (ECSF, 2004; Svedberg Nilsson, 2003; van Marrewijk & Hardjono, 2003). • Includes sets of philosophies, approaches, concepts and tools aimed at making adequate institutional structures (van Marrewijk & Hardjono, 2003).
Sustainability Balanced Scorecard (SBSC)	• Adaptation from the Balanced Scorecard (BSC) including environmental and social aspects in three ways: (1) integrating them into the fours perspectives, (2) adding an additional environmental and social perspective, and (3) creating a specific environmental/social scorecard (Bieker & Gminder, 2001; Figge, Hahn, Schaltegger, & Wagner, 2002)

A. III Classic approaches to achieve change

Classic approaches to achieve change are offered by Barnes (1969), who focuses on how power distribution can help to achieve changes, for example through indoctrination, coercion, or socialisation; Greiner (1965) whose perspective focuses on the agents of change and their processes, such as a person with high formal authority through decree, or groups through participation or with the help of an external agent; and Bennis (1969b), who proposes that changes arise from different rationales, such as the changes through the propagation of knowledge, observing and planning from the system's sources, or through engineering.

Barnes (1969) power distribution change strategies:

1. *"**Indoctrination change**: Mutual and deliberate goal setting but under unilateral power;*
2. ***Coercive change**: Unilateral goal setting with deliberate intentions using unilateral power;*
3. ***Technocratic change**: Unilateral goal setting but shared power. One party defines the goals; the other party helps to reach that goal without question as to the goal's value;*
4. ***Interactional change**: Shared power under conditions where goals are not deliberately sought;*
5. ***Socialization change**: Unilateral power but collaborative goal implementation...;*
6. ***Emulative change:** Unilateral power without deliberate goals. This is found in formal organizations where subordinates 'emulate' their superiors;*
7. ***Natural change**. A residual category. Shared power with non-deliberate goal setting..."* (Barnes, 1969, pp. 81-82).

The second is by Greiner (1965) change strategies:

1. **Decree approach**: Change comes and is passed down from a person with high formal authority to those in lower positions;
2. **Replacement approach**: Individuals in one or more key organisational positions are replaced by other individuals;
3. **Structural approach**: Managerial changes in the structure of the organisational relations;
4. **Groups decision approach**: Change comes from participation of group members;
5. **Data discussion approach**: Change results from the presentation and feedback of relevant data;
6. **Group problem solving approach**: Change is brought about by the group, with the aid of an outsider; and
7. **T-group approach**: Changes in work patterns and relationships are assumed to follow from changes in interpersonal relationships. T-Group approaches focus upon the interpersonal relationships first, then hope for, or work towards, improvements in work performance.

Bennis (1969b) change strategies:

1. **Exposition and propagation**: Assuming that knowledge is power. The most popular type.
2. **Elite corps**: Ideas by themselves do not constitute action, and a strategic role is needed to implement them;

3. **Human relations training**: Similar to elite corps, but differing in that they take on personal referents for the people in power positions;
4. **Staff**: The purpose is to observe, analyse, and plan rationally from sources within the system;
5. **Scholarly consultation**: Exploratory inquiry, confrontation, discovery of solutions, and scientific advice to the client;
6. **Circulation of ideas**: Change is influenced by reaching the people that hold power or influence;
7. **Developmental research**: Ideas can be brought to an engineering stage. It is concerned mainly with implementation programmes; and
8. **Action research**: The subjects and researchers may change roles, the former becoming the latter, and *vice versa.*

These strategies are limited in their full impact by four biases. Firstly, rationalistic bias, where there is no implementation of a programme. There is knowledge but this does not lead to intelligent action. Secondly, technocratic bias, where there is no spirit of collaboration. Patterns of power, association, status, skills, and values need to be rearranged, leading to risk and fear, where some may benefit and others lose. Thirdly, individualist bias, where there is no organisation strategy involved. The strategy is focused on the individual disregarding the whole, *i.e.* the organisation. There are no guarantees that the wisest individuals attain power, or even if they do, that they act wisely. Influential or power roles can corrupt the individual. Finally, insight bias, where there is no manipulability, and the insights do not lead explicitly to any rearrangement in social systems, or incur strategic organisational intervention. are not explicitly leading to rearrangement in social systems or making strategic organisational intervention. (Bennis, 1969b)

Walton (1969) proposed two change **influence** strategies: (1) building a power base and strategic manipulation of power, and (2) overtures of love and trust intended to change attitudes. A note of caution on the former comes from Machiavelli (1966) who indicated that hostile masses can undermine authority, so the best remedy is to secure the good will of those under influence. Changes through influence and trust usually encounter lower resistance, and are thus longer lasting than those built upon power games.

In the **organisational** type strategies, Senge and Kaeufer (2000) offered strategies, summarised in Table 4-2, aimed at their 10 identified change-impeding forces (see Section 4.2.2). Most of these strategies are based on the premise that individuals behave rationally, which, as presented in Sections 4.1.2, is not always the case.

Table A-5 Senge and Kaeufer's (2000) strategies to overcome change-impeding forces

Impeding force	*Strategies to overcome the impeding force*
Time	1) integrate initiatives and set a focus 2) trust people to control their time 3) value unstructured time for reflection, dialogue, discussion, practice, and learning 4) eliminate unnecessary work 5) say 'no' to political game-playing and to non-essential demands
Help	1) investing early in help 2) creating internal capacity for coaching 3) finding partners who can counsel one another 4) building coaching into line managers' responsibilities
Relevance	1) build awareness among team leaders 2) raise questions about relevance in the group 3) make more information available to members 4) link training tightly to business results 5) make sure that people who become enthusiastic don't alienate others
Walking the talk	1) develop aims and values that are credible 2) build credibility by demonstration, not by articulation 3) work with partners who help you see how your behaviour may communicate unintended messages 4) develop patience under pressure
Fear and anxiety	1) start small and build momentum before confronting difficult issues 2) avoid 'frontal assaults' on people's anxieties 3) set an example of openness 4) see diversity as an asset 5) use problems as opportunities for learning 6) ensure that participation in change initiatives is a matter of choice 7) remind others that fear and anxiety are natural responses to a learning situation
Measurement	1) appreciate the time delays involved in profound change 2) build a partnership with leaders on assessing progress 3) make assessing progress a priority among advocates of change 4) distinguish the needs of participants to assess their progress to improve, from the needs of outsiders who judge progress for other reasons
True-believers	1) operate effectively within new sub-cultures and the mainstream culture 2) seek mentoring from other leaders with high credibility in the mainstream culture 3) build the group's ability to engage the larger system 4) cultivate openness 5) respect people's inhibitions about change 6) develop common language and values
Governance	1) promote clear governing principles regarding the sources and uses of power 2) develop structures that guard against 'authoritarian drift,' concentrating power at higher levels 3) deploy new rules and regulations judiciously to be prepared for a long journey if the governing principles are sincere about the orderly distribution of power and authority 4) make sure the governing principles have support within the executive group and board
Diffusion	1) value network leaders as carriers of new ideas 2) learn how communities can function as channels for diffusing knowledge and information 3) release information about innovations more freely 4) design more effective media for internal information exchange
Strategy and purpose	1) use scenario thinking to investigate blind spots 2) develop stewardship as an ethic and practice 3) engage people around questions of strategy and purpose 4) test the assumptions behind your current strategy.

A. IV Semi-structured interview (English version)

The objective of this questionnaire is to gather your opinions and experiences regarding Corporate Sustainability. As one of the experts in the matter your opinion is of invaluable importance. The confidential answers will be treated and respected as such, asking you to mark them as confidential.

The gathered information will be used to complete a PhD at the Economic and Research Council (E.S.R.C.) Centre of Business Relationships, Accountability, Sustainability and Society (B.R.A.S.S.) of Cardiff University, Wales, United Kingdom.

Any question, suggestion or comment please direct them to: LozanorosR@cardiff.ac.uk

---

Place: _____ Date: _____

Name of corporation: _____

1) Name: _____
2) Position held at your company: _____
   a) Since when have you been in that position _____
   b) Since when have you been in your company _____
3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered?

   _____
4) What role does Sustainable Development (SD) play in your company, if any? ____

   _____
5) How does your company take SD forward? _____

   _____
   a) How have your company's interest in SD issues evolved? _____

      _____
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? _____

      _____
6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture?

   _____
7) Do you think the process could be accelerated? _____

   _____
   a) How? _____

      _____
8) What, in your opinion, have been the drivers of SD in your company? _____

   _____
9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? _____

   _____
10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? _____

    _____
11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? _____
    a) Do you think it is necessary to include it? _____

b) Do you think the policies truly represent the culture and future of your company?_____

_____

c) In what ways are the organization concerns reflected in systems, *i.e.* finance, reporting, incentives and rewards, information, etc.?_____

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be?_____

_____

a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?_____

_____

b) How are the people made to feel involved?_____

_____

c) Is Sustainable Development reflected in the setting of goals, targets and objectives?_____ _____

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company?

_____

a) Do you think leadership is important in the process? Why? _____

_____

14) Is there someone in your company specifically in charge of sustainability? _____

_____

a) Is that her/his only role?_____

15) How do you think your position relates to Corporate Sustainability?_____

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? _____

_____

I thank your collaboration and time

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A. V Semi-structured interview (Spanish version)

El objetivo de este cuestionario es obtener información sobre sus experiencias acerca de la Sostenibilidad Corporativa, además de sus opiniones. De suma importancia es su opinión como una de las personas con interés en el área. Las respuestas de carácter confidencial serán respetadas y tratadas como tales.

La información obtenida será utilizada para una tesis doctoral en el ESRC Business Relationships, Accountability, Sustainability and Society (B.R.A.S.S.) de la Universidad de Cardiff, en el país de Gales, Reino Unido de la Gran Bretaña.

Cualquier pregunta y comentario favor de dirigirlas a: LozanorosR@cardiff.ac.uk
Le agradezco su colaboración y su tiempo.

---

1) Nombre:_____
2) ¿Qué puesto ocupa en su compañía?_____
   a) ¿Desde hace cuanto está en ese puesto?_____
   b) ¿Desde cuando está en la compañía?_____
3) Cuando se discuten las estrategias, responsabilidades y desempeños en su compañía, ¿cómo y cuando se toman en cuenta factores no económicos?

   _____
4) ¿Qué papel, si alguno, tiene el Desarrollo Sostenible en su compañía? ____

   _____

   ¿Qué se está haciendo en su compañía para llevar a cabo el Desarrollo Sostenible?

   _____

   ¿Cual ha sido la evolución en su compañía de los temas del Desarrollo Sostenible?_____

   _____
   a) ¿Es el Desarrollo Sostenible parte de la agenda que la compañía comunica o quisiera comunicar (interna y/o externamente)? _____
5) De la forma en la que su compañía ha abordado el Desarrollo Sostenible, ¿cuánto tiempo se ha tardado o cree que tarde en volverse parte de la cultura de la compañía?

   _____
6) ¿Cree que este proceso pueda ser acelerado? _____

   _____
   a) ¿Cómo?_____

   _____
7) ¿Cuales han sido, en su opinión, los factores que han promovido el Desarrollo Sostenible en su compañía? _____

   _____
8) ¿Cuales has sido, o cree que hayan sido, las barreras de cambio que han afectado la integración del Desarrollo Sostenible en su compañía? ¿Podría mencionar algunos ejemplos? _____

   _____
9) ¿Cómo se han reducido o eliminado las barreras de cambio, sí es que se han reducido? ¿Podría dar algunos ejemplos?

   _____
10) ¿Está la Sostenibilidad incluida en las políticas de su compañía (visión, misión, objetivos, etc.) _____

a) ¿Cree que sea necesario incluirla? _____

_____

b) ¿Cree que las políticas representen la cultura y el futuro de su compañía? ____

_____

c) ¿De que forma se reflejan las preocupaciones de la organización en sus propios sistemas, *i.e.* finanzas, reportes, incentivos, premios, compensaciones, etc.? _____

11) ¿Quién tiende a estar involucrado en los asuntos del Desarrollo Sostenible en su compañía? ¿Hay alguien que no lo está pero que Ud. piensa que debería estarlo?

_____

a) ¿Cree que el Desarrollo Sostenible esté siendo adoptado por igual en toda la compañía o en práctica hay algunos grupos que estén mas interesados?

_____

b) ¿Cómo hacen para que la gente se sienta involucrada?

_____

¿Se ve reflejado el Desarrollo Sostenible en las metas y objetivos?

_____

12) ¿Qué ventajas y desventajas ve en incluir el Desarrollo Sostenible desde arriba o desde abajo en su compañía? _____

_____

a) ¿Cree que el liderazgo sea importante en el proceso? ¿Por qué? _____

_____

13) ¿Hay alguna persona encargada específicamente del la Sostenibilidad en su compañía? _____

_____

a) ¿Es su único rol? _____

14) ¿Cómo cree que su puesto se relacione con la Sostenibilidad Corporativa? _____

_____

15) Si usted fuese el director de su compañía, ¿qué cambios haría para hacer su compañía mas sostenible? ¿porqué? _____

_____

_____

_____

Le agradezco su tiempo y colaboración.

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A. VI Grounded theory nodes used in NVivo

Table A-6 Literature review codes

Name	Sources	References	Name	Sources	References
Accountability	1	1	Ecological modernization	3	4
Alignment	4	5	Economic activity	35	185
Attitudes	6	9	Economic theories	10	90
Balanced score card	1	1	ECSF	1	5
Behaviours	24	68	Employees	4	7
Bibliography	26	57	Empowerment	5	13
BOP	1	14	EMS	2	2
Capacity building~learning	8	12	Environment	37	151
Capitalism	13	36	Ethics	1	8
Cases	2	2	Expats	2	5
Champion	7	41	External agent	1	1
Change	49	279	Externalities	7	14
Change barriers or resistance	29	152	Factor X	1	1
Civil society	4	7	Figures, exhibit, tables	57	252
Cleaner Production	5	8	Forecasting backcasting	1	2
Collaboration	31	131	Gaia	1	1
Communication	2	2	Globalization	33	137
Competitiveness	7	11	Governance	8	18
Conflict	4	7	Government power	33	74
Control	2	2	Groups	12	30
Control within corps	1	2	Higher education	1	3
Corporate abuses	23	125	history	21	75
Corporate ambassadors	1	3	Holism	5	8
Corporate citizenship	11	36	Incorporation	6	7
Corporate codes	10	47	Indicators	3	8
Corporate governance	6	26	Individuals	19	42
Corporate personality	4	18	Industrial ecology	1	1
Corporate philanthropy	9	33	Industrialization	3	9
Corporate philosophies	1	11	Innovation	20	190
Corporate power	20	72	Institutional framework	21	54
Corporate responsibilities	19	77	Institutionalization	5	8
corporate sustainability	50	256	Labour	1	2
Corporate system	4	4	LCA	1	1
Corporate theories	28	235	Leadership and management	38	148
corporations	81	410	Learning	9	45
CSR	44	436	Licence to operate	2	4
Culture	13	32	Long-term vision	16	25
Development	7	33	Management	19	54
Disciplinarity	3	6	Management theories	5	35

Drivers	6	7	Meme transfer	1	1
eco-efficiency	8	35	Mental models	9	28
Name	Sources	References	Name	Sources	References
Ecological economics	1	3	Methodology	1	1
Ecological footprinting	2	2	Mining	3	11
MNCs	13	38	Sust Tech Dev	1	1
Motivation	7	21	System	21	72
Multiplying effect	1	1	Systems theory	6	39
MuSIC	3	8	Teams	1	5
Nash	1	2	Technology solutions	2	3
Natural capitalism	5	8	The natural step	4	6
Needs	5	5	Thermodynamics	1	3
NOTES	3	7	TMF	1	1
Organisation	28	109	TNCs	18	79
Organisational behaviour	1	2	Strategy	6	22
Overcoming change barriers	9	51	Structures	2	3
Policies	1	2	Sust drivers	6	13
Power	7	12	Sust hard soft	1	1
Quality of working life	1	2	Sust investment	1	2
Quotes	1	1	Sust principles	2	2
Reputation	1	1	Sust reporting	10	66
Resource based view	7	27	Sust standards	2	4
Rucksack	1	1	Trade	1	2
SD and sustainability	61	354	Transition	1	1
SD in HE	3	6	Triple bottom line	6	15
SD tools	15	43	Type of corporations	4	6
Shareholders	40	122	Unions	3	3
Social aspects	30	101	Universities	1	1
Socialism	2	2	Values	4	10
Stakeholder theory	5	21	Visionary companies	1	11
Stakeholders	44	167	Visual representation	7	68

Table A-7 Case studies codes

Name	Sources	References	Name	Sources	References
Background	20	108	**Institutional framework**	1	1
Structure	1	1	Accountability	1	1
Collaboration	11	24	Administration	1	1
Comments or questions	10	30	Ethics	10	32
Economic	2	7	Guidelines	8	15
Accounting	2	2	Legal systems	2	2
Acquisitions	1	1	Mission	9	14
Anti-corruption and bribery	4	6	Principles	9	25
Antitrust	2	2	SD statement	13	26

Customers	4	13	System thinking	3	4
Earnings	11	44	Systems	0	0
Funds	1	1	*Communication systems*	7	15
Governance	5	16	*SD report*	5	14
Market	9	22	*Control systems*	1	1
Patents	2	3	*Measuring systems*	5	8
Productivity	2	2	*Prevention systems*	1	2
Raw materials	5	9	*Reward systems*	1	2
Shareholders	6	8	Vision	11	18
Six sigma and certifications	6	8	**Intellectual property**	2	5
Supply chain	4	7	**Leadership**	4	4
Sust indexes	3	4	Champions	1	1
Value creation	2	5	**SD in company**	9	36
Environment	15	73	Attitudes	2	2
Accidents and remediation	13	37	Awards	10	21
Biodiversity	10	22	SD evolution	3	4
Certifications	14	21	Supply chain	1	1
Eco-Products	2	5	**Social aspects**	2	2
Efficiency	9	17	Certifications	6	7
Emissions and effluents	14	60	Child labour	2	2
Energy	16	44	Communities	14	68
Fines	1	1	Conflicts	1	1
Green buildings	4	9	Employees	17	30
Initiatives	4	5	*Benefits*	6	10
Land use	3	4	*Diversity*	5	15
Legal requirements	4	9	*Employee development*	9	23
Noise	1	1	*Employee training and education*	15	49
Policies	1	1	*Equal opportunities*	7	10
Name	Sources	References	Name	Sources	References
Environment (cont.)			**Social aspects (cont.)**		
Pollution control	9	16	*Freedom of association*	8	13
Products	1	4	Government relations	1	1
Raw materials	3	3	Health and safety	16	77
Supply chain	3	6	Human rights	4	6
Waste and recycling	12	26	Involvement	1	1
Water	14	33	Political funding	2	3
			Privacy	2	6
			Severance	1	1
			Stakeholders	6	15
			Supply chain	3	9
			Volunteering and philanthropy	9	20
			Work hours	2	3

Table A-8 Interviews nodes

Name	Sources	References	Name	Sources	References
Change	0	0	**Economic aspects**	2	2
Accelerating change	13	20	Competition	1	1
Awards	2	2	Shareholders	2	3
Carrots and sticks	1	1	**Environmental aspects**	1	1
Changes that could be done	11	11	Accidents	1	1
Crises	1	1	Eco-efficiency and Cleaner Production	4	6
Incentives	2	3	Emissions	5	6
raising awareness	4	7	Energy	3	4
Change barriers	14	19	Recycling	1	1
Collaboration and partnerships	4	6	Technology	1	1
Companies	1	1	Waste	2	2
Drivers	14	27	Water	1	2
Business case	2	2	**Institutional framework**	13	43
Country or region context	3	3	Goals, objectives, targets	7	7
Regulation	1	1	Systems	11	14
Institutionalization	14	16	**Reporting**	12	18
Employee training	2	2	Evolution	2	2
Interest and participation	8	8	**SD background**	0	0
Involvement	14	27	Consideration of non-economic aspects	8	9
Operationalisation	1	1	Evolution of SD	13	24
SD discussions	2	2	SD definitions or interpretations	5	9
Leadership	13	21	SD role in company	7	7
Champion	10	16	**Social aspects**	3	4
Development	1	1	Benefits to employees	2	2
Management approaches	6	6	Communities development	4	6
Bottom-up	10	10	*Governments*	1	1
Middle-management	2	2	Firing	1	1
Top-down	12	13	Health and safety	3	4
Overcoming barriers	12	18			
Communication	2	3			
Company background	1	1			
Interviewee background	0	0			
Position	11	11			
Relation to SD	9	11			
Time in company	11	11			
Time in position	12	12			

A. VII Grupo IMSA's CS issues found in its reports

Different issues of the CS aspects were found in the reports or made explicit by the interviewees. These are presented in the following sections.

i. Economic aspects

Grupo IMSA exports to the five continents (Grupo IMSA, 2004). Table A-9 presents the company's sales and net income for 2003, 2004, and 2005.

Table A-9 Grupo IMSA's sales and net income from 2003 to 2005

	2003 (mil USD)	*2004 (mil USD)*	*2005 (mil USD)*
Sales (Net)	2,350	3,291	3,635
Sales in Mexico	1,108	1,666	1,860
Sales outside Mexico	1,242	1,625	1,775
Net income	238	460	389

Sources: (Grupo IMSA, 2004, 2005)

Three issues stand out in the economic aspects in relation to CS:

- **Fight against smuggling:** The company was again certified with the Business Anti-Smuggling Coalition, a programme of the Internal Security Department of the U.S.A. and Mexican Customs to facilitate trade with Mexico by reducing time in paperwork and avoiding unnecessary costs (Grupo IMSA, 2004);
- **Shareholders value creation:** Through the sale of the car batteries business unit to Johnson Controls Inc. for 535 million USD (Grupo IMSA, 2004); and
- **Cost savings through Total Quality Management and waste reduction programmes:** Several continuous improvement programmes following Six Sigma, Kaizen Circles, and Lean Manufacturing methodologies were successfully developed to minimise costs in processes and administration, as well as allowing HR to define business strategies, align efforts to fulfil these, and measure their contribution (Grupo IMSA, 2004). Additionally, all the business units continued to advance to obtain ISO standards certifications in areas such as environmental management, quality and safety (Grupo IMSA, 2005).

ii. Environmental aspects

The company addresses environmental aspects through different initiatives, framed by eco-efficiency. These include:

- Reductions in energy consumption that helps reduce greenhouse gases (GHG) emissions (Grupo IMSA, 2004, 2005), *e.g.* 5% reduction in natural gas consumptions through Six Sigma projects (Grupo IMSA, 2004);
- An internal carbon emissions trading schemes started in 2004 (Grupo IMSA, 2004);
- Reuse or burning of solvents to generate steam for energy use (Clariond);
- Regeneration of hydrochloric acid (Grupo IMSA, 2005);

- Wastewater treatment (Grupo IMSA, 2004, 2005), *e.g.* optimisation of the tertiary treatment and inverse osmosis plants resulting in an increase of processed water from 92% in 2003 to 96% in 2004 (Grupo IMSA, 2004);
- Reduction and control of residues, *e.g.* 22% reduction in residues costs disposal (Grupo IMSA, 2004); and
- Recycling (Grupo IMSA, 2005).

Additionally, several business units have been certified with ISO 14001, while others received different awards, *e.g.* one business unit was awarded by the Chilean Government for its management of residues; two business units in Mexico were awarded with the 'Clean Industry' certificate from the Mexican Environmental Agency; and the business unit in Guatemala was re-certified by the Industrial Camera of Guatemala as a 'Clean and Competitive Company', a certification that has held since 2001 (Grupo IMSA, 2004).

iii. Social aspects

The issues that the company addresses for the social aspects can be divided into internal stakeholders, external stakeholders, and certifications.

Within the internal stakeholders the company is committed to improve the working-life quality of its employees, *e.g.* one of the business units was working in 2004 to obtain the OSHAS 18001 certification. The company established in 2000 the Administration Model for Quality-Focus, managed by HR, as an institutional process for continuous development of employees. The model has facilitated the incorporation of Six Sigma concepts, as well as synergies among business units. It also allowed HR to define business strategies, align efforts to fulfil these, and measure their contribution (Grupo IMSA, 2004).

Other activities related to internal stakeholders include social, cultural, and sports activities in the company's recreational club that promote an integral development of the employees and their families. The club was recognised in 2004, by the Nuevo Leon State Sports and Physical Culture Institute, as the best industrial club in the state for its quality, service, sports promotion (Grupo IMSA, 2004).

In regards to its external stakeholders, the company is involved with communities, *e.g.* by participating with the Canadian Consulate in Mexico in organising a race against cancer with 3,200 participants in 2004. Additionally, the company and several employees participated in civil associations and NGOs programmes directed at increasing the well-being of communities. Some examples of the organisations include poverty alleviation, cancer support, and disabled children groups, nursing homes, hospitals, and orphanages (Grupo IMSA, 2004).

A. VIII JCI's CS issues found in its reports

Different issues of the CS aspects were found in the reports or made explicit by the interviewees. These are presented in the following sections.

i. Economic aspects

The economic aspects include issues that have to do with profit generation, growth, and market presence. These are presented in the following order: Market, Customers, Earnings, Acquisitions, Patents and intellectual property, Raw materials, Quality programmes, Supply chain, Shareholders, Sustainability indexes, Liabilities, Anti-corruption and bribery, and Antitrust.

JCI has presence in Asia, Easter Europe, the Middle East, South America, and the U.S.A (JCI, 2005a, 2006k). Its Eastern Europe plants give the company a base for further expansion in the region (JCI, 2005a).

The interior experience group market totalled an estimated USD 165 billion, in 2005. This was expected to grow to USD 210 billion in the following 10 years (JCI, 2005a).

The controls group is the largest HVAC service organisation in the world, one of the top five fire alarm installer, and top 10 fire and security companies (JCI, 2005a).

The batteries group competes with domestic and international manufacturers and distributors of lead-acid batteries. The North American, European and Asian markets are highly competitive on price, quality, technical innovation, service and warranty (JCI, 2006k). The company sells 80% of batteries through the automotive aftermarket, the rest are sold as original equipment (JCI, 2006f).

The company is committed to customer satisfaction, which is considered the source of employees, shareholders, suppliers and community benefits. Customer expectations are satisfied and exceeded through improvements in quality, service, productivity and time compression (JCI, 2004, 2005b). Customer satisfaction practices are based on a four-step Continuous Improvement process:

Phase 1: Understand customer expectations;
Phase 2: Set goals;
Phase 3: Execute;
Phase 4: Audit customer satisfaction (JCI, 2004).

The automotive group services every major automaker in the world (JCI, 2005a, 2006j, 2006k). The main customers are General Motors Corporation, DaimlerChrysler AG and Ford Motor Company, representing 32% of total company net sales (JCI, 2006k). Approximately 40% of sales to these customers in 2006 were in the U.S.A., 43% in Europe, and 17% in other markets (JCI, 2006k). Other customers include Fiat, Honda, Mazda, Mitsubishi, Nissan, PSA/Peugeot Citroen, Renault, Toyota and Volkswagen (JCI, 2004). The company supplies its customers on a 'just-in-time' basis (JCI, 2004).

The declining market of the company's main customers, *e.g.* shifts from SUVs and light trucks to smaller vehicles, could have negative impacts on its financial performance, specially due to annual sales prices negotiations (JCI, 2006k).

The buildings efficiency group services education, healthcare, industrial, government and office buildings (JCI, 2006j). The group has over 30,000 customers. It is the largest HVAC service organisation in the world, one of the top five fire alarm installers, and top 10 fire and companies (JCI, 2005a).

The company's commitment to exceeding customer expectations has allowed it to have consistent growth and financial success. In 2006 they had their 60th consecutive year of increased sales, their 16th of increased earnings, and their 31st of higher dividends paid to shareholders. They have paid consecutive dividends since 1887 (JCI, 2006f). The sales and income from 2004 to 2006 are presented in Table A-10.

The company uses financial instruments to reduce market risks associated with changes in foreign currencies, from the different manufacturing, sales and distribution locations around the world, interest rates, and commodity prices (JCI, 2006k).

Table A-10 JCI's sales and income from 2004 to 2006

	2004	2005	2006
Consolidated sales (USD billion)	24.6	27.5	32.2
Net income (USD billion)	N.A.	0.88	1.0
Interior experience group sales (USD billion)	16.9	18.8	N.A.
Interior experience group operating income (USD million)	651.5	632	N.A.
Building efficiency group sales (USD billion)	5.3	5.8	10.2
Building efficiency group operating income(USD million)	241.8	295	569.6
Power solutions group sales (USD billion)	N.A.	2.9	N.A.
Earning per share (USD)	3.83	4.41	N.A.

N.A.: Not available
Sources: (JCI, 2005a) Asia (JCI, 2006k)

In 2006, the automotive group sales accounted for 57% of the consolidated net sales. It was impacted by lower North American automobile production, and unfavourable impact of European currency. The batteries group sales accounted for 11%. Its net sales and operating income increased by 27% and 33% respectively compared to 2005, due to market share growth in North America, Europe, and Asia. The buildings efficiency group sales accounted for 32% of the Company's consolidated sales. This group's sales and operating income increase was mainly due to the York acquisition. Approximately 45% are derived from HVAC products and installed control systems, while 55% originate from its service offerings. The company's sales and income increase were mainly due to the acquisitions of York and the Delphi battery business (JCI, 2006k).

During the last decades the company has diversified through internal growth and acquisition (JCI, 2005c). The most significant have been: Globe-Union, Inc. in 1978, which help the company enter the battery market; Hoover Universal, Inc. in 1985,

which help the company enter the automotive seating market (JCI, 2006k); the remaining assets of Enertec Group from Grupo IMSA in 2004, including facilities in the U.S.A., Mexico, Argentina, Brazil Venezuela, and Colombia (JCI, 2005b); the battery business of Delphi Corporation in 2005; and York International, a leader in heating, cooling and refrigeration, in 2005 (JCI, 2005a, 2006k).

JCI owns and licences several products and processes technologies patents in the U.S.A. and other countries. These provided the company with $174 million net in 2006 (JCI, 2006k).

In 2004, the company's employees were awarded 129 patents for innovative products, including 44 in North America, 83 in Europe, and two in Asia (JCI, 2005b).

The company seeks to protect strategic or financially important intellectual property. This, where appropriate, is protected by contracts, licences, confidentiality or other agreements (JCI, 2006k). The protection of intellectual property is covered in points 7 and 10 of the Ethics Policy (JCI, 2007).

The company's earnings are impacted by the price of raw materials. The prices of most raw materials were expected to remain stable in 2007, *e.g.* urethane, copper, sulphuric acid, polypropylene, and copper. Three of these had risen rapidly in the past three years, *i.e.* primary steel, resin and chemical. Lead price was expected to be volatile during 2007. These can affect negatively the financial performance (JCI, 2006k).

JCI has engaged in different programmes aimed at developing products, processes and services that meet customers' expectation and help to improve productivity and reduce costs. These include:

- Six Sigma;
- Lean Manufacturing;
- Juran Quality Improvement;
- Business Operating System;
- Best Business Practice;.
- Business Process Initiative;
- Teamwork in Action (JCI, 2004).

Following its commitment to exceeding customer expectations the company has 'just-in-time' plants near vehicle assembly plants. Customers' requests drove the company to increase its presence in cars and light trucks in the 1990 (JCI, 2006h). However, in the last years the company has been affected from increases in energy costs, which have decreased demand from motor vehicles with higher amount of products from the company (JCI, 2006k).

The company has also been affected due to financial difficulties of some of its suppliers (JCI, 2006k).

JCI is committed to assure that shareholders' long term interests are served (JCI, 2006b), paying consecutive dividends since 1887 (JCI, 2004).

The company forbids buying or selling its stock on the basis of material non-public information (JCI, 2004).

In later years, the company's shareholders resolutions to global standards have expanded to issuing a sustainability report (JCI, 2004).

The company's commitment to SD was recognised in its inclusion to the Dow Jones Sustainability World Index in 2005 (JCI, 2005a). The company is also traded in several social responsibility stock indexes (JCI, 2005a), *e.g.* the FTSE 4Good Index, and the Domini 400 Social Index (JCI, 2004, 2005b).

The company is involved in different product liability and other suits regarding its business operations (JCI, 2006k).

The company's policies, in addition to anti-trust laws, forbid planning or acting with any competitor to fix prices, or agree about the nature, extent or means of competition (JCI, 2004). When the company acquired York it learnt of its conducts against U.S.A. trade and anti-trust laws, thus the company subjected to the authorities to pursue administrative, civil and criminal sanctions, including monetary penalties (JCI, 2006k).

The company is subject to laws governing international relations, including those prohibiting improper payments to foreign government officials (JCI, 2006k).

ii. Environmental aspects

JCI vision and values show its commitment to respecting the environment, which goes beyond regulatory requirements in all their businesses and locations (JCI, 2005a, 2005b). The company's environmental policy seeks to demonstrate the it is a world-class leader in environmental management, pollution prevention and continual improvement (JCI, 2004, 2005a)

The environment plays an important role in the workplaces, being included in employees training, and the communities where it operates (JCI, 2004, 2005b). Environmental issues, such as sound waste management, source reduction practices, recycling and energy conservation, are legal, ethical, and business requirements. These are assured through reporting and recognition systems (JCI, 2004). In addition, JCI contributes to environmental quality by helping its customers save energy, reduce pollution and waste, and increase recycling (JCI, 2004).

The company expends substantial resources to comply with environmental laws. However, in 2006 these were not material (JCI, 2006k). Reserves for possible environmental costs were USD 34 million in 2006, compared to USD 28 million in 2005.

The most important initiatives to address environmental aspects are:

- Blue Sky training;
- Design for Environment (DfE);
- Waste minimisation;
- Battery recycling; (JCI, 2005b); and

- Goals for the European End-of-life vehicles (ELV) directive (JCI, 2005a).

The environmental aspects issues are presented in the following order: Emissions and effluents, Energy, Waste and Recycling, Products and eco-products, Green buildings, Supply chain, Accidents and Remediation, and Water and Biodiversity.

JCI has taken different initiatives to reduce its emissions. The two most notable have been: The elimination of ozone-depletion substances (ODS) from their North American manufacturing processes (JCI, 2004, 2005b); and the efforts to reduce GHG emissions (JCI, 2004, 2005a):

- Making part of the institutional framework, *i.e.* a written policy, specific reduction goals, a review of the emissions profile (JCI, 2005a);
- Investing in GHG reduction technologies (JCI, 2005a);
- Reducing energy usage by making commercial buildings more energy efficient (JCI, 2004, 2005b);
- Estimating the company's GHG emissions based on the Greenhouse Gas Protocol Initiative (JCI, 2004, 2005b);
- Collaborating with governmental and other GHG initiatives (JCI, 2005a);
- Being a member of the Business Roundtable/Climate RESOLVE programme, which commits the company a target of 18% GHG emissions reduction in the U.S.A. by 2012, and the Climate Leaders, a U.S. Environmental Protection Agency (EPA) programme (JCI, 2005a).

The company's efforts to reduce GHG emissions have earned it the EPA Climate Protection Award (JCI, 2005a).

JCI combines eco-efficiency and Six Sigma programmes to increase efficiency and reducing negative environmental impacts. The company considers energy reductions as legal, ethical, and a business requirement. It endeavours to help customers identify and address areas for energy conservation, specially in buildings where it estimates that 40% of the world's energy is used (JCI, 2004). To address this the company partnered with the government to provide energy-saving performance contracting, where the customer pays for an energy efficiency project over several years using the energy savings generated by the project (JCI, 2005a).

Increases in energy prices during the last years have lead to automotive customers switch to smaller vehicles where the company has lower presence. This can reduce the automotive group profitability (JCI, 2006k).

The company is constantly working to reduce waste and expand recycling in its global manufacturing, with the help of eco-efficiency and Six Sigma programmes. Under these efforts it has set goals to reduce, and where feasible, eliminate environmental releases of substances, including those on the Toxic Release Inventory (TRI), and increase materials recycling (JCI, 2004, 2005b).

The major raw material under the TRI is lead, used in the automotive battery manufacturing. The company has taken made considerable efforts to reduce its lead waste which has resulted in a reclamation of 99.99% of lead for reuse through outside recycling, *e.g.* developing a reverse distribution collection infrastructure and working with other industries, retailers and consumers to promote battery recycling (JCI,

2004). These have helped make the lead-acid batteries the most recycled consumer product in the U.S.A., *i.e.* 97% in the most recent year, versus 55% of aluminium cans, 45% of newspapers, 26% of glass bottles, and 26% of tires. The lead acid batteries have a closed-loop life cycle (JCI, 2005b).

Other TRI material that are being recycled or recovered include: Xylene (11.8% recycling), antimony and its compounds (100%), arsenic (100%), chromium (100%), cooper (100%), and nickel (100%) (JCI, 2004).

JCI has engaged in North America into tracking, reducing, reusing, and eliminating wastes at the source. Being the first company to produce a recycle battery case, and convert battery acid to raw material for detergents and glass provides evidence of this (JCI, 2005a)

Since April 2002, the company's new products have been subjected to LCA and DfE to ensure that they use a minimum of hazardous substances (JCI, 2004).

The company has been developing advanced batteries technologies for HEVs: nickel metal hydride, and lithium-ion. For this JCI entered a joint venture with Saft, a specialist in advanced technology batteries, and investment of $3.1 million in a laboratory for lithium-ion batteries (JCI, 2005a).

JCI expertise on building efficiencies has helped it develop and promote their High-Performance Green Buildings that use multiple methods to manage and save energy (JCI, 2004, 2005a, 2005b). This is achieved by using simple technologies and designs based on widely available materials, which also provide healthier, more pleasant workplaces (JCI, 2005a).

The company has collaborated with the non-profit U.S. Green Building Council to promote sustainable buildings and develop the Leadership in Energy and Environment Design (LEED™) rating system for designing and constructing green buildings (JCI, 2004, 2005a). This helped the company's Controls Group HQ in Milwaukee be one of the first buildings in the U.S.A. to achieve a gold rating under LEED™ (JCI, 2005b).

JCI aims to ensure that its suppliers share its commitment to sustainable development (JCI, 2005b). The company periodically surveys its key suppliers to verify this (JCI, 2004).

JCI inherent helps customers achieve energy savings and reduce GHG emissions through its High-Performance Green Buildings technologies (JCI, 2005a). It also helps its customers procure environmentally safe supplies, recycle materials and equipment, handle wastes safely and responsibly and increase indoor air quality (JCI, 2004).

In 2003, the company was informed that the U.S.A. Attorney for the Middle District of Florida was considering proceedings involving criminal charges, after the release of asbestos during the renovation of a building. The company argues that the release was inadvertent and should not be a criminal matter (JCI, 2006k).

The company has prevention and response plans to minimise and manage any spills or unintended releases to the environment and prevent them in the long term (JCI, 2004). Nevertheless, the company sometimes receives notices that historical waste disposal or other practices resulted in the release of hazardous materials (JCI, 2004, 2005b). Such matters are typically resolved by negotiation with regulatory authorities (JCI, 2006k).

Over the last years approximately 50 sites have been managed, *e.g.* landfills where waste materials and secondary lead where deposited, and lead recycling sites (JCI, 2004, 2006k). The cost of such remediation was USD 34 million as of September, 2006 (JCI, 2006k), these have been accrued consistently with accepted accounting principles (JCI, 2004).

The company generally does not use nor discharge significant wastewater (JCI, 2004, 2005b). The company is committed to responsible land use that promotes biodiversity and nature conservation (JCI, 2004).

iii. Social aspects

The issues that the company addresses for the social aspects can be divided into internal stakeholders, external stakeholders, and activities pertaining or connecting both. The company has an open-door policy and encourages interaction with stakeholders on economic, environmental and social aspects that help establish the company's goals, programmes and actions (JCI, 2004, 2005b). A description of the company's stakeholder is presented in Table A-11.

Within the internal stakeholders the focus is mainly on employees. These can be divided into: Wages, work hours and benefits; Development, training and education; Human rights; Freedom of association; Severance, and Privacy.

JCI's employees receive at least the minimum wage require by law or the prevailing industry wage, whichever is higher (JCI, 2004). Overtime compensation complies with applicable laws, and where none exist, employees are paid at least their regular hourly compensation. The company does not deduct wages for disciplinary purposes (JCI, 2005b).

The company has a policy that employees should not work more than 48 hours per week and 12 hours overtime or those established by local law, whichever is less, except in extraordinary circumstances (JCI, 2004, 2005b).

The company provides competitive compensation and benefits plans to current and retired employees (JCI, 2006k). Employees receive at least the statutory minimum wage or the local prevailing industry wage, whichever is higher (JCI, 2004, 2005b). In 2003, JCI paid more than USD$4 billion in compensation and benefits (JCI, 2004).

Table A-11 Johnson Controls stakeholders' description

Stakeholders	*Number or description*
Internal	
Employees	136,000
Shareholders	55,460
Investors	Domini Investments LLC Storebrand FTSE 4GOOD CALPERS Mellon Bank, N.A.
Retirees	N.S,
Employees families	N.S.
External	
Customers and consumers	More than 5 million
Neighbours and community groups	More than 500 locations
Regulators, legislators, political leaders	Local, state, federal and international agencies and groups
NGOs	Interfaith Centre for Corporate Responsibility (ICCR) Centre for Environmentally Responsible Corporations (CERES) Congregation of the Sisters of Charity of the Incarnate Word General Board of Pension and Health Benefits of the United Methodist Church Benedictine Sisters Charitable Trust Congregation of the Passion
Business and professional organisations	More than 1,000
Suppliers and contractors	N.S.

N.S. Not specified
Source: Adapted from (JCI, 2004, 2005b, 2006j, 2006k)

JCI reports that the diversity and involvement of its employees are the foundation of its strength. The company considers its success linked to its employees' success, as contributors to the company's mission, and as individuals and citizens. For which, it is committed to fair and effective selection, development, motivation and recognition (JCI, 2004).

The company offers different programmes to help employees develop their full potential (JCI, 2005b), including environmental issues, safety and health (JCI, 2004, 2005b). Some initiatives, based on new experiences on the job, involvement in work teams, or special projects (JCI, 2004), include:

- Blue Sky Leaders;
- Extreme Learning Program;
- Young Professionals of Milwaukee;
- Vision Week;
- Chairman's Awards;

- Diversity Programs;
- Diversity Achievement Awards;
- Health and Wellness (JCI, 2005b).

Employees' development is complemented with continuous support, certification, training and education (JCI, 2004, 2005a), *e.g.* succession planning, performance management, development models, and coaching by supervisors, mentors, peers and co-workers (JCI, 2005a). Real-life and real-time learning is emphasised in three ways: develop by doing, take charge, and seek support (JCI, 2005b).

The company uses a web-based educational programme with training modules and tests tailored to employees' specific responsibilities (JCI, 2004).

In 2004, the Blue Sky programme was launched. It encompasses many programmes, events and sponsorships that focus on developing employees' leadership skills on the job and within the community (JCI, 2005a, 2006a).

Blue Sky is divided into corporate and employee driven. The corporate part is divided into Blue Sky Environment focusing on environmental issues, *e.g.* environmentally-friendly interior components, improving energy and resource efficiency of buildings, and making cars more fuel-efficient through advanced battery technology; and Blue Sky Leaders focusing on helping employees grow and improve as leaders (JCI, 2005a, 2005b, 2006a).

The company strives to treat all employees equitably regardless of local economic conditions, traditions or cultures. Threats or acts of harassment, discrimination, violence, intimidation or coercion are not tolerated. Forced labour, including bonded, indentured or prison labour, and children's exploitation is forbidden (JCI, 2005b). The minimum work age of the employees is 16, or the age for completing compulsory education where greater than 16 (JCI, 2004, 2005b).

JCI aims to respect local customs, laws and practices that affect work schedules and places of work. However, the company does not condone cultural patterns that denigrate people on the basis of gender, class, racial/ethnic origin, culture, religion, sexual orientation, caste, tribe or disability (JCI, 2005b)

In 2003, KLP, a Norwegian based insurance, blacklisted Johnson Control as an investment. This was based on false allegations that the company was testing women employees for pregnancy along the Mexican border sites, firing or reprimanding those who were. KLP reasons point to a single case several years ago where women were screened for pregnancy before employment in one of the company's plant. These practices are contrary to company policies are values. They were eliminated once senior management learned of it (JCI, 2004).

JCI is committed to the non-discrimination and diversity of its work-force, including officers and directors, suppliers, customers and communities. This is reflected in the composition of its board of directors, where from 12 members one is female, two are African-American males, and one Hispanic male (JCI, 2004, 2005b). At the corporate HQ 40% of the managers and professionals are women (JCI, 2005b). Figure A-1

presents the diversity of women, while Figure A-2 presents the minorities percentage in the U.S.A.

In 2005, JCI launched a Global Diversity Team that sets goals to increase workforce representation of women and minorities (JCI, 2005a).

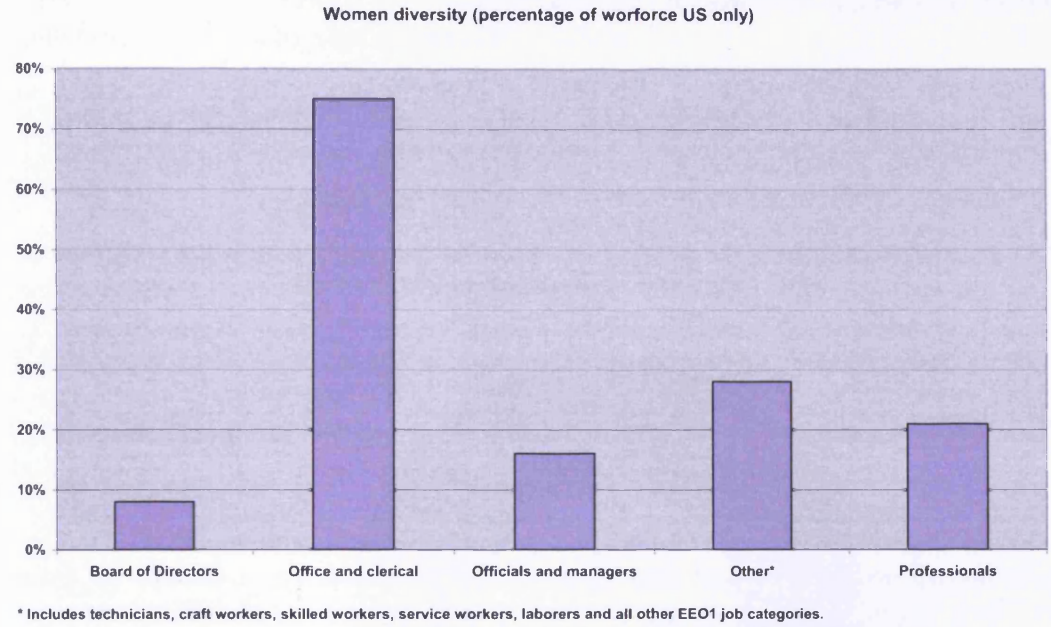

Figure A-1 Women diversity (percentage of workforce in the U.S.A.)
Source: Adapted from (JCI, 2004)

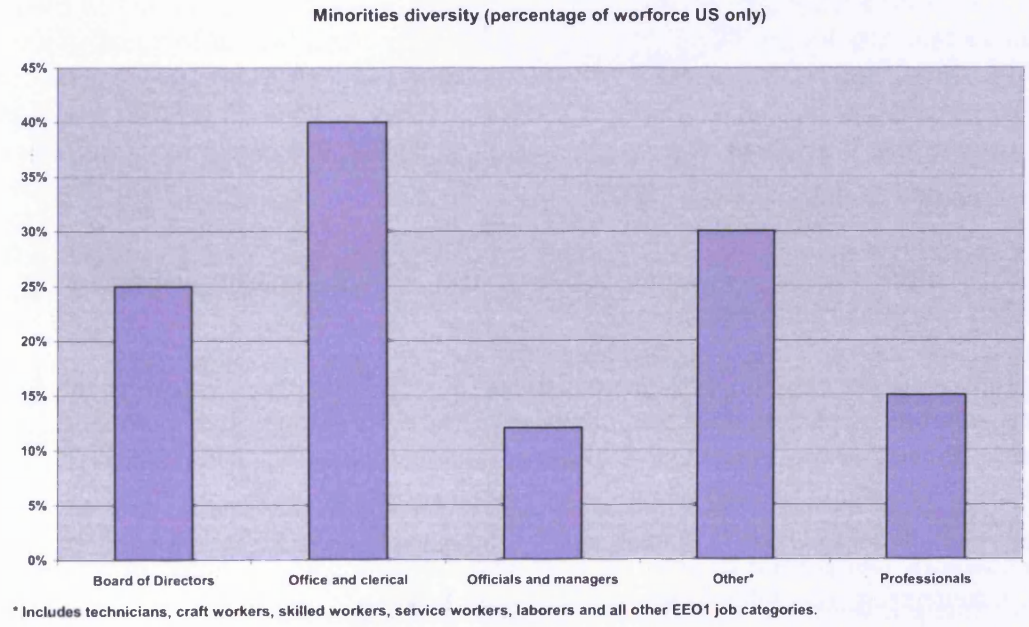

Figure A-2 Minorities diversity (percentage of workforce in the U.S.A.)
Source: Adapted from (JCI, 2004)

JCI is committed to provide a workplace free of physical or mental harassment or any behaviour that diminishes a person's integrity and self-esteem (JCI, 2004). The company provides equal opportunities regardless of gender, race, age, ethnicity, sexual orientation, disability or religion (JCI, 2005b). Women and minorities are encouraged and helped to work with the company (JCI, 2004). The special needs of individual employees, *e.g.* of pregnant women or those returning to work after childbirth, are particularly attended (JCI, 2004).

The company respects voluntary freedom of association, including the right to organise and bargain collectively. Employees represented by labour unions have specific grievance procedures in their contracts (JCI, 2004, 2005b). Figure A-3 shows the percentages of unionised employees in the U.S.A. and Canada.

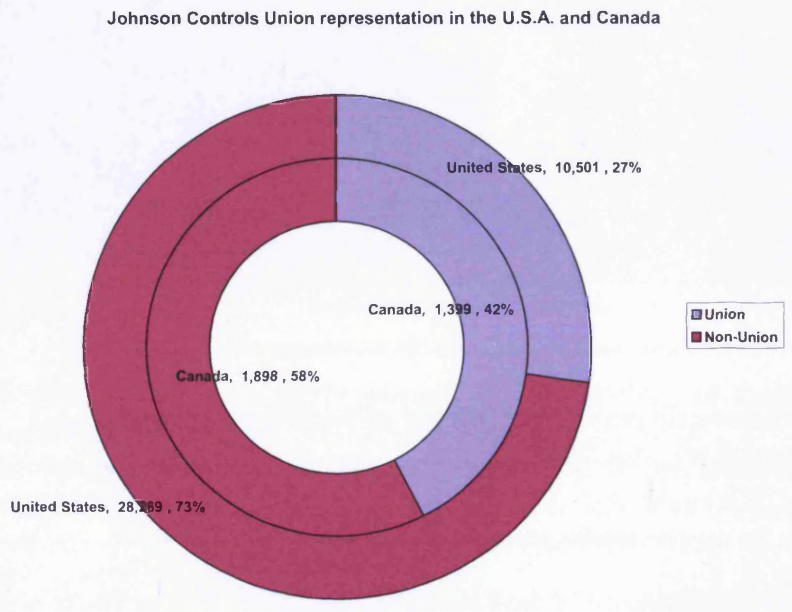

Figure A-3 Johnson Controls Union representation in the U.S.A. and Canada
Source: Adapted from (JCI, 2004, 2005b)

When the company has to reduce its workforce it is carried out with respect for the individuals concerned (JCI, 2005b).

The company keeps a strict policy on privacy and information protection of its products, activities, performance and plans critical to its competitive position and reputation, as well as consumers and employees personal data (JCI, 2004, 2005b).

This section present the activities that directly link employees to external stakeholders, or that pertain to both types of stakeholders. These include health and safety, volunteering and philanthropy, and political funding.

Health and safety are part of the ethics and policies of the company (JCI, 2004, 2005a, 2005b, 2007). These are promoted in the workplaces, *e.g.* as part of managers performance evaluations (JCI, 2005a), and on the communities where the company

operates (JCI, 2005b). The company outperforms its competitors in both, and it increases its expectations every year (JCI, 2004).

The company has safety management systems aligned with internationally recognised guidelines and certified by external bodies. Within these systems there are programmes to train employees on health and safety practices, and protect employees against work-related hazard (JCI, 2004, 2005b). Health and safety are regularly audited internally and by third-parties (JCI, 2005a).

These efforts have helped decreased more than one-half lost-time injuries in the company's U.S.A. facilities since 1995, being far below national averages (JCI, 2004).

The company expends substantial resources to comply with applicable worker safety laws (JCI, 2006k).

The company encourages its employees to freely give their time, skills and energy to improve their communities (JCI, 2004, 2005b). Some examples include tutoring children, preparing and serving meals to the homeless, and helping the elderly (JCI, 2004).

In the U.S.A. the company established the JCI Foundation, which supports charitable causes by contributing to NGOs, *e.g.* health and human services organisations, educational institutions and programmes, culture and arts groups, and civic organisations and initiatives, mainly in communities where the company is present (JCI, 2005b).

The Foundation also matches dollar for dollar employees, retirees and members of the Board of Directors donations to culture, arts, and education organisations (JCI, 2004, 2006i). Some of the examples of donations include: USD 240,000 per year in college scholarships to employees' children (JCI, 2004, 2005b); USD 7 million to different NGOs in 2005 (JCI, 2005a); USD 1 million UNICEF to help victims of the tsunami and USD 1 million to the American Red Cross to help those affected by hurricanes (JCI, 2005a)

The company's Blue Sky initiative helps to align the volunteering and philanthropic activities to the strategic objectives (JCI, 2005a).

JCI contribute money to federal, state and local offices controlled by political action committees funded by key employees (JCI, 2004, 2005b). Within the U.S.A. these contributions are regulated by the Law Department (JCI, 2004).

This section presents how JCI addresses some of it external stakeholders, *e.g.* the communities where it operates, its supply chain, and the responsibility of its products.

JCI strives to respect the needs and concerns, including environmental quality, of the communities on which it operates (JCI, 2004).

Because of its major role as employer, buyer and supplier the company can influence the communities' well-being where it operates, for example:

- Supporting small, disadvantaged, and/or minority-owned businesses;
- Subdividing relevant contracts regionally to foment local competition;
- Supporting communities through volunteering and philanthropy; and
- Training employees and raising awareness about epidemics, such as HIV-AIDS (JCI, 2005b).

JCI buys products and services from a diversity of suppliers, including companies owned by minorities, veterans, and women (JCI, 2004, 2005b). It encourages its suppliers to follow a similar vein (JCI, 2005b).

JCI products are developed meeting regulatory, customer and due care requirements. The products are designed to create safer, more comfortable, and more reliable transportation (JCI, 2004).

A. IX Peñoles Social Responsibility Policies

a) **Corporate Governance:** The Corporate Governance system of Peñoles adheres to and is in compliance with the Better Corporate Practices Code of the Entrepreneurial Coordinating Board and is based on a Board of Directors, which includes independent advisors and specific committees such as Audit and Corporate Practices, Evaluation and Compensations, Finance and Planning, an Executive Committee and Four Executive Directors' Offices, all reporting to the General Director.
b) **Code of Ethics:** Peñoles adheres to the United Nations' Global Pact and maintains an Institutional Code of Ethics supported by an annual commitment statement by the collaborators.
c) **Security, health and labour:** Peñoles has implemented a Policy on Environmental Protection, Health and Security, which is the framework of the Centre for Shared Environmental, Health and Security Services (MASS from its initials in Spanish) and establishes its active participation through the mixed Health and Security commissions in all operations. The Peñoles commitment to the security programs becomes tangible as concerns to goal to reduce the index of accidents by 50%, with 2003 as the base year, and with specific indicators for measurement of progress in this regard.
d) **Environment:** The Company's consistent compliance with it environmental obligations is reflected in its Environmental Management System (SAA from its initial in Spanish) and the four permanent objectives thereof: proper handling and disposal of resources, control and reduction of pollutant emissions into the environment, optimization of the use of water and control of residual water discharges, the prevention of environmental accidents and preparation against emergencies.
e) **Community development:** The most significant aspects of our actions are based on our social diagnosis policy implemented in all Peñoles operations, to characterize each community, identify our real needs and risks, and identifying the community's perception of our company. Each operation must have a Social Development Plan in place, with actions in response to formal and institutional processes.
f) **Responsible market and consumer protection practices:** Peñoles has customer satisfaction policies, product security sheets and the ISO-9000-2000 quality system of our operations.

g) **Social dialogue:** As a formal commitment, our policies have engaged in dialogue and interaction with the different interest groups identified. This translates into assessment matrixes and different communication methods to address each of the interest groups.
h) **Social investment:** The social and environmental impact of our operations is addressed and measured through different indicators, described in detail in the Impact Matrixes. Peñoles is currently engaged in negotiating the company's social participation, with due attention and consideration given to groups of interest.
i) **Donations, volunteers and philanthropy:** Application of Peñoles policies in this regard has given rise to actions that assign budgeted amounts to a number of philanthropic actions, although the Company's main emphasis is placed on developing skills (not limited to the philanthropic role) on a selective basis.
j) **Education:** The education policies at Peñoles include our collaborators and the community in which we conduct our operations, through continuous plans and annual programming, measuring the efficiency and effectiveness of our programs. (Peñoles, 2006b)

A. X Peñoles' CS issues found in its reports

Different issues of the CS aspects were found in the reports or made explicit by the interviewees. These are presented in the following sections.

i. Economic aspects

The economic aspects are recognised to be fundamental for Peñoles continuous growth, increased competitiveness, and permanence in markets. Its main commitment in these aspects is to create shareholder value by operating a profitable business that grows and adheres to best business practices. This is gauged by the value generated from operations, the distribution to stakeholders, employees salaries and benefits, dividends paid to shareholders, taxes paid, investments in the preservation and care of the environment, and funds allocated for education, training, safety, occupational health programmes, and community welfare improvement (Peñoles, 2006b).

Peñoles' products are sold exclusively to the transformation industry (Peñoles, 2006b). Peñoles market presence in 2006 is shown in Figures A-4 and A-5, where it can be observed that the majority of the sales are silver, gold, and zinc, mainly outside of Mexico.

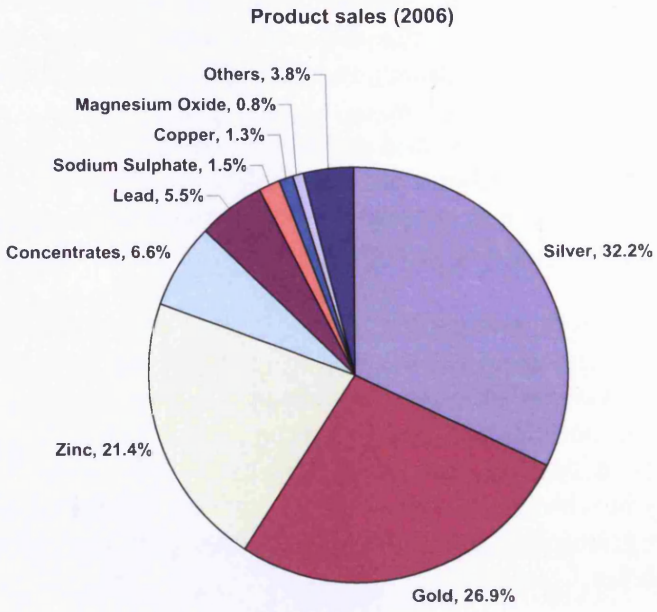

Figure A-4 Peñoles product sales in 2006
Source: (Peñoles, 2006b)

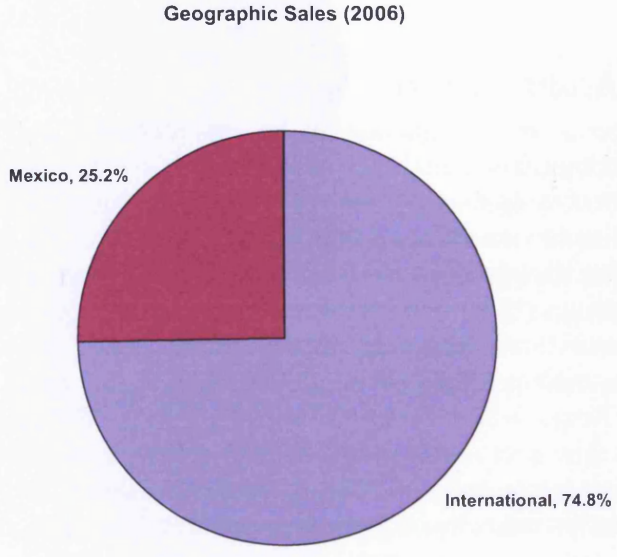

Figure A-5 Peñoles geographic sales in 2006
Source: (Peñoles, 2006b)

Table A-12 presents Peñoles' sales and net profits from 1997 to 2006. The net profit decrease between 1998 and 2000 was due to difficult market conditions plus an incident where high concentrations of lead were found in the blood of people living close to Met-Mex. Operations at the plant were reduced to 50% for five months, followed by working at 75% for two and a half months. Lead bullion had to be purchased from the open market. Additionally, Peñoles, had to pay USD 11.5 million

for clean up activities, relocation of families, and USD 6 million to create a fund for education programmes in health, hygiene, and nutrition for the community (Peñoles, 1999, 2000). The net profit increases between 2003 and 2004 were mainly due to rises in metals prices, *e.g.* 36.6% in silver, 12.6% in gold, 72.1% in lead, and 26.6% in zinc (Peñoles, 2004a).

Table A-13 shows an example of the sales of the three operating divisions. Most of the sales are denominated or linked to the USD (Peñoles, 1998).

Peñoles has little control over external market conditions, however it exerts control in its costs structure and expenses to face such challenges (Peñoles, 2000).

Table A-12 Peñoles financial highlights from 1997 to 2006

	Sales (USD million)	***Net profit (USD million)***
1997	874.4	128.8
1998	876.5	115.9
1999	855.3	73.0
2000	937.4	(13.7)
2001	999.5	25.1
2002	1,133.8	(11.1)
2003	1,285.7	(15.3)
2004	1,656.4	104.4
2005	2,124.8	176.2
2006	3,720.4	411.3

Sources: Adapted from (Peñoles, 1998, 1999, 2000, 2001b, 2002a, 2003b, 2004a, 2004b, 2005, 2006a, 2006b)

Table A-13 Sales of Peñoles operating divisions in 2004

	Sales (USD millions)
*Mining operations**	584.2
Metals operations sales	1,449.1
Chemicals operations sales	121.2

* 88.3% were within the company
Source: (Peñoles, 2004a)

Some of the efforts taken at Peñoles to help reduce costs include:

- Mines mechanisation, dilution reduction, and detailed mines exploitation planning (Peñoles, 2000);
- Increases in economies of scale (Peñoles, 2000);
- Substitution of natural gas by fuel oil to produce electricity, and optimisation of steam use (Peñoles, 2000);
- Reduction of natural resources consumption (Peñoles, 2004a); and
- Reductions in maintenance, procurement and transportation costs (Peñoles, 2001b).

Figure A-6 shows the cost of production structure, while Figure A-7 shows the distribution of value, both for 2006.

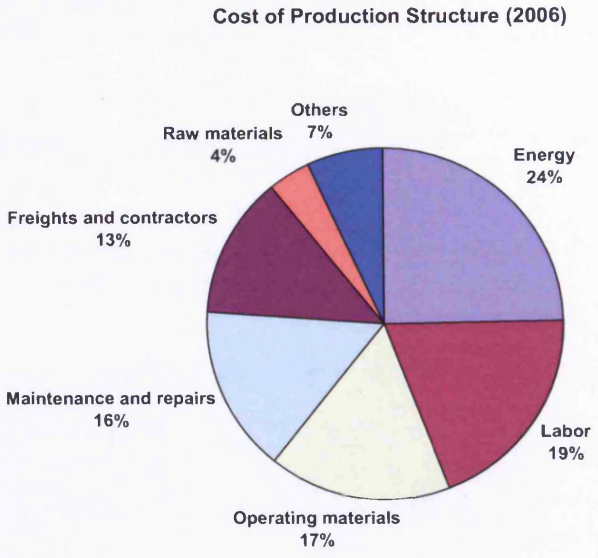

Figure A-6 Peñoles cost of production structure in 2006
Source: (Peñoles, 2006b)

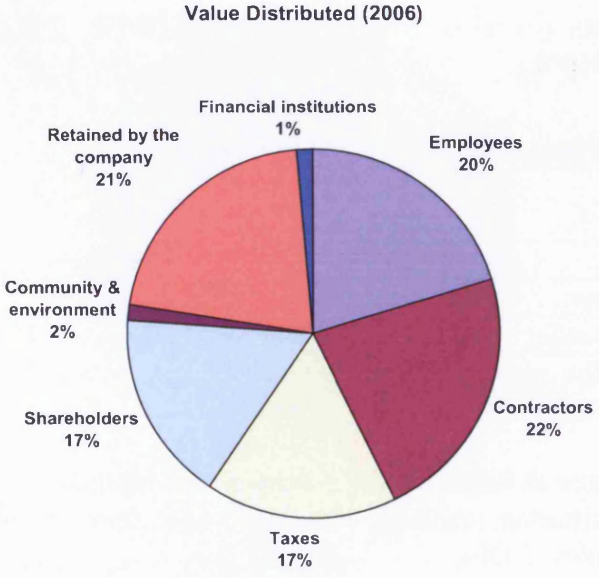

Figure A-7 Peñoles value distribution in 2006
Source: (Peñoles, 2006b)

Peñoles creates value through: location and exploitation of mineral and metals deposits; utilising its plant at full capacity and operating them at low cost; adapting and developing new technologies; maintaining operating flexibility; and balancing a

multi-product portfolio (Peñoles, 1999). Creating enterprise value needs to be accompanied by creating value to the communities where it operates and the environment (Peñoles, 2000), through clean and safe operations (Peñoles, 2001a).

Peñoles is committed to enhancing shareholder value (Peñoles, 1999). Its shares have traded on the Mexican Stock Market since 1968 (Peñoles, 2005).

Peñoles is affected by variations of its raw materials. In 2004, metallurgical coke increased 56.6% compared to 2003, ammonia 15.7%, natural gas 10.4%, and fuel oil 6.1% (Peñoles, 2004a).

In 1999, after the lead incident, Peñoles had to procure lead bullion from the open market at a higher price than if produced in-house (Peñoles, 1999).

Employee productivity indicators have steadily increased, mainly through employee development and training (Peñoles, 2001b), and improvements in employees and their families' health (Peñoles, 2004b).

Peñoles applies operating and management techniques to increase efficiencies (Peñoles, 2000), *e.g.* ISO 9002 in several of its facilities (Peñoles, 1999).

Peñoles associated with Grupo Acerero del Norte to operate 1,300km of railway in two Mexican states, assuring an efficient operation and control of transportation costs of raw materials and finished products (Peñoles, 1998).

ii. Environmental aspects

Peñoles efforts to protect the environment are an answer to increasing land access challenge, raising awareness that the products come from non-renewable resources, and that its operations inherently modify landscapes, biomes and communities (Peñoles, 1999, 2000, 2001a, 2001b, 2005, 2006b). In 2005, the company spent approximately USD 7.3 million in managing and implementing environmental systems (Peñoles, 2005).

The company has undertaken different initiatives to address environmental aspects, some of which include:

- Meeting legal standards, and being a leader in environmental practices (Peñoles, 2000, 2001b);
- Engaging in EMS to prevent, mitigate and remedy ecological impacts (Peñoles, 2006b), and to ensure clean, safe and responsible operations (Peñoles, 2001a);
- Establishing an information management system to compile, organise, an develop health, safety, community development, environmental protection, and energy indicators (Peñoles, 2005);
- Using new technologies to save and conserve energy and to efficiently control operations (Arrellin, 2006; Huerta, 2005; Peñoles, 1998, 2001a);
- Applying prevention systems (Peñoles, 2001a);
- Engaging in voluntary agreements with environmental authorities to evaluate its procedures and facilities (Peñoles, 2002a);

- Monitoring risk and doing assessment studies to simulate conditions that could affect the environment that may arise in new projects or existing operations (Peñoles, 2006b);

Some of the issues addressed by the initiatives include: emissions, water, noise, waste, biodiversity, and prevention and mitigation of accidents (Peñoles, 1998, 2006b). These are presented in detail in the following sections.

Peñoles uses innovative and cleaner technologies to reduce its environmental impacts and increase its eco-efficiency (Peñoles, 2001b, 2004a, 2005). These are promoted through workshops, training programmes and e-learning (Peñoles, 2005). Some examples include:

- Savings in electric power that helped reduce pollution generated from the electricity supplier (Peñoles, 2001b);
- Minimisation of the use and speed of vehicles at the sites of operations, which lowered fuel consumption and dust generation (Peñoles, 2001a);
- Construction of sulphuric acid plants to reduce sulphur dioxide emissions (Peñoles, 2001a);
- Development of two new magnesium hydroxide products, one for steel pellets and the other for sewage water treatment (Peñoles, 2001b); and
- Construction of a solvent extraction plant (Peñoles, 1998).

Peñoles energy consumption in 2006 was 16.6 tera-joules, an increase of 4% to the previous year due to increases in production and integration of new operations (Peñoles, 2006b). The company is searching for renewable energy sources to decrease its GHG emissions (Peñoles, 2006b). The energy consumption distribution is shown in Figure A-8.

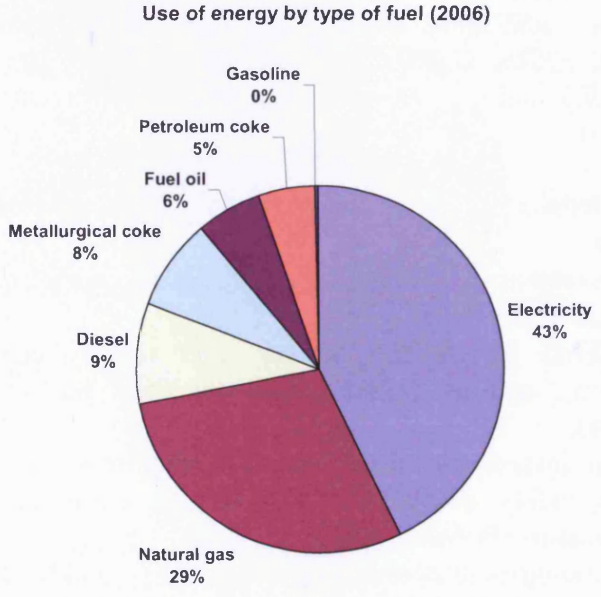

Figure A-8 Peñoles use of energy by type of fuel in 2006
Source: Adapted from (Peñoles, 2006b)

Peñoles has engaged in energy efficiency efforts (Peñoles, 2001a, 2004b, 2006b), some examples include:

- Modification of energy intensive processes (Peñoles, 2005);
- Promotion of renewable energy resources (Peñoles, 2002b, 2005), *e.g.* use of wind turbines (Peñoles, 2006b);
- Optimisation of steam use (Peñoles, 2000);
- Installation of higher capacity cells in the lead flotation process (Peñoles, 2004a);
- Introduction of the Basic Programme for Electric Energy Savings (Peñoles, 2005);
- Reductions of operations involving high consumption of electricity at peak hours;
- Purchases of highly efficient new equipments; and
- Intensification of preventive maintenance actions (Peñoles, 2003a).

The results from these efforts are presented in Figure A-9. The company expressed its objectives to reduce energy by 5% in all operations as a function of productivity (Peñoles, 2005).

Peñoles efforts to reduce energy have been recognised with an award by the Mexican state-run electricity company (Peñoles, 2001b).

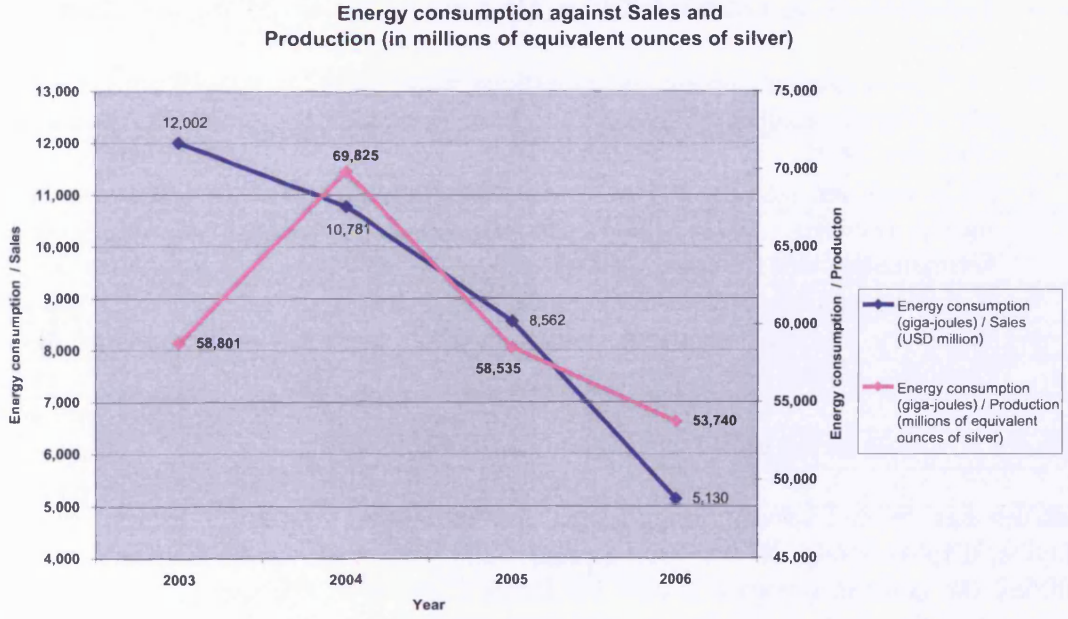

Figure A-9 Energy consumption against Sales and Production (expressed in millions of equivalent ounces of silver)
Source: Adapted from (Peñoles, 2006b)

Since 2004, electricity is being purchased from Termoeléctrica Peñoles (TEP), a thermoelectric plant partially owned by Peñoles that uses petroleum coke to generate electricity with lower prices than the Mexican state-run company (Peñoles, 1999, 2004b, 2005).

Peñoles continuously invests in new equipment and processes, *e.g.* USD 1.5 million in 2000 (Peñoles, 2000), to monitor, control, and reduce effluents and emissions, including GHGs (Peñoles, 1999, 2000, 2001b, 2003a, 2004a, 2006b). Some examples include:

- Dust suppressors and collectors (Peñoles, 2001a);
- Construction of electrostatic precipitators (Peñoles, 1998);
- Monitoring of metallic ions from tailing dams (Peñoles, 2005, 2006b);
- Semi-autogenous grinding mills (Peñoles, 2002a, 2005);
- Real-time automatic monitoring networks to check air quality (Peñoles, 2003a);
- Application of phosphates to 20 hectares of land in areas surrounding Met-Mex to reduce lead bioavailability (Peñoles, 2004b);
- Monitoring of GHG emissions (Peñoles, 2006b);
- Confining and better handling of materials in process (Peñoles, 2001a);
- Carrying out voluntary environmental audits (Peñoles, 2001a);
- Controlled disposal and destruction of polychlorinated biphenyls (PCBs) (Peñoles, 2004b);
- Becoming part of the first pilot group of the Mexican Greenhouse Gases Programme (Peñoles, 2006b).

The results from these measures include:

- Complying with current environmental norms (Peñoles, 2001a);
- Reduction of suspended solid particles from 450 to 50 mg/m3 (Peñoles, 2003a);
- Decline in sulphur dioxide concentrations from 0.0162 to 0.0149 ppm at Met-Mex (Peñoles, 2001a, 2003a, 2004b), being lower than international standards (Peñoles, 1998);
- Reduction and stabilisation of lead concentration in the atmosphere at 0.45 µg/m3 (Peñoles, 2001a, 2005, 2006b), lower than Mexican, U.S.A. and German standards (Peñoles, 2006b);
- Reduction of GHG emissions (Peñoles, 2005); and
- Inventory of GHG emissions, which in 2006 were 1.8 million metric tons (Peñoles, 2006b).

Peñoles processes do not utilise ODS (Peñoles, 2006b).

Peñoles has created several programmes and initiatives to reduce, handle, reuse, recycle, dispose safely, or sell non-hazardous and hazardous wastes (Peñoles, 1999, 2006b), the latter in accordance with the Basel Convention (Peñoles, 2006b). Table A-14 shows the waste generation in 2006 from the operating divisions. Note the large generation of non-hazardous solid waste in the mining division; though, most of it is reincorporated into the mines. Table A-15 present the materials recycled in each operating division in 2006.

In 1994, a campaign was initiated to reduce paper in printers and photocopiers at the corporate headquarters. In 2006, 28% of the total consumption, 11 tonnes, was reused (Peñoles, 2006b).

Table A-14 Waste generation in 2006 according to the three Peñoles operating divisions

Type	*Annual Generation (tons)*	*Disposal*
Metals		
Non-hazardous solid waste	603,909	Storage in mounds within the company or in landfills
Hazardous solid waste	4,059	Temporary internal storage and controlled confinement
Liquid hazardous waste	34.6	Controlled confinement
Mining		
Non-hazardous solid waste	7,855,517	Tailings deposited in dams and the rest returned to the mine; scrap is sold for Recycling
Hazardous solid waste	235.5	Sent for disposal or used as alternative fuel
Liquid hazardous waste	410,592	Incineration
Chemicals		
Non-hazardous solid waste	229,584	Landfill and sale to third parties
Hazardous solid waste	38.7	Incineration
Liquid hazardous waste	100,026	Incineration

Source: (Peñoles, 2006b)

Table A-15 Materials recycled at Peñoles operating divisions in 2006

Material recycled	***Quantity***
Metals	
Batteries, scrap, slag and jarosite, water treatment sludge	294 pieces
Mining	
Scrap	194.5 tons
Tires	319 tons
Batteries, tailings	195 tons
Chemicals	
Solvents	1.7 m3
Tires	100 tons
Batteries, recycled dust	80 pieces

Source: (Peñoles, 2006b)

Since 1972, Peñoles has engaged in water saving efforts to help alleviate scarcity (Peñoles, 2001a, 2004b, 2006a), and comply with local and national laws (Peñoles, 2006b). Some of these include:

- Developing water-use analysis to help increase water-use efficiency (Peñoles, 2005);
- Treating municipal wastewater to use in industrial processes (Peñoles, 1998, 2001a, 2004a);
- Installing wastewater treatment plants (Peñoles, 2001b, 2002b);

- Installing monitoring systems to detect leaching of metallic ions from tailing dams (Peñoles, 2006b);
- Reducing first-use water, and increasing use of recycled and treated water (Peñoles, 2001a, 2005, 2006a);
- Developing a magnesium hydroxide product for sewage water treatment (Peñoles, 2001b);
- Equipping employees' new housing units with home water-treatment and saving systems (Peñoles, 2004b).

Some of the results from these initiatives have been:

- Increase of municipal sewage water treatment from 70 litres per second 110 (Peñoles, 1998);
- Reductions of first-use water in Met-Mex from 329 thousand m3 in 2003 (Peñoles, 2002b) to 253 in 2005 (Peñoles, 2005); and
- Use of less than 10% of first-use water in the three major industrial complexes (Peñoles, 2003a, 2004b, 2005, 2006b).

In addition to complying with environmental laws, *e.g.* in wastewater runoff, hazardous wastes, and agrochemical products (Peñoles, 2005, 2006b), Peñoles strives to go beyond compliance (Peñoles, 2001a, 2006b). This is considered to yield greater efficiency and opportunities than mere compliance (Peñoles, 2001a). For example:

- Lead concentration around Met-Mex, in 2004, was 0.44 μg/m3, lower than the 1.5 μg/m3 allowed by the Mexican and U.S.A. health authorities, and the 2.0 μg/m3 allowed by German authorities (Peñoles, 2004b); and
- Sulphur dioxide concentrations were 0.019 ppm, lower than the 0.03 ppm allowed by Mexico's Ministry of Health (Peñoles, 2004b, 2005).

In spite of efforts taken to reduce environmental pollution and prevent accidents (Peñoles, 2006b), in 1998 Peñoles faced a contingency situation. It was found that the level of lead in the blood of people living close to Met-Mex, was higher than the 10 μg/dl, the limit defined by the Centres for Disease Control and Prevention in Atlanta, Georgia as a health hazard (Peñoles, 1999, 2001a, 2001b, 2005). In response to this, the Mexican Environmental Protection Agency (PROFEPA) ordered the following measures:

- Reduction of operations to 50% for five months, followed by 25% of total capacity for two and a half months;
- Implementation of actions agreed as a result of a voluntary environmental audit;
- Absolute control of emissions;
- Creation of a USD 6 million trust for education of health, hygiene and nutrition programmes;
- Relocation of 410 families living adjacent to the business units;
- Thorough cleaning of an area of two kilometres around the plant (Peñoles, 1999, 2001a, 2005).

The total charges associated with all the measures taken were USD 17.5 million. On top of the charges, lead bullion output decreased by almost 25% for the year, potential income derived from treatment charges of lead concentrate volumes not processed

were lost, and third party purchases of lead bullion and other raw materials had to be made (Peñoles, 1999).

On top of the contingency, during 1999 the average dollar prices of all metal and industrial chemicals sold by the company were lower than the previous year. This had negative financial results (Peñoles, 1999). Table A-16 shows the financial impacts.

Table A-16 Peñoles financial impacts of the lead incident

	Total (million)	***Percentage lower than 1998***
Net sales	$855.3	12.3%
Operating income	$31.0	77.6%
Net consolidated income	$73.1	43.6%
Cash flow from operations	$86.7	66.3%

Source: (Peñoles, 1999)

By the end of 1999, approximately 30% of Met-Mex's fixed assets were devoted to pollution control, representing and investment of over 30 years. Additionally, Peñoles underwent voluntary implementation of environmental management systems based on ISO 14001 aiming to obtain the Clean Industry Certificate from the Mexican environmental authorities (Peñoles, 1999).

In spite of the contingency, Peñoles continued to focus of increasing efficiency, improving operating productivity, establishing a solid financial structure, strictly controlling costs, and effectively managing controllable variables (Peñoles, 1999). By 2001, new tests indicated that the emissions controls and remediation efforts had been effective (Peñoles, 2001b). Emissions are continuously monitored to ensure the safety and environmental soundness of operations and surrounding communities (Peñoles, 2004b).

Since 1999, there has been no other major accident at Peñoles. Smaller incidents include: the spill of zinc concentrate due to the overturn of a lorry loaded with 9.2 tons of zinc concentrate, of which 9.7 were recovered without adverse effect to the environment (Peñoles, 2006b); an accidental oil spill at a mining central maintenance workshop and of tailings, both of which were immediately attended (Peñoles, 2005); and several complaints made by community members for high noise levels (Peñoles, 2005).

During the last years Peñoles operating units have adopted and been certified with ISO 14001 (Peñoles, 1998, 1999, 2000, 2001a, 2001b, 2002b, 2003a, 2004b). In 2000 five units had been certified (Peñoles, 2000), while by 2004, sixteen of the twenty operating units had been certified (Peñoles, 2004b).

In addition to ISO 14001, Peñoles operating units work towards been 'Clean Industries', a voluntary certification by the PROFEPA that is given to businesses that demonstrate high levels of environmental performance based on their environmental management systems and their compliance to regulations (Peñoles, 1998, 1999, 2001a, 2006b).

Noise levels are periodically monitored in the operating units to verify it is lower than the accepted levels (Peñoles, 2001a).

Peñoles operations cover 52,528 hectares of land (Peñoles, 2005, 2006b). Land-use alteration is usually accompanied by loss of biodiversity (Peñoles, 2004b).

In spite of Mexican environmental legislation not requiring restoration of closed mines, Peñoles has set funds aside for such purposes. In 2005, over 300 thousand USD were invested (Peñoles, 2005). The efforts include: soil restoration, tailing dams, works to prevent acid drainage, recovery and confinement of waste minerals, remediation activities, forestation, and protection of animal and plant species (Peñoles, 2001a, 2001b, 2002b, 2003a). No mines have been closed since 2005 (Peñoles, 2005, 2006b).

Peñoles aims to prevent and minimise its operations impacts on biodiversity (Peñoles, 2005), especially in the dessert and semi-arid areas where its mines are located (Peñoles, 2006b). Some of the actions taken for this purpose include:

- Forestation and reforestation campaigns (Peñoles, 1998, 2001a, 2003a);
- Restoration of closed mines (Peñoles, 2004b);
- Protection of endangered species (Peñoles, 2002b, 2003a), *e.g.* the Sonoran pronghorn (*Antilocapra americana sonoriensis*) (Peñoles, 2003a);
- Creation of ecological and wildlife reserves (Peñoles, 2000, 2001b, 2004b);
- Creation of sustainable forests projects (Peñoles, 2004b, 2006b);
- Development of forest conservation, restoration, and resource management projects (Peñoles, 2006b);
- Collaboration with communities to protect natural areas critical to biodiversity (Peñoles, 2002b);
- Conservation campaigns and conferences (Peñoles, 2000, 2006b);
- Collection of plant and animals species gathered by confiscation and donation, jointly with the government of Zacatecas state (Peñoles, 2006b).

iii. Social aspects

Peñoles aims to maintain strong stakeholders' relationships through an open door policy and open communication (Peñoles, 2000, 2005). Its critical one are recognised to be:

- **Internal**: Shareholders, and Employees;
- **External**: Communities, Suppliers, and Customers (Peñoles, 2004b, 2005, 2006b).

Within the internal stakeholders the efforts are focused mainly on employees. These include wages, work hours and benefits; development, training and education; human rights; and freedom of association.

Employees' salaries and benefits are one of the factors used to gauge Peñoles performance (Peñoles, 2006b). In 1998, wages, salaries, fringe benefits and profit sharing amounted to approximately USD 100 million, while social security and welfare to approximately USD 15 million (Peñoles, 1998). In 2006, wages and salaries paid to employees and collaborators were approximately USD 266 million.

The most significant increase was in the Company's employees' statutory profit sharing of 132.6% to a total of USD 47 million (Peñoles, 2005).

In addition to wages, salaries and profit sharing the company provides benefits beyond those required by the Mexican Social Security Institute and Mexican Labour Laws. These include saving funds, year-end bonuses, pension plans for retirement, disability and death benefits, food assistance, medical coverage insurance, life insurance and 100% of the employees' social security dues (Peñoles, 2004b, 2005, 2006b).

Peñoles promotes its employees' development through training and education (Peñoles, 1999, 2000, 2001b, 2003a, 2006b). Part of employee development includes facilitating formal education completion, from high school to Master's levels: 45 employees were awarded degrees in 2004 (Peñoles, 2004b), 48 employees in 2005 (Peñoles, 2005), and in 2006 there were 80 (Peñoles, 2006b). The development of employees helps promote their long-term careers (Peñoles, 2005).

Employees receive extensive training to avoid unsafe actions, and respond to safety problems and emergency situations (Peñoles, 2004b, 2005, 2006b). Some of the training programmes include: Operational Discipline Programme, Accident Investigation, Safety Training Programme, Electrical Safety, Zero Tolerance Workplace Safety Practices, and DuPont's trademarked Safety Training through Observation Programme (STOP) (Peñoles, 2004b, 2005, 2006b).

In addition to safety, Peñoles offers training in: eco-efficiency (Peñoles, 2005), operation of heavy machinery for women (Peñoles, 2002b), and in High Performance Teams, *i.e.* groups of employees organised around a unique business process (Peñoles, 2000, 2001b). Table A-17 shows the investment in training and professional development from 1998, 1999, 2005 and 2006.

Formal training in sustainable development are complemented with informal environmental activities, *e.g.* the celebration of the World Environment Day (Peñoles, 2003a).

Table A-17 Peñoles investment on union and non-union employees training

	1998	***1999***	***2005***	***2006***
Investment (USD million)	2.1	1.7	2.0	3.2
Total training hours	N.A.	N.A.	313,354	416,019
Labour union members training hours	N.A.	N.A.	236,096	318,860
Non-labour union members training hours	N.A.	N.A.	77,258	97,159
Average training hours	45	44.4	46.3	56.65
Average labour union members training hours	N.A.	N.A.	50	61.57
Average non-labour union members training hours	N.A.	N.A.	35	40.53

N.A. Not Available
Sources: (Peñoles, 1998, 1999, 2005, 2006b)

Following its commitment to the United Nations Global Compact, Peñoles respects and supports international human rights standards, giving fair and equal treatment to all individuals. Peñoles discourages and does not participate in human rights abuses, including employment of children, forced labour, discrimination, or unfair labour practice (Peñoles, 2005, 2006b).

Peñoles promotes equal-opportunity employment. It selects is candidates on the basis of professional merit. Participation of women in functions and positions where they have been traditionally under-represented is encouraged (Peñoles, 2004b, 2005, 2006b). In early 1998, a programme was launched to train women to operate heavy equipment which lead to the gradual incorporation of women to other operating areas (Peñoles, 2002b). In 2004, more than 12% of mining operators were women (Peñoles, 2004b). In 2006, two women were hired to fill executive positions (Peñoles, 2006b).

Peñoles keeps favourable relations through mutual understanding with its unionised employees. This allows wage and contractual revisions beneficial for union members and the company (Peñoles, 1998, 1999, 2005), as well as improvements in efficiency and productivity through High Performance Teams (Peñoles, 2001b). Nearly 68% of Peñoles employees belong to unions (Peñoles, 2005, 2006b), mainly the National Mining and Metallurgical Workers Union of the Republic of Mexico, and the Chemical and Petrochemical Industry Workers Union (Peñoles, 2004b, 2006b). There have been no strikes in any of Peñoles' businesses (Peñoles, 2004b).

This section presents the activities that directly link employees to external stakeholders, or that pertain to both types of stakeholders. These include health and safety, volunteering and philanthropy, and human rights.

Peñoles is committed to the health and safety of its employees (Peñoles, 1998, 1999, 2002b, 2005). Safety and health programmes are one of the factors used to measure the company's performance (Peñoles, 2006b). These are addressed through the Environmental, Health, and Safety policy (Peñoles, 2004b, 2006b).

In 2004, Peñoles started a pilot project to incorporate the OHSAS 18001 safety and health standard at one of its mines (Peñoles, 2004b). In 2005, employees and contractors collectively underwent 14,021 hours of training on health and safety (Peñoles, 2005). Some of the efforts to provide safe conditions, avoid unsafe actions and prevent injuries include root cause and process risk analysis, personnel training, and auditing (Peñoles, 2004b). Peñoles started implementing the STOP in 2003 (Peñoles, 2003a). The ultimate aim is zero accidents and fatalities (Peñoles, 2005). Table A-18 shows the number of accidents, lost workdays and fatalities since 1998.

In 1998, the Mexican Chamber of Mining honoured one of the units, La Negra, with the 'Silver Helmet' for the lowest accident rate in underground mines of less than 500 workers. In 2000, four mines were awarded certificates for reducing workplace accidents by more than 25% (Peñoles, 2000).

Table A-18 Accidents, lost workdays, and fatalities in Peñoles since 1998

	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*
Accidents	740	504	423	443	353	319	383	384	311
Lost workdays	20,849	17,143	18,266	15,770	13,848	24,686	10,777	23,665	20,275
Fatalities (including contractors)	N.A.	10	N.A.	4	N.A.	9	2	11	8

N.A. Not Available
Sources: Adapted from (Peñoles, 1999, 2001b, 2002b, 2003a, 2005, 2006b)

The good health of employees is considered the base for operating efficiently, generating economic growth and competitiveness, as well as for healthy families and communities (Peñoles, 2004b). In addition to having several clinics in its operating units (Peñoles, 2002b), Peñoles has established education and communication programmes to address the general health of its employees, *e.g.* prevention of obesity and diabetes (Peñoles, 2005, 2006b), establishing the Zero New Professional Illnesses Programme (Peñoles, 2006b). These have helped increase nutrition levels and decrease smoking (Peñoles, 2004a).

Health and safety in Peñoles spreads to the communities were it operates through its community development programmes (Peñoles, 2006b). In spite of this there was a contingency in 1999 where it was found that the level of lead in the blood of people living close to one of the business units, Met-Mex, was higher than the 10 μg/dl safe limit (Peñoles, 1999, 2001a, 2001b, 2005). By 2001, new tests showed that the company's control and remediation efforts had been effective (Peñoles, 2001b).

Peñoles encourages its employees to voluntarily participate in efforts to develop communities and safeguard the environment (Peñoles, 2001b, 2002b), *e.g.* in 2002 748 thousand out of 1.2 million employees dedicated at least one hour (Peñoles, 2002b). This is complemented by the actions of the Damas Peñoleras Committee, made of wives of the company's executives, which include granting university scholarships to the children of low-income employees, organising senior citizens clubs, supporting child vaccination campaigns, and offering assistance to battered women (Peñoles, 1999, 2004b).

In 2003, the company created the Peñoles United Fund in partnership with United Way, a public assistance organisation based in the U.S.A., to encourage philanthropy within employees (Peñoles, 2003a, 2004b).

Although Peñoles recognises different external stakeholders, it only reports its efforts in regards to communities. Peñoles considers that it is part of the communities where it operates, having a responsibility to contribute to their success and promote their self-development through social development plans (Peñoles, 1998, 1999, 2000, 2001a, 2004a, 2004b, 2006b). These include personal and family improvement, health, education, income, and infrastructure (Peñoles, 2001a), as well as environmental culture (Peñoles, 2005, 2006b). The social development plans respect local cultures, customs, and traditions of the communities, with a special focus on self-sustainability and co-responsibility (Peñoles, 2006b). Peñoles efforts towards communities are based on its institutional framework (Peñoles, 2006b).

In 1998, Peñoles created the Sustainable Community Self-Sufficiency System (SACS) (Peñoles, 2001a), which stresses aspects such as participation, social commitment, integration, ethics, and values (Peñoles, 2002b).

In 2000, the investment for social development plans was USD 4.5 millions (Peñoles, 2000), while in 2006 it was USD 20 million (Peñoles, 2006b). In 2001, the scope of interaction included: 1.2 million individuals in 64 communities, 12 community participation councils, 13 community centres, and several volunteers from the company (Peñoles, 2001a).

Community projects are monitored to ensure that they meet their targets and are effective (Peñoles, 2004b). These projects are complemented with the efforts of Damas Peñoleras (Peñoles, 1999).

Some example of community projects include:

- Environmental issues:
    - Reforestation campaigns (Peñoles, 1998);
    - Co-ordination of the Clean Municipal Project in Zacazonapan, State of Mexico in conjunction with local and state authorities (Peñoles, 2005);
    - Collaboration with communities to protect the environment (Peñoles, 2002a);
    - Management resources training for members of the community (Peñoles, 2006b) ;
- Social issues:
    - Promoting sports, campaigns against alcoholism and drug-addiction, hygiene, and safety (Peñoles, 1998, 1999, 2001a) ;
    - Funding of libraries, health care centres, sports and athletic programmes (Peñoles, 1999, 2001a, 2004a) ;
    - Financing local educational, training, and development initiatives (Peñoles, 2004b, 2006b);
    - Teaching new skills, training and engaging community leaders (Peñoles, 2001a, 2004a, 2004b, 2006b);
    - Providing loans to small businesses (Peñoles, 2004a);
    - Launching a business incubation programme in 2006 (Peñoles, 2006b);
    - Leasing and selling equipment to small and medium size miners (Peñoles, 2006b);
    - Promoting skills development such as small business management, entrepreneurship and leadership (Peñoles, 2004b, 2005);
    - Founding three community participation boards (Peñoles, 2005);
    - Infrastructure building in remote areas, *e.g.* communication facilities, electric power, drinking water, housing, medical services, waste disposal (Peñoles, 2001a), and donations of materials for roadway construction (Peñoles, 2001b)

A. XI Transcriptions of interviews from Grupo IMSA leaders

i. Eugenio Clariond

1) Name: Eugenio Clariond

2) Position held at your company: President and CEO
   a) Since when have you been in that position As president (3 years) as CEO (22 years)
   b) Since when have you been in your company 44 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? Always. For example, SD of processes, effects on environment, political consequences

4) What role does Sustainable Development (SD) play in your company, if any? Vital role. In the last 15 or more years, they have taken SD as a base to define the long-term strategy, in operations and in business strategies. SD is to be responsible on what they do, Brundtland commission definition. We use eco-efficiency largely.

5) How does your company take SD forward? Reuse of energy and water, zero waste, reuse of solvents, burning of solvents to generate steam to use as energy, treating waste water from the city to use in the industrial processes. Help in different social activities. Installed hydrochloric acid regenerating plant. Developed a process to recycle 100% of the materials of lead/acid batteries, made the plant very competitive, and then sold it.
   a) How have your company's interest in SD issues evolved? It came from the leadership. It was not possible to have operations that wasted energy and water. There is still much to be done. There are new opportunities to improve efficiencies and to improve the working-life quality for employees. People need to be convinced; sometimes it is even essential to fire some people. The board made SD as one of its principles. There was an agreement by the board to be focused in SD, now it's been decentralised to each of the business units. It was promoted from the top but it has become part of the strategies of each business unit.
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. On the annual report. They include a section on the financial report. Internally through seminars, awards, recognition, continuous improvement programmes. Mainly through environmental protection.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? It has become part of the culture. It took about 5 to 6 years to convince everybody SD was important.

7) Do you think the process could be accelerated? No. In a diversified organisation, it wouldn't work through dictatorship. Also, become the company purchased other companies here and elsewhere. The foreign companies had other cultures and

ways of working, and it takes times to change them. Using power could create high resistance.
a) How?

8) What, in your opinion, have been the drivers of SD in your company? . Convincing people that it was something important for the society and that the company had to be part of it. Economic (costs) savings

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? Natural human resistance towards change. Technological/economical challenges: investments, resources, improved technologies. For example, changing the polyurethane foam for insulation panels for a more environmental product. The foam used to be produced with the help of CFCs, they invested heavily to substitute alternative substances for the CFCs. They could not find the proper material on the market, so they had to produce it themselves, this necessitated that they went against the market. Afterwards it gave them a competitive advantage during the second phase of the Montreal Protocol.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Convincing people. "There is no magic recipe to convince people". Firing people. Convince the leaders of the business units, getting allies. More and more people are being convince, it comes from the initial training of employees. Used six sigma programmes, focused on reducing waste and labour intensity.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes.
   a) Do you think it is necessary to include it? Yes.
   b) Do you think the policies truly represent the culture and future of your company? Hoping that they do, if there are other owners they might change.
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? Each business unit has to create financial reports and on SD. In the reward system the environment part is quite important.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Only 1 or 2 persons in the company (full time), it is needed to convince the entire organisation
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? It depends on the nature of the work of each is the intensity on SD. Obviously that people involved in operations are more involved that those of sales areas, or even administrative. Even though sales have taken advantage of being a "green industry" and involved in SD
   b) How are the people made to feel involved? There is no clear way. Only insisting about it. Participating in operative meetings. There are no goals or objectives set up. It would depend on the nature of each business unit, some are easier to get involved, while others not

c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: It has to come from the top, otherwise it is very difficult for SD to advance. Advantages: It makes it a priority. Disadvantages: If the leader does not convince the others, it doesn't flow Bottom-up: Advantages: Disadvantages: It doesn't advance. Do you think leadership is important in the process? Why? Leadership has taken SD as the base for defining long-term objectives, in operations and in business strategies

14) Is there someone in your company specifically in charge of sustainability? 1 or 2. Analyses and report. The leaders of each business units are responsible.
a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability?

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards?

ii. Ruben Rodriguez

1) Name: Ruben Rodriguez

2) Position held at your company: HR Director
a) Since when have you been in that position 6 years
b) Since when have you been in your company 9 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? Everyone responsible for a business unit and/or for a functional area (marketing, sales, engineering) have in their objectives, one or more challenges, focused on developing people or organisational areas. The environmental aspects are not considered in all areas. Some areas where they are include HR, which has to implement environmental culture, and operations and processes, which have objectives related to environmental control and social responsibility

4) What role does Sustainable Development (SD) play in your company, if any?_ Comes from leadership (CEO) , guidelines at corporate and group level. Part of company values, i.e. respect the individual and the environment

5) How does your company take SD forward? All the companies have a philosophy of environmental control to comply with legislation. In addition they have activities related to environmental aspects, for example, promote 'Industria limpia' [Clean Industry], a recognition awarded by the government
a) How have your company's interest in SD issues evolved? SD started in beginning 1990s. It started as a requirements to operational aspects, previously was more of a philosophy. Around 1992-1993 it took off. We have made it to

have more presence in the company. It is part of the vision of the company. The CEO is a firm believer of SD, and has pushed it throughout the company

b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. It can be seen on the annual reports, there is always a section about SD. Additionally, there are external activities (cultural) where they teach SD to the community, in the recreational club

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? He started in 1996, and the culture was already there. He knows that it started in the beginning of the 1990s, so about 4 years

7) Do you think the process could be accelerated? Yes,
   a) How? Extending SD to all the functional areas and business units, e.g. staff and operations. Currently, only the people who are directly related to SD, i.e. operations, are focusing on SD. Other areas, i.e. finances, do not. Making it part of the objectives, e.g. annual grading. Using incentives and punishments, and making it part of employee evaluations. At the moment, only the operations, engineering directors, or the responsible of EHS, but not the directors of finances or systems.

8) What, in your opinion, have been the drivers of SD in your company? 1. Moral obligation of a balanced development with society and the environment, i.e. awareness. 2. Leadership, i.e. an example is better to lead than words. 3. SD is an economic efforts, not only philosophical or as a vision, it does generate savings in costs and time because it aims to prevent and not to correct. 4. (External) Environmental legislation. Three stages in Mexico: 1. weak enforcement (until late 1980s), 2. 1988-1998 strong enforcement to promote SD, 3. 1998 to present, it became weak, though not the levels of the 80s. 5. (External) Education, newer generations (those born in the 80s) are more prepared about SD.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? There have been no barriers. SD is not extended to all areas due to not seen as a priority, i.e. operations with direct impacts have to worry about SD, for others, e.g. finances, systems, marketing, are not. A barrier can be laziness or lack of relevance.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Use on-going educational and awareness raising campaigns to ensure that everything is done at the company, especially productive processes, is based on SD, which is understood as a development that is balanced with the environment and society. Through positive examples from the leadership. And through incentives

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes, e.g. a section in the annual report. Also in the values the environment is explicitly included.
   a) Do you think it is necessary to include it? Of course.

b) Do you think the policies truly represent the culture and future of your company? No. They are only a legal framework. Culture is traditions and activities. The framework rules this, but culture is more than that.
c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? Projects that have a focus on economic aspects but incorporate SD are those which are approved, those which do not contemplate SD would not be approved

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Directors (executives). There is no-one not involved.
a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? Parts yes, e.g. operations, and parts no. In staff (finances, systems, marketing) there is a lack of in-depth about SD, they only think it's about the environment.
b) How are the people made to feel involved? Already mentioned, raising awareness and making it part of individual objectives and annual performance evaluation. There are common objectives to some areas, e.g. marketing helps develop new products and should consider the impact of those projects. When they hire somebody they do not involve SD issues, however in the training for new employees they present a video about the company where it mentions about SD. Additionally, when they give instructions about EHS. There is nothing after the initial training, it is not considered as an urgent need.
c) Is Sustainable Development reflected in the setting of goals, targets and objectives? Partially

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: It is better for the organisation. Advantages: There is authority to make the initiative. There is follow up. Disadvantages: There are none.
Bottom-up: More difficult. Advantages: It consolidates. Disadvantages: There is a lack of time and resources
Do you think leadership is important in the process? Why? It helps make the actions

14) Is there someone in your company specifically in charge of sustainability? No
a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? It facilitates human processes and administration. Promotes the company's culture.

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Make SD's economic issues more explicit. Push towards a more integrative holistic vision, and show the business case.

A. II Transcriptions of interviews from JCI leaders

i. JCI

1) Name: JCI (Note that this interview took place after the three JCI representative made presentations about their efforts, thus some of the questions were not transcribed since they can be found in the powerpoint presentations)

2) Position held at your company:
   a) Since when have you been in that position
   b) Since when have you been in your company

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered?

4) What role does Sustainable Development (SD) play in your company, if any?

5) How does your company take SD forward?
   a) How have your company's interest in SD issues evolved? 2001 first environmental report. Discussion started in 1999
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)?

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? 4 to 5 years, difficult to separate because of the company's core values. Started in the US because of customer demands on it, so much from the marketing folks and communication tools being there. Europe was already there, maybe 2002-2003. It then it has moved forward from there. In 2004 we tied the sustainability report into the core values. The third sustainability report, 2005, it's probably good to our shareholders and stakeholder make appall to, because that's when we made it part of the annual report. A lot of people have come back because of this change the sustainability report goes beyond the shareholders control on the annual report. The production workforce may be a little further behind; I think they get the values but not the word sustainability. Our management is fully engaged. The core values are understood and shared by most people. The vision and the understanding how it ties to strategic objectives are fully understood, over 90% in one of our tests, in both languages.

7) Do you think the process could be accelerated? Personally, we wouldn't want to do it. There was a group that help put it in there and then it just boiled it throughout the organisation, I think it's like boiling water, you have to wait so long for the temperature to get heat through the substance. The way that went it was more digestable by employees, you jam it down their throat and then it becomes a fad. This is kind of a natural way. It has helped understand how that feeds into sustainability and how all is part of the company. The communication feeds need time. We think it was pretty fast.
   a) How?

8) What, in your opinion, have been the drivers of SD in your company?

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples?

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? [Rebecca] People are not specifically asking for it, so why spend resources on it. [Mark] The biggest one that I saw, people said don't say the "S" word, a little before 2000, because there was a concern that it was not understood, and using the word sustainability and reporting, like we're doing now, would block the understanding of our core values, because there was a lot of time and effort getting employees to understand that. Once we broke through that, defining sustainability through the triple bottom line, but we still used our core values. The second one is that a lot of our employees thought that this was another fad, like quality circles, once customers started sustainability and asking us what we were doing about AIDS in Africa, all of a sudden, now I understand what this is about sustainability. Sustainability is a big area, people ask: what's the business value? It was another part of that first feeling of overcoming the fear of losing our core values. It wasn't something that was going that gave risk but it was something that was going to drive the business and make us sustainable for the future. Once a lot of people buy in, you just stand back. That's why I say we are replaceable and you can't stop it now. Internally, the sustainability report was disseminated through excellent communication, there's a tremendous network within the corporation, environmental roundtable, communicate to each business unit, there is a global purchasing council, and a multitude of other things. It has been communicated not only from corporate offices down, but a lot of it has come from customers and employees that were really hitting the road and seen this. Those who are fighting this, it doesn't make sense, it would take over the company, just from the pressures of NGOs, customers, communities. [Rebecca] Awards really help and event rewarding sustainability. High profile involvement. Costumers are also pressing their customers. [Jeff] The whole cultural change, because historically the company was founded in 1885, the buildings over 100 years all on the other side, historically, our company was very low profile, we always kept our head low, we were always did well. We always took the behaviour of our CEOs, who were very low key, very pragmatic; they were following the crowd and making it as far as the crowd. People were watching what their peers were doing, and didn't want to step out of hand. We had a very difficult culture to change, which made us very cautious to sustainability in the beginning. I think once they realised that there are opportunities here, test it bit by bit, e.g. with the board, that's why it took 4 to 5 years. [Mark] Middle management, at least the ones who were exposed to the customers, and most of them are, once they saw customers talking about this stuff, then they became the drivers [external driving, being reactive, because of being a conservative company]. Once they understood the value, the word sustainability is hard, I wish there was another better word to use that people would understand better, once they got it, it's just a matter of sitting down, Rebecca tries to get that message out, they are the biggest advocates. [Jeff] What do you think the next step is? Everybody has achieved sustainability, what's really the next? I'm going to make a sustainability report for every site, or make a third party audit it, what are people

saying that it's happening next year? [Mark] to answer your question, where do we go? Providing the systems, we have an issue internally to try to address all that, we are involving HR, we are putting 101 metrics, it's getting that dashboard.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)?
   a) Do you think it is necessary to include it?
   b) Do you think the policies truly represent the culture and future of your company?
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.?

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be?
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?
   b) How are the people made to feel involved?
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Do you think leadership is important in the process? Why?

14) Is there someone in your company specifically in charge of sustainability?
   a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability?

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards?

A. XII Transcriptions of interviews from Peñoles' leaders

i. Octavio Alvidrez

1) Name: Octavio Alvidrez

2) Position held at your company: Executive vice-president of exploration, engineering and construction
   a) Since when have you been in that position 9 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? In the strategic plan, environment, society, metals prices, and social aspects

4) What role does Sustainable Development (SD) play in your company, if any? Very important, almost vital

5) How does your company take SD forward? Raising awareness from the top-down. Thinking of the long-term. Communicating through reports. Giving especial attention to environmental and social problems.
   a) How have your company's interest in SD issues evolved? During the last 10 years ago: by assisting to international reunions; contacting experts; through the council (the president of the company); the problem in Met-Mex; and other companies by losing businesses.
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. It is vital

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? 10 years

7) Do you think the process could be accelerated? Yes, through a stronger will of the leaders and raising awareness.
   a) How?

8) What, in your opinion, have been the drivers of SD in your company? Environmental problems, i.e. crisis; other companies; external factors, e.g. climate change; and the environment where we operate

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? Operative profile (of the company), ignorance and lack of information.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Use of technology; planning, and visits to companies in other countries (learning from others)

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
   a) Do you think it is necessary to include it? Absolutely
   b) Do you think the policies truly represent the culture and future of your company? Yes
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? New projects, codes of conduct, making it a requirement in some schemes

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Executive directors. All
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? Operative areas more than staff (offices)
   b) How are the people made to feel involved? Bulletins, day of the environment, annual report, conferences and presentations
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives? Yes, it is team-work

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: Advantages: Being the means and facilitators, it makes it flow as a waterfall. It needs to be 80% from top. Disadvantages: It may be considered as orders. Bottom-up: Advantage: Raises awareness. Disadvantage: It makes the change process more difficult.
    a) Do you think leadership is important in the process? Why? Yes, especially when they preach with examples.

14) Is there someone in your company specifically in charge of sustainability? Everybody
    a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? Supporting people in regards to SD, and participating in events.

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Visiting other companies and learning from their experiences.

ii. Mario Arrellin

1) Name: Mario Arrellin

2) Position held at your company: Finances and planning executive director
    a) Since when have you been in that position 7 years
    b) Since when have you been in your company 15 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? In the strategic plans. Some of the most important are the environmental and social. Some examples include a division which one of its main functions are to secure that Penoles complies and goes beyond Mexican and international legislations. There are areas focused on the communities that they have impact, i.e. look after the well-being of the communities.

4) What role does Sustainable Development (SD) play in your company, if any? As a mining/metallurgical company that is attacked by different external groups, SD has a high importance. We had a crisis in one Met-Mex, where high levels of lead were detected in the blood of individuals living close to the plant. They had taken some SD measures, but the crisis made them accelerate their efforts. They are making all the efforts not to have another crisis.

5) How does your company take SD forward? Monitoring about lead emission levels to be lower than Mexican and international levels. Other emissions, e.g. SOx, are also being monitored. Working the communities has a focus on making them self-sufficient, and not just being philanthropic, i.e. give money, because it creates dependencies. Internal communication to employees to create a SD mindset, e.g. recycling.

a) How have your company's interest in SD issues evolved? They have learnt from other companies that have had serious problems, social or environmental. They started in the 1970s. It intensified in the 1990s, where they made heavy investments, millions of dollars.
b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Internal and external. Specific external communication through annual report, published for the last three years. It complements the annual financial report

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? It is already part of the company's culture. It has taken them 4 years, due to extensive efforts. Any person in the company can say that he/she has read documentation about the company's SD efforts.

7) Do you think the process could be accelerated?
a) How? Mainly through communication

8) What, in your opinion, have been the drivers of SD in your company? Dedicate human and economic resources. There is a team dedicated to the SD. The team was created from the general director.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? Ignorance/lack of awareness about potential damages. "Why do something if we're not doing anything wrong?". Lack of time

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Communication and training. Only with communication. Creating a team to make SD a priority. Invest in human and economic resources to transmit SD knowledge.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
a) Do you think it is necessary to include it? It is compulsory to have it explicit. Because the company cannot survive if there is no SD plan.
b) Do you think the policies truly represent the culture and future of your company? Yes. They have dedicated much time to create them and make sure they are part of the company
c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? Motivation comes from economic incentives according to objectives and goals accomplished, in SD. They have developed evaluation metrics.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? All the operation areas, with some specialised teams, shared with HR. They try to make everybody accountable about SD.
a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? In some areas is not so

evident, e.g. finances. Operations areas are more involved/responsible. Support areas are not so active.
   b) How are the people made to feel involved? Through communication
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: Advantages: SD is important to high management. Disadvantages: Results should be perceived from the bottom-up. One person cannot evaluate what is done everywhere. Bottom-up: Advantages: Secure and communicate the results. Disadvantages: Perception that leadership is not on board. Feeling of abandonment
   a) Do you think leadership is important in the process? Why? Absolutely. To motivate the people, feedback, evaluate and recognise the efforts

14) Is there someone in your company specifically in charge of sustainability? HR, operations areas. Yes.
   a) Is that her/his only role? Yes

15) How do you think your position relates to Corporate Sustainability? Planning: make sure that SD is incorporated and explicit in the strategic plan, that it can be evaluated and followed up. Finances: make sure that the resources are available to fulfil the objectives

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Penoles is very strong in SD. Just continue what they've been doing.

iii. Mario Huerta

1) Name: Mario Huerta

2) Position held at your company: Corporate manager of environmental planning
   a) Since when have you been in that position 5 years
   b) Since when have you been in your company 5 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? SD is "enough time and having enough all the time". To search homologate economic aspects with human progress and management of human resources.

4) What role does Sustainable Development (SD) play in your company, if any? Governments, to me, is not an important player, they lack continuity, a lot of talking and little action, more planning than diffusion, many politics than are not taken to action. Companies are playing a more important role than governments, because they are realising than in a society that fails, we cannot make business. The focus of a company is still to make profits, more than the rational use of resources and social progress, however they are realising that making profits rests on these. SD is more relevant for companies that have natural resources as raw materials, because there is more pressure from stakeholders, than service

companies, because there is less awareness of environmental issues. SD could play a bigger role in Penoles.

5) How does your company take SD forward? We are aware that our company has environmental footprints and we are taking compensatory efforts.
   a) How have your company's interest in SD issues evolved? From environmental to social aspects over the last 15 years.
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. Both internally through newsletter and externally with the help of the sustainability report.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? 5 years or more

7) Do you think the process could be accelerated? Through various strategies. From the top-down. Setting strategic objectives. And linking performance to SD
   a) How?

8) What, in your opinion, have been the drivers of SD in your company?

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? A lack of holistic focus in operations. Keeping feuds. Some people considering being a fad and that it doesn't work. HR, finances and planning consider it to be foreign, not understood or linked to their activities. The information is not understood. Natural resistance to change. If it doesn't impact the bottom line it's not needed.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Through examples, and local activities.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes, otherwise it is not understood by the employees. It helps ground SD, driving the changes, values, sense of belonging, and makes people belong to the policies.
   a) Do you think it is necessary to include it?
   b) Do you think the policies truly represent the culture and future of your company?
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.?

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? It should be everybody, though in different ways. It should become part of every day activities.
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?
   b) How are the people made to feel involved?
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? They are complementary. Top-down makes it more efficient.
Do you think leadership is important in the process? Why? It drives the strategic plans, making it explicit, creating indicators, giving rewards and incentives. Though they should not be limited by the short-term markets, which are not working. They have a longer term perspective

14) Is there someone in your company specifically in charge of sustainability? No
   a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? Identifying trends within the mining and metallurgic industry and relating to other industries

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? I would put more attention to R&D to develop more environmentally friendly processes and solid waste discharges. Search for more symbiosis with other industries. Create more explicit SD policies. Create synergies with other companies. Make more sustainable communities.

iv. Rafael Rebollado

1) Name: Rafael Rebollado

2) Position held at your company: HR director
   a) Since when have you been in that position 6 months
   b) Since when have you been in your company 7 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? Market, social, environmental and technological aspects analysis to develop a strategic planning, which is the base for operative plans. Every person is oriented towards the strategic plan.

4) What role does Sustainable Development (SD) play in your company, if any? Very important role. It is being reported in an annual report, which complements the annual financial report. Penoles has, for over 50 years, been involved in SD issues, e.g. helping develop communities where they operate. Support communities' activities, e.g. health, sports.

5) How does your company take SD forward? Reporting.
   a) How have your company's interest in SD issues evolved? Last 5 years have been crucial, because the efforts have been put under the label of SD. More documentation, recommendations and guidelines are available. In regards to the mines it has evolved from social aspects to environmental ones. In metallurgical plants, located in cities, started with environmental aspects, and then evolved towards social ones.
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Definitively.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? About 80% of the variables that could be measured under SD have been part of the culture for many years. The rest has been adopted over the last 7 to 8 years.

7) Do you think the process could be accelerated? Crises help to accelerate, e.g. the problems they had in 1998. Formalizing reportability (what is not measured is not managed)
   a) How?

8) What, in your opinion, have been the drivers of SD in your company? Normativity themes and legislation. Society's awareness about SD

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? The individuals who conform the organization. "There are no barriers or opposition towards SD". In the past, maybe ignorance, lack of information, lack of ability to face a problem. Effectiveness in the implementation

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Manage the change. Adapting external models.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes.
   a) Do you think it is necessary to include it? He believes yes
   b) Do you think the policies truly represent the culture and future of your company? In a way yes. They frame the life of the company
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? Wages, training and capacity building. There are no incentives

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be?
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? Mainly operations.
   b) How are the people made to feel involved? Through the operations and the strategic plan. Presenting SD to the people
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives? Yes

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: Advantages: Easier, clarity, resources availability. Bottom-down: Disadvantages: The is no support or resources
   Do you think leadership is important in the process? Why? Yes. SD starts from the top

14) Is there someone in your company specifically in charge of sustainability? Various
   a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? Making the report available, and social development (within the company)

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Keeping on what is being done. Making all the employees responsible. Improving information to the personnel

A. XIII Transcriptions of interviews from non-case study experts

i. Marcel Engel

1) Name: Marcel Engel

2) Position held at your company:
   a) Since when have you been in that position
   b) Since when have you been in your company 9 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered?

4) What role does Sustainable Development (SD) play in your company, if any?

5) How does your company take SD forward?
   a) How have your company's interest in SD issues evolved?
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)?

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? It is not possible to quantify in a generic way. It has to be done in an individual basis. In time sustainability has more an important factor to the companies, i.e. the understanding and awareness, of the value to the company. The driver or motivation to different companies, different countries, different regions has been very different. In Europe, for example, it has been regulation that has driven the companies to become leaders in environmental issues. In other cases, it has been customers' expectations, mainly for companies that have products of massive consumption. In other cases, depending on the institutional structure of the companies, have been the shareholders, especially when there are institutional shareholders, e.g. pension funds. In other cases it has been the CEO with a strategic vision, to mid- and long-term. There is a big difference depending on the company's structure, if the CEO tends to be the owner he/she has more freedom to implement changes from top-down, in opposite to the CEO who, as is the normal case, is the employee (the first employee).

7) Do you think the process could be accelerated? Two aspects: 1. carrots and sticks, what brings an acceleration to the implementation of sustainability changes has to do with the of sustainability in many cases it has to do with existing regulations and their enforcement, change that comes generated from external pressures, e.g.

regulation or expectation of society and consumers, though in general consumers attitudes tends to be less radical in practice that in rhetoric. Internal changes has to do much with the vision, the perspective, the strategies, in general many of our members, many of them very old companies that have been operating for more than 100 years, their idea is not only to exist for the next 5 years but on the long-term. One of the worst enemies in the application of sustainability in companies is short-term perspectives, in many cases is determined by the necessity to generate profits for the shareholders in the short-term in the stock markets. This makes you lose the mid- and long-term challenges, many of them linked to sustainability. [Me] do you think education tools are important to change behaviours?] [Marcel] In a less enthusiastic way, tools like Chronos, are very important to raise awareness among employee, so that they take sustainability factors in consideration in their professional life, and add them to the normal teachings learnt at the business schools. sustainability, in itself, is quite abstract, but if you manage to understand the risks and opportunities are related to sustainability that can help to raise awareness in the future company leaders. It shouldn't be focused only on optimising production processes in the short-term and forgetting about the strategic challenges that can be in the mid- and long-term. These challenges can be opportunities to be generated, forecasting some trends, and eliminating risks, e.g. asbestos, which has taken some companies to bankruptcy that didn't see it as a risk. The same with the climate change, emission of CO2 have become a competitive factor, which was not a few years ago. Companies that year ago saw sustainability even as a possibility to become an opportunity or a risk are better prepared than those that didn't, even if those that didn't might have got larger short-term profits. [Me] Do you see that companies when you speak about sustainability have a more environmental or social focus? [Marcel] For me neither CSR nor corporate sustainability please me a lot, I prefer to speak about challenges, risks and opportunities and bring it to pragmatic things, e.g. climate change, bottom of the pyramid in the future. When you speak about sustainability, it still has a large environmental connotation. Even if from a conceptual perspective it's not about the environment, but about finding the balance among the economic, environmental and social pillars. The other term commonly used is CSR, a term that includes environmental aspects, but people think only about the social aspects. Another problem with CSR is that people generally relate it to philanthropy. We, in the WBCSD, give to both concepts a competitive focus, linking it to the core business of the company and add more value, not just philanthropic activities.

a) How? First of all there is not a one-size-fits-all. The CSR of each company is defined in accordance to the industrial or country context where it is. We recommend that the company defines its own values. After it should link it to generation of value to the shareholders and society, but being in harmony with all the stakeholders. There is a need, perhaps, to improve the company's image, generate value in that way, or more practical ways, such as employee training, create a more positive environment, and of risks, talking with stakeholders to identify the challenges that might appear. We have seen that CSR has become overloaded in the expectations towards the private sector, on the role that companies should take. We are trying to identify what is the acceptable role of companies, but also where are the limits. Companies should not substitute governments or social institutions.

8) What, in your opinion, have been the drivers of SD in your company?

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? The biggest challenge is to try to incorporate sustainability into the conscience of people, specially in line management, that is used to pragmatic and short-term things, and sustainability doesn't have an immediate impact in their every day activities. A culture of change can be generated by raising awareness, but at the end of the day, for that to permeate into the company you need to find the way that it becomes part of the performance and awards for each individual. It needs to be link to specific things, e.g. in some oil companies the awards for the leader of a subsidiary depends on their capacity to reduce greenhouse gases. Maybe it's because my background is in economics. I think money helps change the mind of people, line managers tend to think in pragmatic economic ways. In a more international level, there has been nothing more effective to focus the mind of companies and countries in sustainability issues like the raise in prices of oil and natural resources during the last years. In China, whereas 10 years ago the impetus was put on growth, today they see that one of the limiting factor for the growth of the country it's its capacity to access enough energy and natural resources. Now they are talking about the circular economy, trying to apply the eco-efficiency in energy and natural resources. Money and economic incentives are, macro and in the companies, fundamental for changes. [Me] What do you think about the difference between eco-efficiency and eco-effectiveness? [Marcel] They are inter-related, and need to be linked to practical activities. For example in climate change we know that the greenhouse gases emission are not likely to diminish in the near future, so we need to mix different strategies that satisfy different interests, China and India will not accept to stop growing for the good of the environment. Eco-efficiency can help in the short-term to increase the productivity levels. In the mid- and long-term other alternatives need to be found, e.g. technologies like renewable energies, or institutional changes, but that takes a long time. At the moment, there is a large installed capacity of plants, e.g. nuclear plants, with a long expected life, i.e. 40 years or so. These won't disappear tomorrow, technological change needs time, eco-efficiency can be a useful tool. [Me] do you think technological change should be as it has been or does it need to be complemented by a socio-cultural change? [Marcel] It needs to be complementary.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? [Me] You have mentioned some strategies, like raising awareness, incentives, do you think there are others? [Marcel] Training, restructuring, i.e. forming new teams with line managers and people specialised in sustainability; leadership is essential, you need the support of the CEO to generate changes.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes. Each company needs to formulate its values openly, and one of them needs to be sustainabilty. It allows the company to position itself more proactively in society, instead of waiting for society to fix the limits to the

company. We ask our members to engage explicitly sustainability in their annual and sustainability reports.

a) Do you think it is necessary to include it?
b) Do you think the policies truly represent the culture and future of your company? It is very dangerous for a company to do it only for PR. Large companies have a large threat that NGOs might realise this, making it worse for the company than if it wouldn't have done anything. If the public engagement is not backed up with actions sooner or later it might fail. Though I cannot generalise for all the companies. Companies need to link sustainability with value generation in the short-, mid-, and long-term. For example the case of GE. Credibility depends on how the companies can make the link between sustainability and value generation of the company. Companies are there to make products and processes to satisfy the needs of society and generate profits, they are not entities focused only in philanthropic activities.
c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? We are seeing a development. In the beginning it used to be the managers of EHS which was quite isolated within the companies, in addition the CEO. It is essential to involve people such as the CFO otherwise it doesn't permeate throughout the company. Companies are seeing more the sustainability agenda linked to their economic agenda. There are more line managers and not only from PR, communication, or EHS. People from operations are in charge of technological innovations.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? There is a trend to involve everybody. One of the ideas behind Chronos is to raise awareness throughout the entire company.
    a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? In some cases it is linked by fixing some group or individual goals. Some competitions. Some indicators that allow to measure individual or group performance, e.g. energy or paper usage. It is not always possible to measure, it is specially difficult in the social aspects. Linking with communities.
    b) How are the people made to feel involved?
    c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? They need to be complementary. Top-down: Advantages: Disadvantages: Ideas might remain as a utopia and not translated into action.
    Bottom-up: Advantages: Disadvantages: Very difficult without top support.
    Do you think leadership is important in the process? Why?

14) Is there someone in your company specifically in charge of sustainability? The CEO is the general representative. Some are more or less involved in representing sustainability proactively. We have seen in the last year a raise in number in sustainability manager/director. In the 90s, sustainability used to be about the

environment. Traditionally it used to be the EHS manager. The focus has been changing towards social aspects. Some have created a CSR manager position and added the environmental aspects. Others have kept it separated. For other the social and sustainability issues are dealt by the government relations and public affairs. The trend is to create the different links in one manager position.
a) Is that her/his only role? It depends on each company.

15) How do you think your position relates to Corporate Sustainability?

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? The first thing would be the sustainability impacts to my company, what are the possible risks, what are the opportunities and develop mid- and long-term scenarios including sustainability. Eliminating the least and betting the more feasible. I prefer to talk about risks and challenges linked with social expectations, environmental challenges, and new economic opportunities that might not be so clear right now, than about sustainability. If you define sustainability independent of your bottom-line, as an additional costs, then at the first economic crisis you would eliminate the non-essential things. But if you define it, as we see it, as part of the value generation, taking into consideration economic and social aspects, then you can't separate them even during a crisis. Some say that during a crisis is the best time to reshape a company and look for new niches that before were not clear.

ii. Scott Noesen

1) Name: Scott Noesen

2) Position held at your company: Director of Sustainable Development
   a) Since when have you been in that position 8 or 9 years
   b) Since when have you been in your company 30 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? We talk about the triple-bottom line and we reference the TBL, economic prosperity, environmental stewardship and CSR. The environmental stewardship, because we are a chemical company, we often understand what that means. CSR is a little tougher, but it's, I say: it's what you make, what you take, where you live, and who you are. The social responsibility component is about your stakeholders, the communities where you live in, the employees, society at large. CSR is also about the products that you're making and the problems you are solving in the world. We look at the TBL approach. It's interesting, CSR in Europe tends to be equivalent to sustainability. Here we think CSR is one component of sustainability, but that is debatable. In fact we used to call it SD but now we are talking about sustainability. SD, the way we look at it, is the Brundtland definition, the big picture, how we stay in this planet and how we use resources in an effective way. Sustainability, or corporate sustainability is, in our case, what can Dow contribute to SD. That was an important distinction for us, it was helpful internally, because sometimes, particularly with middle managers, when you tell them about SD problems of the world and all that: oh, gees, you're going to solve world hunger. We have a contribution to make, and that's what that's about. That

has been in the last couple of years when we have progressed our thinking. The other thing about sustainability is not an end point. I can tell you what the more sustainable activities are. I can tell you what the less sustainable. I can't tell you what sustainable activities are. I don't know what that end point is but I know the path and the trajectory that is helpful.

4) What role does Sustainable Development (SD) play in your company, if any? The easiest way to answer it is with the vision of the company. The vision of the company is to be the largest, most profitable, (and both of those are pretty well understood), but also the most respected chemical company in the world. In fact the last piece respect from our stakeholders in where sustainability comes in. So sustainability is about earning the respect of all our stakeholder, not only shareholders, but employees, communities in which we operate, society, civil society represented by NGOs. We don't think we can achieve our vision without having a well defined sustainability initiative. [Me] What does the competition think when you tell them: we're going to be the largest one? Oh, they say the same thing. Actually, you look at Dow, DuPont, BASF, I can say we're more alike than disalike [sic]. I think we can all argue between us and BASF, depending on how you count the numbers, if you include BASF oil and gas, they are the biggest, if not we are the biggest. Those are aspirational goals, the fact is that there is room for a lot of people to play. I don't think we worry too much about that. [What about oligopolies? Do you worry about that?] If you look at the chemical industry, even though we may be the largest, there are so many other chemical companies in the world that we don't worry about control, we worry about how those small guys are going to act, and if there is one upset there in our industry, we pay the price. So, part of what we do in our trade associations, is to help, you know, sustainability is good for the whole industry. To give you an example, an initiative we started in China, we are very proud and DuPont is, about their safety record and safety performance. Also our pollution prevention activities. We initiated a programme with the state environmental agency in China to help transfer our knowledge to SMEs there, and we do that to our best interest. This industry, we had some problems, e.g. Bhopal. We can't afford to have those. By definition we deal with some nasty chemicals, we have to manage those well. Actually, the larger companies do a pretty good job, although BASF had an issue down in Texas not long ago, blew up a plant. It would be a good question, what percent of market share do DuPont, Dow, BASF and DSL, I still think it's going to be less than 40% of the total chemical business. Do we have positions of influence in trade associations? Yeah. It's more co-opetition. Particularly in the chemical industry, because we have so many vulnerabilities. In the next couple of week we are going to start a WBSD chemical sector project, a leadership initiative with 11 companies committed including companies in Japan, US and Europe. The objective there is to raise the bar of performance collectively. It's not going to involve trade association, they have another objective, i.e. to raise the floor, make sure everybody is operating at the same, minimum, standards. The leadership initiative is more of co-opetition. In the end, we all have different product to sell and we are going to compete in the marketplace.

5) How does your company take SD forward? The goals are how we are looking at the future. We break the goals into three components: 1. Global footprint, 2. Product stewardship and innovation, and 3. Local citizenship. We think global

[footprint] we have two goals: energy and addressing climate change. Under the product we have three goals: 1. product safety assessment, getting more of the information to the public about the testing of our products, e.g. the EU REACH programme, 2. sustainable chemistry, developing new products that are more sustainable, because they use renewable resources or less toxic materials, or they solve a fundamental needs, 3. products that solve the world's challenges, e.g. clean water, sanitation, health, low cost housing. Two in the local citizenship: 1. contributing to community success, it's interesting for Dow, we are 109 years old middle Michigan is where Dow is founded a town of 38,000, in almost all the facilities we have across the world we tend to be a fairly large player in a small community, not 100% but mostly, and we think with that comes some responsibilities. So, one part of the goal is contributing to community success, so we are going to be doing sustainability assessments in the community, what does midland Michigan need to prosper in the future, and how can Dow help deliver, and what is it we can't do, what is best left for governments. The crisis of boundary condition. It gets even worse when you go to developing economies, we have some huge growth ambitions in China, but we are going to expected to be players in the communities, and even in infrastructure development. How much of that can you afford to do? We still, at the end of the day, are a for profit institution. We had some success in certain areas, e.g. Germany after the reunification. The German government was willing to give Dow millions of dollars [to redevelop], part of that was our commitment to the community. The start of that was getting rid of half the people, but doing that with a long term view to build their community up. And then there was an unbelievable amount of remediation. And then putting all new Dow technology. We started in 2000, it's unbelievable now, it's vibrant, it's growing. The community is very happy with Dow there. The final goal is local human health and the environment. These are goals that look a lot like our old one, like reduce emission, water consumption, but the interesting thing about those is that in 1996 we set corporate goals. What we are saying here is each that we'll work with each community on the things they want us to work most. It could be noise reduction, it could be flaring, emissions, energy, jobs (the social element). Although, the social elements comes more under the contributing to community success. We just introduce these goals. A lot of people don't know how we are going to do any of these. They are 10 year goal. Some might be considered more stretch than others, but this is a company of engineers. Engineers like targets. What are the other elements of sustainability? Corporate reputation, we talked about that. As we rolled out the 2015 goals, we started a new reputation campaign, called the human element, a recognition that the success of the company relies on humans but also solving human problems. It's based on the fact that there is a missing element in the periodic table, Hu. It basically says that as engineers we are very good at bending molecules and distillation and all the technical stuff but there is a human element. It's important that you integrate your sustainability goals with your reputation activity. There is ethics and compliance, things like a code of business conduct. Part of my job is to teach people internally that there are a lot of elements of sustainability that we work on everyday, some of which we take for granted. For example the DJSI, I get two dozens request to fill in questionnaires every year. When DJSI looks on ethics and compliance, they look on code of business conduct, but also what sort of policies do you have internally to handle companies, e.g. employees, do you have a mechanism for settling grievances. A lot of people go to the broad

definition of SD, solving the world problems, but there are social dimensions and stakeholders. Employees are very important part. We do annual surveys on employees, and we ask them about their satisfaction with the company. [Me] does it happen often that you have to fire employees? It's tough, very tough. We had two major sessions when we had to let people go. You do it with dignity. You give them opportunities to go elsewhere, provide training and skills set. You give them a decent severance package. But it's a reality. We are in a very competitive world. We make a bridge between six sigma and sustainability. Six sigma is about eliminating defects. If you look at emissions, those are defects, product going out the stack. Taking a six sigma approach to our goals has been very helpful for us. We found a good linkage between not only six sigma but designed for six sigma, let's design it from the start and opposed to finding defects and eliminating them, let's not create them in the first place. In our old goals we had goals like energy efficiency, waste efficiency, wastewater. Achieving those goals was critical. We used six sigma for that.

a) How have your company's interest in SD issues evolved? It started back in the late 80s, Bhopal's accident was a wake up call for the industry. The creation of responsible care, which is the industry stewardship programme, started in Canada, quickly went to the US. It's migrating across the world now. It started from an environmental approach. Sustainability for the company was doing less bad. It has now progressed with the introduction of these new goals to doing more good, that is about product innovation. 80s was by and large compliance, responsible care was an industry code and we wanted to comply with those codes. 90s was the age of eco-efficiency, let's reduce our energy, water consumption per pound of product. 2000s is about innovation, eco-innovation, that's about growth and creating value from new business opportunities that are more sustainable by design. Mostly product innovation. 90s was about operations and processes. Moving from process to product. Also in that way moving from environmental issues to environmental, social and economic issues.
b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. How we do it is different (internal vs. external) but the message is the same. We have an ambition to have internal ambassador to deliver the message externally. That's one vehicle, not the only one.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? I don't think it's embedded yet. The last year we had a new CEO. Over the last 15 years we had 5 CEOs, not that they had anything against sustainability. The new one is the first one who saw that it is absolutely critical to the success of the vision of the company. We all have four strategic themes of the company, one of them is set the standard for sustainability, low cost, planning, invest for strategic growth, and create a people centric culture. One out of four addresses specifically sustainability. That has only been since he has come on board, 2 years this November. Introducing the goals took one year and a half, because we did a lot of external stakeholder dialogue about what they expect the company to do. I also manage our corporate environment advisory council (CEAC), our external thought leader. We bring them twice a year. We talk about strategic issues important to the company. The last two years we spent a lot of time on the goals.

I would say, right now, we have 25% of employees that understand the triple bottom line. You'll never have 100%, to get to 50-60%. The number one thing I have to do is sustainable communication plan/education plan. We've been spending a lot of time externally, a lot of time with individual functions in the company. Part of my chores for next year and a half – two years is to develop an education plan. Actually, we've had some success with Chronos, we bought 10,000 but used only 1,000, when it was ready to be introduced in 2003 we had near death experience, our debt-equity ratio was 65%, the company was about ready to go belly-up. The last thing people wanted to talk about was long-term training and sustainability issues. We have our own online learning programme, called learn at dow.now. We did was a combination of run our training, then Chronos and come back online to do the test in relevance to Dow, because Chronos is fairly generic. The Chronos' section on personal values is very important. We didn't make Chronos mandatory. There are other things we do mandatory, for instance, every person in the company has to do the training for the code of business conduct. We may get to the point now that's where we're going to go next, but even that it's one thing to mandate, and it's another thing for people to understand it and live the principles. Employees are going to be compelled, like senior management, with the business case. The business case is, in addition to hard dollars, about reputation. There are a lot of elements to the business case. We have a future business leader in the company, try to identify folks, early in their career, who are likely to be promoted, get into senior positions and give them special experiences. The new generation, early to mid 20s, have a different world view.

7) Do you think the process could be accelerated? A signal from the top helps. Linkage to existing programmes, i.e. reputation, six sigma, community based programmes. Execution on the goals, show progress on the goals. Continuing to build the business case. Letting all the employees know about success stories (we're not very good at that in Dow). The reputation thing is very interesting for us, we're spending more money than we ever had before on advertising, positioning, the benefits of our products, maybe it's because we're from the mid-west that has a special culture, a culture of not bragging but delivering our commitments. That's where Dow and DuPont differ. DuPont has a marketing orientation. I call it the talk-do ratio, it's something you have to manage very carefully, 'cause you can get screwed up on both sides. If you talk more than you deliver, your credibility goes down. If you deliver a lot but you don't talk about people don't understand the benefits.
   a) How?

8) What, in your opinion, have been the drivers of SD in your company? Leadership. The relation with the WBCSD. Our culture of a big company in a small community. Selling it as a business case, e.g. spend 1 billion dollars but save 5 billion on the long term, most due to raising energy prices. Externalities, as CO2, for climate change, we now have carbon credits and tradable permits. Reputation, the industry in general does not have a good legacy reputation. .

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? Two: double discounting. 1. The classic financial

discounting cash flow. The problem is sustainability requires you to spend money up front for longer term benefits. The cost of capital for a company and you do a discount and cash flow analysis, if something happens far away in the future its value is about zero. We use a 10% discount rate for capital. People get reluctant to do things that have future benefits. The other is mental discounting: You say this is going to happen, I don't believe you. We have a disagreement. This leads to another barrier: short-term rewards. In the 2005 goals we started to make a lot more progress when senior managers' performance awards was based in part on the performance of those goals. Scorecards in general can be a barrier. Investors are more worried about the quarters performance. Our main stream investors, Merryl Lynch, Goldman and Sachs, don't see that relationship, they don't see the business case for sustainability

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? The goals are indicators of future performance. Rewarding and compensating managers for achieving those goals helps. Even though, there are leading and lagging indicators. If you reward performance on a leading indicator you automatically make progress and your overall lagging indicator, that helps take care of the time scale differences. It helps to have a leader who says we're going to make this happen, but having said that there are companies that have had that but have failed. For example, Interface Ray Anderson, an almost evangelical approach to sustainability. He didn't bring his employees along for the ride. So, you have to make it personally relevant to the employees. Make it compelling to them. Help educate through moral arguments. Sometimes the way to get at it through your employees is to bring the family along. I have not figured out this issue of financial thinking. We are always going to be challenged to provide quarterly results. If you look at climate change and risk, even the mainstream analysts are starting to see that these risks could be material. We could get around it through the risk route. But only so much of that. We're not going to scare you to go into sustainability.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
    a) Do you think it is necessary to include it? Yes. It's not only necessary to include it but it's necessary to be specific what you think it is.
    b) Do you think the policies truly represent the culture and future of your company? It is fairly representative. Because of our roots. It's a pretty natural fit in our culture.
    c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? It's one thing when you have a NGO saying you have to be green, it's fully another when their current customer says Walmart go in this direction and we want to go with them, can you come us?
    Our code of business conduct is another example to manage some of the sustainability issues.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Historically it started in the EHS function, because of our environmental roots. Public affairs gets involved from a corporate brand and reputation stand point. Operations. Community affairs is

actively involved. A group that hasn't been involved but it's starting to because of the goals is R&D. The legal folks have been involved with their compliance, but to be honest, I wouldn't call them one of the progressive elements of sustainability. Senior leadership has been involved, specially the CEO office.

a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? EHS and public affairs.
d) How are the people made to feel involved? Chronos training applied to Dow's situation could help. Asking how does this impact you in the company. We haven't done a good enough job yet. We've been at it for 10 years, but getting total buying and cultural bind we're not there yet.
e) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? It doesn't matter where you start. What matters greatly is that you get to the middle and to the other end quick. You can start in a bottom-up approach but if you don't have the support of senior management, the activities will be seen as skulk works, will be shot down fairly quickly. Conversely, if you all you have it the top but no systems in place, it becomes more ethereal and less actionable. The critical place in our company is the businesses vice-presidents buyouts. Even though we got sign up with the executive committee then it's going to happen by itself, no? No. In our company we have true believers, those who are willing to believes, and those who don't get it. You have to make a pact. Those that are true-believers, the pact you make with them: you have to help me, you have to become an advocate. Those that you don't get it the pact you make with is to recognise that they don't get it and say: will you just get out of the way? You don't state that obviously. But you basically say, I appreciate the fact that you don't get it but there are others that do, we're trying to change this company. In some case you are going to force them to do things, but you leave them alone. Because to try and convince them otherwise you'll get frustrated. Middle management is absolutely mandated to produce results on a quarterly basis. You have to play with them a little bit. You have to recognise that they have short-term constrains. Top-down: Advantage: Disadvantages:
Bottom-up: Advantages: Disadvantages:
Do you think leadership is important in the process? Why? Yes. Leadership by example (not direction) Make people think it's their own idea

14) Is there someone in your company specifically in charge of sustainability? Yes (himself)
a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? Coordinate efforts. Programme management.

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? See sustainability not as a thing but as a philosophy. Putting the right programmes in place. Implementation, e.g. slow money (long term business opportunities). Create internal corporate fund.

iii. Sheila von Rimscha

1) Name: Sheila von Rimscha

2) Position held at your company: Senior associate at Cambridge Programme for Industry, Cambridge University
   a) Since when have you been in that position 2 years
   b) Since when have you been in your company 2 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered?

4) What role does Sustainable Development (SD) play in your company, if any?

5) How does your company take SD forward?
   a) How have your company's interest in SD issues evolved?
   Sophisticated and knowledgeable. Some basic ideas (employees). 3 to 4 years but not in all cases. It is becoming mainstream. Some companies lack of knowledge.
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)?

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? 5 to 10 years.

7) Do you think the process could be accelerated? Depends on profile. It may be provoked by external actors, e.g. media. Making the use of Chronos mandatory and combining it with workshops.
   a) How?

8) What, in your opinion, have been the drivers of SD in your company? Negative publicity; positive opportunities, e.g. finding market niches; SD group; senior management; training HR people.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? Cynicism; considered a premium; finance people who want to make money fast; being considered as a foreign concept; "What's it got to do with me?"; cost of doing

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Task force; groups of people; getting together influential people, e.g. Business for the environment; "We're all doing it"

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
   a) Do you think it is necessary to include it? Yes. Using indexes.
   b) Do you think the policies truly represent the culture and future of your company? It varies from company to company
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.?

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Finance is a typical example of who is not involved
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?
   b) How are the people made to feel involved?
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Both. Top-down advantage: It leads to think "nice company to work for". Bottom-up: Grass roots needed
Do you think leadership is important in the process? Why? Yes. They can make it happen

14) Is there someone in your company specifically in charge of sustainability?
   a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability?

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Make people ashamed of driving a SUV. More marketing, SD has a bit of negative image.

iv. Dawn Rittenhouse

1) Name: Dawn Rittenhouse

2) Position held at your company: Director of Sustainable Development
   a) Since when have you been in that position Since 1998
   b) Since when have you been in your company Since 1980

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? They are considered in all sorts of things that go on, if you go way back in our history, DuPont started as a black-powder company, with a very strong focus on safety. There were really business reasons for that, if you blow away your people and your assets you don't stay in business very long. From the very beginning non-economic things like how to make sure the facilities were as safe as possible, how is it designed, built, and operated as safely as possibly was a part of what we did from the start. If you also go back into the history, we were one of the first companies in the world to provide benefits for families of workers killed, we were the first ones to set up a pension, we had lots of things that had been integrated on how we have done business over two centuries. I think in many ways those things are considered in all our decision making processes. Nothing is made on a purely economic decision. Environmental issues are a key thing in any decision, whether development of a new product, design of a new plant, or where we are going to

operate, those are critically important to... environmental and safety are critically important on how we make all of our decisions.

4) What role does Sustainable Development (SD) play in your company, if any? The mission of the company is sustainable growth, which we define as creating shareholder and societal value while reducing our environmental footprint. I would say sustainable growth is fundamental to the company. [Me] Some people say it shouldn't be sustainable growth but development. [Dawn] I think SD is a broad, kind of societal thing, I think in some ways you have to take it down, so what does it mean to business? For us it's important to have economic value, because we are for profit. We have to return to our shareholder or we will seize to exist. We have to be adding societal value and that comes from the way we operate, but also delivering products and services that society really needs, which touches on the development side. How do you deliver those products and services to one billion richer people in the world, as well as how are we helping the other 5 billion in the world meet their needs. And then obviously, reducing the environmental footprint in whatever we do, and that includes not only our own operations, but also how are we developing products and services that help our suppliers, and our customers, or consumers have a smaller environmental footprint.

5) How does your company take SD forward? We started on the environmental side by setting very specific goal, which were mainly around our environmental footprint, that was around 1990, when our goals were reduce air carcinogens by 90%, reduce toxics by 70%, we made all hazardous waste steep dwelling. After we made our goals for the year 2000 we then transition to a new set of goals which were on reduction of 65% of our greenhouse gas emissions, total energy usage is flat versus 1990. 10% of our energy is from renewable resources. 25% of our revenues is from non-depletable resources. How do we solve these goals and track them so that we'll meet them? What things need to be done? Moving forward to make sure that we are at least meeting them, if not exceeding them. We are also now looking at what's the new generation of goals, around our products and services, and having them add value throughout the supply chain. [Me] Do you do it by training people and raising awareness or more on the technological part? [Dawn] There's a lot of thing that have to go into, obviously we have to train people and there a lot of different ways that we do that. We sent some employees to external training classes, like the Prince of Wales, and the Sustainable Life Academy, and the Kingston Leadership Forum. We also have some internal training, like our stewardship to sustainability that a lot of people go through. We do training, we have sustainable growth reviews with all the businesses. Every year we sit down with every business and we go through what are their sustainable growth challenges and opportunities. We obviously issue reports, which means that we have to collect information, and once you put something in a report and publish it, people are inclined of you improving it, so that becomes part of how we move things forward. We have a sustainable efforts growth awards programme, where every year we recognise the top 12 accomplishments. In turns of us becoming a more sustainable company, we use external people to come and judge those awards. There's loads of different ways that we are trying to move the programme forward. We started off because our environmental footprint was our biggest challenge, then go on into the more broad sustainability.

a) How have your company's interest in SD issues evolved?
b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? The report is done internally and externally. Internally we have something called our Netnews, which is our daily newsletter to employees, and we try to include as many sustainability things in that, examples of what DuPont is doing internally, how we can make things better.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? I think this is a long-term process, sustainability is a fairly complicated concept for people to understand and figure out how impacts and so, unlike safety which everybody can claim and understand how their job relates to. Sustainability is a much bigger challenge, although we've been working on this 15 years, I still think we have a long way to go before it's really well embedded in all of our businesses, and all of our different processes.

7) Do you think the process could be accelerated? We're working on trying to figure out how to do it. How can we accelerate it?
a) How?

8) What, in your opinion, have been the drivers of SD in your company? It really started with our environmental footprint. We were the largest producers of CFCs in the world, and when the toxic release inventory came in the late 1980s, we were also the largest polluter in the US. I think those two things were huge drivers for DuPont, even though we were in compliance with all laws and regulations, what we were doing was clearly not acceptable to the public and we needed to change the way we did. Greenpeace was scaling our business and throwing banners that said "DuPont was destroying the ozone layer", newspaper were saying "DuPont was the number one polluter", it didn't make any difference when we said, "hey, it's all legal, we're in compliance with all of our permits.", the public looked at DuPont "we don't want a company like you around". We want to be around, we believe we can add a lot of value, but we need to change we operate. [Me] What was the reaction of shareholders at the moment when you decided to change? [Dawn] That was back in 1990s, my guess is that the shareholders saw things like being the largest CFCs producers as a liability, so a commitment to get out of that and find alternatives was viewed as positive. Certainly, from the employees' point of view, who want to work for a company that is the number one polluter or destroying the ozone layer. From the employees' stand was very positive what we set out to do.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? I think one of the biggest challenges for us is that we have a lot of installed capacity, so if you say we want to develop even new processes to make products that we have already, or new products, we already have billions of dollars in capital assets and in many cases we cannot afford to roll all those away assets and start again. How do you make this transition that it makes sense for the shareholders as well as the environment and society. [Me] do you see that some people are not involved into SD? [Dawn] We'll always have

some people in a company where 65,000 people are working for. Just look at the argument in the US about climate change. Most of the scientific community says it does, but it's still not agreed. My feeling is that you'll always have some people who don't agree about this issue. Hopefully, there will be enough the way the processes are put together. In a company those people won't be able to have a major impact on how you're actually moving forward. [Me] was awareness a big issue when you started dealing with SD? [Dawn] It's very hard to explain it to people. It's a hard concept. People fundamentally get it when you sit down and explain it to them, they are very supportive, but it's a lot of one-on-one conversations, so it takes a long time for people to get it. Unlike something like the goal zero for injuries, waste and emissions, and that one was fairly easy. Sustainable growth doesn't have that kind of ability, we can't explain it in a short, concise way. A lot of time it's about choices, we can use less water but a lot of time requires using more energy, we can use less energy but more water. Trying to help see through, how do you make those choices and decide in any given, what's the best solution? [me] Is there a problem to put into the understanding and then passing it into the every day activities? [Dawn] Yes. It's a difficult concept. If I'm an operating what does the Brundtland Report definition mean to me? It's really hard for people to bring it down to their jobs.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? Partly trying to find the positive stories and get them out to show people how there is real value for the business as well as hard and soft financial numbers. Making sure we are collecting the good examples and communicating them The other way is how do you make sure, many people have had the opportunity to really get thinking about it, as fast as you can get as many people trained

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
   a) Do you think it is necessary to include it? Yes. If that's what you want to do, you have to be able to communicate to people so they know.
   b) Do you think the policies truly represent the culture and future of your company? We're getting there, I think that this is an ever green process, I don't think we have it perfect right now, I think we are still learning. The important part is as we learn how to do things better and what needs to be done differently, our policies, and practices get upgraded and improved.
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? We do reporting, financial and sustainability based on the GRI. We have the sustainable growth efforts awards, which recognises at the corporate level the best accomplishments globally. We have other programmes in place that help support the kind of activities, like environmental performance and improve diversity performance, and other things part of sustainability. I think we are trying to look at each of those systems and say how can we use them to move our agenda ahead.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? In a perfect world, everybody in the

company would be involved. It's all the little decisions made everyday that add up and make big differences. What we have is small groups that chip in the idea to the corporation. Our goal is that everybody from CEO on down is thinking and involved in sustainability. I don't think there are any departments, but maybe places in departments, for example in R&D there are some people who are very interested in looking at new opportunities and solutions related to sustainability stuff. There are others that are not very connected, that we need to reach out and connect to sustainability.

a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? No, there's definitely some parts that are more interested and engaged than others. For examples, the business that used to make CFCs now makes HFCs, they are really looking at what's the next generation, how are we going to solve this society need for coolness for refrigeration and air conditioning in a way that has less impact than the current solutions do? They're really involved because of the threat of disappearance. Some other business haven't had to deal with those challenges, they may not see that. There could be concerns about the long-term viability of their businesses. There is variation depending on the different businesses.
b) How are the people made to feel involved? We have the sustainable growth efforts awards open to everybody in the company. We have meetings that anybody can come and discuss issues about sustainability. We have to try to have stories in our news, so that people understand what is going on in the company, and people feel that they get recognition in this area. We have the sustainable growth reviews. Key leadership of the businesses to talk about what's going on. It's probably easier at the headquarters and the leadership levels than the operators and plants around the world, they would involved in the EHS as opposed to the broad sustainability stuff.
c) Is Sustainable Development reflected in the setting of goals, targets and objectives? What gets measured gets managed. Within your organisation, what are the important things for you, and how you set the goals and targets, and measuring and reporting, people will know what's important

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? You have to have both. Top-down: Advantages: Support of the CEO and top levels, if they're not interested it is really difficult to move ahead, particularly with new investments. Disadvantages: The CEO can't do everything himself. You have to have people in all the business units around the world thinking about it. We found that ability of people bringing ideas and opportunities up front who are working in these areas day in and day out. We need to focus on finding solution and operating more sustainable. Bottom-up: Advantages: Disadvantages: Middle-management is a problem everywhere. They are the ones being pressured to report on quarterly progress and as well as balance all of these challenges. Making sure that we are investing enough for the future, but not too much. For them sustainability can be very difficult to integrate on what they're doing. Do you think leadership is important in the process? Why? Absolutely. They are creating the examples so that others can see and copy, and move everybody ahead. They demonstrate what success looks like.

14) Is there someone in your company specifically in charge of sustainability? My boss, Linda Fisher, is the vice-president of sustainability in the whole company.
   a) Is that her/his only role? Her responsibilities include developing regulatory policies for new products and technologies where there is no regulatory framework yet, e.g. nano-technology. Work with governments what should regulatory policies be like. Sustainability needs to be integrated into the communication internally and externally so the vice-president of public affairs reports to her.

15) How do you think your position relates to Corporate Sustainability?

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? How do we get sustainability more integrated into our system? How are we looking into broader long-term strategies for what is sustainability means for the company? How is sustainability taken into consideration in possible mergers and acquisitions? How are we thinking about how new products, R&D, are moving us towards sustainability?

v. Michael Tost

1) Name: Michael Tost

2) Position held at your company: SD advisor
   a) Since when have you been in that position 1 ½ year
   b) Since when have you been in your company 5 years

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? They are very much considered. What happened in the 1980s beginning of the 1990s was that mining just itself as mining. However, there was a world outside as well, as well as with the environment. There was waste running down rivers. There was social conflict. What happened, in the case of Rio Tinto in the late 80s, was Buganbile copper, in Papua New Guinea, were we became involved in a civil war. At that time the chairman said stop. There is an outside world, we have to engage with the outside world. There is an environment. We have to take care of the environment. If we don't do this, we'll go out of business. Nobody will want us as a neighbor, and nobody will want us to open new mines. We had to get into sustainability from a very business reason, to take social and environmental considerations.

4) What role does Sustainable Development (SD) play in your company, if any? Very important point. There has been a strategic decision. But we want to take part or play a role contribute to SD.

5) How does your company take SD forward? We came up with what we call the SD decision making criteria. They deal with social, environmental and economic issues, and need to be taken into consideration in all business decisions. It's there but it's not implemented in all operations. We have a leadership team, we call SD leadership panel, the chairman is one of our product group CEOs. Rio Tinto has a CEO, and there 6 product group CEOs. The reason for the panels is that we want

to have line management working in these issues to make clear and stand out to all our businesses that this is part of the way we do business, and it's not an add-on that the SD/climate change people need to deal with. That's the high level, strategic stuff.
My role is on one hand administration to this panel, on the other is distributing and communicating the outcomes of the tools, the projects coming from this panel to the business and make sure they are implemented. What we have in term of business levels is what we call SD champions. Every business has a SD champion, who are my main contact. They are the administrators of the implementation. They are not the drivers but they are the custodians of new things coming in, like the SD decision making criteria.

a) How have your company's interest in SD issues evolved? [Already talked about that] Probably in the 80s, all the conflicts and bad reputation of the mining industry. Actually mining had no future if continued like this. The mining industry came together in the late 90s, beginning in the 2000s, in a process called the Global Mining Initiative. They ran a project called the MMSD (mining and metals in SD). The last 5 years SD has evolved quite a lot. Like with engagement programmes, working with NGOs and that sort of things. Economics then environmental, and the last part was social. Stakeholder engagement has two components: 1. internal, health and safety, HR, diversity of employees, 2. external, community relations, stakeholder engagement, partnerships.
b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. Both. We mainly use outcomes in terms of participating in the DJSI, Business in the Community, Business in the Environment, and FTSE4Good. Also reporting under GRI, in accordance with GRI this year. GRI plus mining supplement.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? It has taken 5 to 10 years. The environmental parts started maybe 15 years ago. It will take other 5 to 10 years, maybe even longer.

7) Do you think the process could be accelerated? Yes.
   a) How? We are working on embed SD further in our culture. Changing our systems. For example, the incentive systems, currently we have safety, economic results, production results, in some parts environmental results. But this is not systematically done under the SD umbrella. This needs to be changed. The incentives and bonus systems. There needs to be a culture change. Get indicators up, measure environmental and social things on the same levels of the economic indicators, e.g. the production levels, financial results. .

8) What, in your opinion, have been the drivers of SD in your company? Access to land. Access to resources. Reputation of the mining industry. Leadership.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? "I don't see any barriers". There is a strategic decision and commitment to actually do it. I wouldn't see any internal barrier. The question

however is, the mining industry is currently boom cycle, mining is very cyclical, which means currently high prices and we earn a lot of money. Since we started with SD we are going up, mid 90s, beginning of 2000s. The question, would we have the same amount, the same expenditure, the same training of people in environmental consciousness, or the culture issues, in the next down cycle, or is it just cost cutting again? If it's seen as a value, and the right thing then probably it will stay. The example are emerging, so I'm quite confident.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples?

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes. It has to be incorporated in all business systems: vision, mission, policies, standards, reporting.
   a) Do you think it is necessary to include it?
   b) Do you think the policies truly represent the culture and future of your company?
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? Some in progress, some already incorporated.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Everybody. Human resources is not but should be involved. They could be more proactive and through incentive systems. They could come out with their interpretation: what is our contribution to SD? Instead of me asking them. Other areas come to me with suggestions. Operations is doing well in policies, safety, environment, community relations, human rights, political involvement, fight against bribery (which we have a reputation of not getting involved into). There are differences between new businesses somewhere in the US or Canada versus a 50 year old business in Europe. If you set a new mine the SD culture is there. We had a case of a takeover in Canada of a 50 year old mine where the culture is: we've always done it like this, why do you want us to change now? We had to bring Rio Tinto's policies, culture and even having to fire some people.
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?
   b) How are the people made to feel involved? Currently thinking and working on this. Maybe through a project actively involving HR. We try to tell them that it's everybody's concern and everybody can make a difference. In environmental issues if you're a truck driver if you don't accelerate or brake that much you need less fuel which means from a business, safety and environmental perspectives.
   There is basic training for everybody plus every new employees, superintendents will go through an elearning tool, Chronos, customised to Rio Tinto. Currently implementing it and making it part of the compliance system. We also have leadership development programmes and SD has been in the process of implementation.
   c) Is Sustainable Development reflected in the setting of goals, targets and objectives? Yes in terms of the business level and some issues on the corporate level. We could do better. We have environmental, climate change,

energy efficiency, water targets. We could have additional targets, like HR, diversity.

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? You have to have both. SD is a global concept but it has to have a local meaning. Top-down: It needs to be there. Advantages: Disadvantages:
Bottom-up: Advantages: They can make a difference in the workplace. Disadvantages:
Do you think leadership is important in the process? Why? Very much. Otherwise it wouldn't happen. It's the key driver

14) Is there someone in your company specifically in charge of sustainability? Yes. My boss (Andy Vickerman, head of external affairs and SD) and me, and 35 SD champions
   a) Is that her/his only role? Me yes. Andy no, he is also in charge of communication, community relations and external affair. The champions have different roles. In the larger business they are only in charge of SD, in the smaller they are SD plus EHS, community relations plus SD, business improvements and SD, HR and SD. We leave it to the businesses.

15) How do you think your position relates to Corporate Sustainability? Promote the MDG, Global Compact, and other codes. Strategy development, coordination of the businesses and the programmes. Advise on implementation and assurance.

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards? Speed it up in terms of what is demanded in operations performance, especially now in the boom cycle. Otherwise I wouldn't change anything. The programmes and approaches we have chosen are fine. To speed it up is needed to talk more about it and demand changes in business and incentives systems.

vi. Sandra Vijn

1) Name: Sandra Vijn

2) Position held at your company:
   a) Since when have you been in that position
   b) Since when have you been in your company

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered?

4) What role does Sustainable Development (SD) play in your company, if any?

5) How does your company take SD forward?
   a) How have your company's interest in SD issues evolved?
   b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)?

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? Depends on size, commitment by the board of directors, governance bodies of the corporation, location, sector. There is no easy access. Sustainability is quite broad. If you're talking about reporting then you can see it takes from 5 to 7 years before companies are having more advanced systems, getting other people in the company what sustainability means. If it's a small company it takes less years.

7) Do you think the process could be accelerated? Yes
   a) How? If there are more awareness raising programmes and training in companies, but I still wander if the reporting process would still be up to date. I think you can improve awareness, but I'm not so sure about the reporting cycle experience would help. [Me] do you think reporting should be done afterwards or in parallel? [Sandra] In parallel_

8) What, in your opinion, have been the drivers of SD in your company? Brand reputation, what the leaders in the sector are doing, lately shareholder activism, the market starts asking for non-financial information, employees want to know what's going on in the company

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? People do not quite understand what it really means, and how to incorporate it. Many times the communication department starts with sustainability, but it takes a while before everybody understands that it's a integral part of the business instead of just one special thing.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? It's an exercise. Reporting will help, because it forces people to think about topic that they may have never thought about before. Internal discussions, but also stakeholder engagement.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes
   a) Do you think it is necessary to include it? It starts with that.
   b) Do you think the policies truly represent the culture and future of your company? It's chicken and egg. It might not be in the culture but if you try to get it from bottom-up, through reporting or whatever angle you take, might at the end be embedded in the culture. But of course, it takes a long time for people to switch.
   c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.?

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Extractive industry. Planning tends to be more involved. Administration less involved
   a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested?
   b) How are the people made to feel involved?

c) Is Sustainable Development reflected in the setting of goals, targets and objectives?

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: Advantages: should be committed otherwise it doesn't happen
Bottom-up: Advantage: Good for understanding and act like it
Do you think leadership is important in the process? Why?

14) Is there someone in your company specifically in charge of sustainability? Might appoint a committee with a leader
   a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? Speak to external stakeholders. Put systems in place. Speak to lowest levels in the company

16) If you were your company's CEO, towards a more sustainable company, what would you change and why towards?

vii. Mark Wade

1) Name: Mark Wade

2) Position held at your company: Principal consultant within leadership development
   a) Since when have you been in that position 3 years
   b) Since when have you been in your company 26 years, actually 32 years of association, I did my PhD with them.

3) When discussing aspects of the business's responsibilities, strategies and performance – how and where are non-economic dimensions considered? At the corporate level all the time, how well are those considerations integrated you can discuss. Clearly in the mind print, these days, particularly for a high profile energy company, which is understandably engaged in climate change we can't really think about your investors decisions and your long-term strategy without really having the environment and global warming, with greenhouse gases particularly, very clearly impressed over the long-term strategic issues and options that you have, of course that configures our response to evolving our product away from oil into focusing on gas as a transition fuel, and then growing, of course, our renewable businesses in solar and wind, and developing a hydrogen business. Clearly, all of these things are in frame when you're making these sort of decisions, and increasingly the social dimension and the wider economic impacts, not just financial ones through the shareholders, are seen as deeply important component in understanding as wider impacts and how you then act responsibly in a conduct of your strategy, particularly as it relates to operations on the ground. In other words, very high. In the operation parts there always has been a extremely strong focus on basic health and safety, which of course is a component, and now all of our operations, new ones, where we are either making new development to existing facilities, or new projects most have environmental and social impacts assessments conducted as part of the project scoping, and part of the process of

developing projects, so they're there within the fabric of the decision making. And increasingly we are bringing them into what we call the value assurance reviews (VAR) which is a series of stage gates that are critical decision points in the life of a project, from project inception through to option generation through to execution of the chosen option including development and then into the operation itself, and then further into the decommissioning. We have these value assurance reviews (VAR) stage gates, and these environmental and social competencies are very much part of that decision-making process, so it's built into the fabric of the way we make our decisions. [Me] which terminology do you use in Shell, SD, sustainability, CSR? [Mark] We tend to stay with SD. That is enshrined within our business principle, you find that at the overarching framework we conduct our business. The expression we use is to contribute to SD, because we are not pretending that we can become inherently sustainable in terms of renewable feed stock, certainly within the next 3 or 4 decades, but what you can do is to contribute to the wider movement of SD and add exercise upon governments and other companies and the other civil society players. If you step back from now, what we say is very simply, we want to act responsibly as a corporation, that means not only financially responsible but also responsible with regards to protecting the environment and respecting basic fundamental human rights. Using SD language and thinking as a framework to structuring that response becomes very helpful. We don't use the expression CSR, because so many people see it with a big S, and equate it with charity and philanthropy, only the social dimension, that's why we refer to it as Corporate Responsibility, and then to use contributing to SD as a framework for wider thinking and structuring those thoughts.

4) What role does Sustainable Development (SD) play in your company, if any?

5) How does your company take SD forward? We've got about 7 or 8 ways into our belts of hard-wiring SD thinking into our reporting practices, into the systems and processes, of which reporting is part. Over the last three years we're really bringing it into the people of the organisation through various learning and reaching development, in other words, both the hard-wiring and the soft-wiring is important to integrate into how the company operates, if you're really going to achieve lasting change. Now, how do we manage that is more than you're going to have space on your tape, I will then refer you to the Shell report for a more comprehensive coverage of the business aspects. It's so all embracing, it's increasingly becoming part of the way we do business rather than a specific activity, which of course is, what we should be aiming for. [Me] Does the Shell report explain the soft-wiring, because most of the reports only show the indicators? [Mark] The report itself is distributed to all staff. One of the key target audiences of the report is internal market, as well as the external. We are evolving that now, we have been doing reports now for 8 years. Having seen on the success on that, there is a process going forward on how we are going to make it more focused report, then again, to engage them in this conversation and change process in a more direct way. The reports are a very important component. If you want to know more about how we bring to people within Shell, then I can give you a paper that I've written for the textbook which summarises the whole approach to learning.

a) How have your company's interests in SD issues evolved? I think it was initiated by the recognition that we had to become more in tune with the societies in which we operated and with those expectations that were placed upon us as a multi-national company in today's highly complex and demanding world. And having done so, we made the commitment to contribute to SD in march 1997, that's a long time ago. Having done so, the first emphasis what in trying to understand what that meant in an intellectual sense to an organisation like Shell, and how would we go about reporting, and striving to meet people's expectations. Then very rapidly moved on from a reporting exercise to what does this mean to underlying management systems that we need to have in place if we are going to manage a much wider set of impacts. That was certainly the case in the social dimension, which was the less mature of the legs of SD, and then we started to put the emphasis on how do you align the systems and processes, things like financial approval processes, so if new projects are coming up to compete for internal capital allocation, how would you write those proposals in such a way that the wider economic, environmental and social considerations were clearly visible within the way that project was proposed. We wrote guidelines to help people structure their thinking in that regard. That became a basis in which projects were assessed for internal capital allocation. We brought things like the cost of carbon, anticipating a time when there will be a more widespread cost of carbon posed by governments, of course, the Norwegian governments already imposed that, but it's not globally the case, nevertheless we can see that happening. We already talked about the environmental decision. Then we set about bringing it into our standards and policies, so that they will remind a big portion of the company. Our focus then, was on raising awareness, particularly across the staff population, to help them understand the wider context, the way these things are being done and to enlist their motivation to apply them. Our internal learning programmes were mostly aimed at raising awareness and understanding in the general sense. That is pretty much the case up until 15 months ago, then what we did was shift gear to moving away from general awareness understanding to helping people go to a higher level and be able to relate these concepts to everyday experience, so that it would make a difference to what they do on a Monday morning. The emphasis now was switched to making this real, in a practical sense to say to project engineers, refinery managers, finance managers, to retail people, it is very hard to bring it to the mainstream on how these people think and behave. That's the journey we are on.

b) Is SD an agenda that the company wishes to communicate about (externally and/or internally)? Yes. 100%. Today, there was a new speech by van der Vir on the importance of sustainable approaches.

6) In the way that your company has approach sustainability, how long has it taken or how long do you think it will become embedded into the company's culture? That's a journey I don't think you ever complete. I think it's already highly in our consciousness, it's not where I would like it to be in case of culture, probably a generation of managers (20 years) before it becomes truly a part of culture, there are very encouraging signs that that growing consciousness is manifesting itself in the way of thinking, which is half way of becoming a culture. It's not an unconscious way of working yet, but the consciousness is there to say it is very

important, there is a growing awareness on how much people need to change and how much further there is to go, which is why I say the very good signs is heading in the right direction. I also believe we are in an irreversible route, I don't think we are going to go backwards, in that regards the company itself is going is the direction that is set. [Me] even if you change leadership? [Mark] We've changed leadership four times since we made the commitment to contribute to SD, and the battle or saying that is deeply important is seemingly past.

7) Do you think the process could be accelerated? Yes
   a) How? Be deploying perhaps more crises to accelerate change. I think it has been an important catalyst in our part. But I think changes in external public policy and market positioning will also drive change. Awareness in the wider student population and the way they are taught and prepared by business schools and universities will also have an impact to the type of people available for recruitment and their impact. The real driver is in aligning the benefits of SD thinking with the strategic objectives of the various elements of our business portfolio, because the closer you can make that alignment to the mainstream the faster the whole thing will go. That's where the emphasis needs to be. [Me] would you say that changes in external policies will be always good? Would you decide to apply your internal policies in different countries? [Mark] Our approach has been to not have double standards, and by and large set standards or behaviour which are widely seen as the norm on OECD countries, so when you operate in non-OECD countries you don't drop the standards. That's the principle, but you'll always find part of the world which are extreme in two ends, both in very high standards, e.g. Scandinavia where environmental regulation is above the norm on OECD countries, in that case if you are in those countries and what to operate you obviously need to meet those even tighter demands, that is because you have to meet the law wherever you operate. In some parts of the world, developing countries, those standards might not be so those you normally find in OECD countries, in which case our minimum environmental standards set is of higher level which case we will hold those rather than the local ones. One simple example, more on the safety side, in Nigeria a lot of helicopter flights are done over the jungle, our standard is to have two engine helicopters, because if one goes down you have a catastrophic failure and there is no where to land. Other operators are quite happy to have helicopters with only one engine. You can operate with one engine helicopters in Nigeria, but we don't. That's an additional cost but what we are looking at is the overall safety standards, in fact people will be very happy to work with us. You have a reputational benefit to that and a motivational benefit. A very simple example to show that holding high standards usually pays off in the longer-term even though there may be a short-term cost.

8) What, in your opinion, have been the drivers of SD in your company? Two key drivers: 1. the values case, which is saying there is a moral and ethical case. If you want to be responsible corporation, and if you ought to do it the right way, i.e. contributing to SD; 2. it makes damn good business sense, because you will improve your competitiveness. You bring the two things together and you have a compelling argument. When we bring arguments to the organisation, particularly in the leadership development programmes, we always bring both in combination.

Part of the business case is leadership, the markets, and so on. If you screw up the environment and piss off the natives then you're going to damage your reputation, that is the negative element of the business case. Actually if you do it right in the first place you're not going to have those problems. If you do it right in the first place as well that fits with your values case. If you do the elements of the business case will likely to attract and motivate top talent, you're more likely to avoid risk because you have a better understanding on the expectations placed upon you, you're more likely to reduce costs because you're going to be thinking of things like eco-efficiency and managing resources more effectively, you're going to be more responsive and understanding to customer needs. That in longer term will impact your portfolio. If you do that you're going to have happier customers and enhance your reputation, which make the importance in the market and how you differentiate within it.

9) What have been, or you think could be, the main barriers to change that would affect the integration of sustainability into your company's culture? Could you mention some examples? A lot has to do with misconceptions around, oh you're only being nice to the bunny huggers, or it's just about the environment, or just about social investments, or it's a distraction to your responsibility to shareholders, or we don't have time, or it's going to be too expensive, we don't have the resources. All of these are the classic push backs that you can get. Until you have had a chance to show people that these are misconceptions rather than real problems in the systems.

10) How, if so, have the barriers to change been overcome or reduced? Could you give some examples? By making compelling arguments for the moral case, what we call the values case, as well as for the business case and making that combination so that you put things in a mind set from value to values, dollars from responsible behaviour. That is why we have devoted so much attention and efforts to bringing this type of thinking from graduate attraction selection to senior executive development. We have development a whole series of workshops to help achieve that.

11) Is sustainability included into your company's policies (vision, mission, objectives, etc.)? Yes. Within the Shell's business principles. These are our values: integrity, respect of people, teamwork, professionalism. The next statement is our commitment to SD, where it explains what that means to us. Values are the fundamental building block to the way we do business. They are the guiding principles, by which all people in Shell are expected to do business wherever they operate around the world. If they don't operate within those principles they will be fired, particularly in things like bribery and corruption and political payments. If people are failing through lack of knowledge to uphold some of the most difficult to define areas, like human rights or protecting the environment, then they will be helped by management to understand what that means, but there are certain elements of the business principles that if you break them you're out.
    a) Do you think it is necessary to include it? I don't think you have to use the word. I think today for highly for a MNC, which has such impact on the world and operations around the world, if you don't have behaviours and responses which are consistent with SD then you'll be in pretty hard ride.

b) Do you think the policies truly represent the culture and future of your company? Yes. Our challenge now is to make this sphere applied to an ever increasing standard and an ever increasing drive towards cultural change that it becomes an instinctive part of the way you operate. But we still have a long way to go.
c) In what ways are the organization concerns reflected in systems, i.e. finance, reporting, incentives and rewards, information, etc.? In many ways discussed already.

12) Who tends to be involved in SD issues in your company? Is there somebody who is not involved who you think should be? Ultimately not everybody is involved. Because it's about cultural change, and it cannot just include managers, it has to be throughout the wider staff population, having said that we have change agents who are there to be pioneers in the different parts of the organisation. There is a very well established network of people with SD in their job title. As well, as a group of people who could be engineers, finance managers, HR people, who are helping to understand what this means to different parts. There is a well established governance system, who are there to lead this embedding process. The top-level is called the SD and EHS planning committee, this is lead by the CEO himself. It has representatives from each of the main businesses plus the main functions. They meet once a year in planning mode, and twice a year in operational mode. That is looking for what further efforts in the SD hard- and soft-wiring need to be made. Underneath that, which meets six times a year, is the SD panel which has various sub-working groups. This panel is comprised by executives from the businesses, but not senior executives. It is very still powerful. They continue to push forward and further improving processes and systems and bringing it into leadership development and programmes and training. In terms of functions HR and investor relations still have further to go than some other functions, e.g. EHS, strategy and planning, who are very much switched on the agenda. It's a very difficult question to answer without getting to a very granular level of the organisation. I can say that the major functions are represented throughout the various governance bodies, but I have noticed that the HR function tends to be further behind the curve. It is also more difficult to people in retail to see the immediate connection to their business than people in project engineering or upscale activities.
a) Do you feel is equally adopted across the organization or in practice there are parts of the organization that seem more interested? The newer the initiative and the larger its scale the most potential they have to impact SD. The more relatively introspective activity, like HR, which focuses on paying people and expatriation, or retailing, a more marginal business, it's more difficult for them to see the connection. In the large scale if you make a mistake you don't have a business next year.
b) How are the people made to feel involved? By this internal communication programme; by leaders walking the talk; people become involved in decision making, either in the result or the execution; the scorecard, which remunerate people that contribute to SD.
c) Is Sustainable Development reflected in the setting of goals, targets and objectives? Not as an individual goal, but yes as in the cost of carbon investment decisions, or the environmental and social impact assessments, or looking to maximise components of your local business services, which are

procured locally as opposed to internationally. You won't find it as a one line element, which is actually right, what you want to do is find a lot of systematic contributory elements being seen as important and managed.

13) What advantages and disadvantages do your see in taking a top-down or a bottom-up approach for SD issues in your company? Top-down: Advantages: You have visible leadership and people can't turn around and say well you around without doing, at least in the strategic sense it's really very good when you want to move organisations quickly. Disadvantages: It's a bit like beating the head of the snake, it can take an awful long time from what the leadership says before the tail start waggling, before than information and motivation is digested. It's purely a top-down process and it can take a long time to get down. If can actually stimulate a bottom-up process through raising awareness and understanding about SD. SD is about innovation, you can't prescribe that from the top, you have to allow people to take the basic concepts to and be convinced of the values case and the business case, and then innovate to make it relevant to their daily life. Bottom-up: Advantages: If you set the right the right context and climate, then it works. But if you don't have the meeting of these two, then neither will go. The difficult level is where they meet, the middle management, the people who are under a lot of competitive pressure to deliver on their routine way of doing business. At the same time they are under the pressure of the people beneath them and of top management. These are the people who are out there in the market place. They need support in getting the resources and the investment to help them operationalise these things. Motivation is a very potent dynamic, people are not being told to do things, but they are motivated to do so. Disadvantages: If that isn't coherent you can get a lot of re-inventing the wheel, and sometimes conflicting approaches. Having the common approach in principles and a common language is very important to give cohesion, and also having a strong framework of standards, policies, and procedures and governance. If you have the basic structure, if you have a lot of the hard-wiring, standards, policies, procedures, and that necessarily has to come from the top, but then you encourage the bottom-up working within and across the matrix. Without those it's unlikely that you will achieve lasting change.
    a) Do you think leadership is important in the process? Why? Yes. And to give empowerment and innovation, and to be supportive about experimentation and innovation. How do you then recognise best practice that is emerging? How to transfer with scale to other parts of the organisation? That becomes, just like in any other aspect of change, an important defining feature of companies in term of their abilities to learn as an organisation.

14) Is there someone in your company specifically in charge of sustainability? I talked about the governance procedures, at the end of the day it would be the CEO, Jeroen van der Vier.
    a) Is that her/his only role?

15) How do you think your position relates to Corporate Sustainability? In terms of helping of the soft-wiring siding, in bringing this thinking. Before I was head of the SD strategy, policy and reporting, for the first five years I was in charge of the hard-wiring. I'm very pleased to say that I'm not the only one who knows about these. You could talk to many people and get pretty much the same answer.

16) If you were your company's CEO, towards a more sustainable company, what would you change and why? I would make more long-term investment money available for effecting change. The availability of cash to back your investment can be very tight. Encourage our investor managers and finance people to be a little bit more tolerant about the value-investment ratio, to lower the VIR hurdle, in other words instead that demanding that investors pay within 6 months I would say, we have got so much and we should be using that to invest now in ways which will pay back with 12, 16 months or 2 years because we know that will improve the end of line performance of the business in that time frame. The number one thing is not to, yes to maintain capital discipline, but not so strict. To encourage longer term net-value creation, rather that short term optimisation. If you did that, it will lift the lid on creativity and innovation. The other thing is to make it demonstratively clear that our portfolio is evolving, and there has to be consistency of approach in investment decision along that journey. [Me] You mentioned that SD is basis for innovation; would you say that innovation is also a base for SD? [Mark] Those are looped, I don't think they are mutually self exclusive. SD framework of thinking encourages people to think more widely and in a more inclusive way, when you do that that in itself stimulates innovation, and innovation will contribute to SD, making a vicious cycle, the chicken and egg. In a practical it is helping people see the context of their decision making in a much broader sense, the wider they can see the context the better their decisions will be.