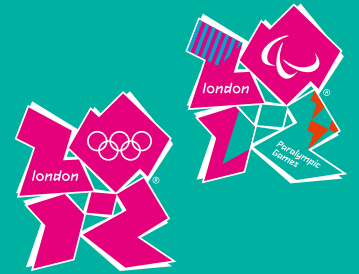


Learning legacy



Lessons learned from the London 2012 Games construction project

Supply chain management for health and safety

Abstract

Regulatory policy makers have shown an increasing interest in the use of supply chains to improve standards of health and safety. A recent review, however, suggests that although the potential to use supply chains in this positive way exists, in practice it is rarely exploited.

This research project assessed supply chain strategies on the Olympic Park and the driving factors behind them. It also considered their transferability – something which is being explored further within an ongoing comparative research project including case studies both within and beyond the construction sector.

Managers, supervisors and workers were interviewed throughout the supply chain (from the procurer to the Tier Three level). Data were analysed using NVivo software.

Broadly, the preliminary findings suggested that, with some caveats, supply chain relations were successfully used on the Park to support good safety management practices.

However, two of the key drivers behind this were:

- the reputational risk associated with high profile projects; and
- the pre-existence of well developed health and safety management systems throughout the supply chain.

Similar use of supply chain health and safety management elsewhere, therefore, is unlikely to be voluntarily initiated, particularly on the more frequently found lesser-scale builds involving small- and medium-sized firms.

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ODA Chairman John Armit viewing the trees at the nursery of the selected supplier

There is a growing interest among policy makers in the use of supply chains to generate improved standards of health and safety protection for workers.

Background

The regulation of workplace health and safety has changed significantly over recent decades. This change has not been limited to the UK, but is also apparent internationally both within Europe and further afield. It has taken the form of a move away from prescriptive legal standards towards increasing reliance on goal- and process-based standards¹. This has been accompanied by a much greater emphasis on encouraging voluntary compliance.

There is now a general consensus among practitioners and policy makers that a comprehensive and systematic health and safety management system is an essential prerequisite for meeting these standards and so achieving effective and adequate worker protection². Against this shifting regulatory backdrop, there has been growing interest and, among many policy makers in particular, a correspondingly growing belief, in the use of supply chains to generate improved standards of health and safety protection for workers.

A recent literature review focused on the nature of supply chain relationships, the factors that shape them, and their role in influencing health and safety management and standards among suppliers³.

Its findings, while highlighting the general lack of research evidence on the health and safety effects of supply chains, indicated that such chains frequently generate adverse consequences among suppliers and relatively rarely encompass attempts by buyers to positively influence how health and safety is managed within them.

They further suggested that initiatives of this type are most likely where they are seen to be supportive of the business interests of buyers and, in particular, when external economic, social and regulatory pressures serve to engender 'reputational risks', and that the success of such initiatives is dependent on their encompassing adequate mechanisms for supervising and controlling supplier compliance within them³.

The CDM Regulations framework encourages purchasers to exploit the opportunities they have as powerful supply chain players to influence improvement among suppliers.

This research project

This research paper is part of an ongoing Institution of Occupational Safety and Health (IOSH)-funded project considering the role of supply chains' health and safety management in three sectors: construction, transport and food. The research, therefore, will be able to make comparisons both within and between sectors. This report focuses on just one part of the research: the first of the two construction sector case studies.

The UK construction industry, as elsewhere, represents a highly fragmented and structurally challenging sector in which temporary worksites frequently involve large numbers of organisationally separated contractors working together and in sequence on building projects.

It is well known that the nature of the resulting complex relations between clients, designers, contractors and sub-contractors presents major challenges for the management of health and safety performance. Indeed, the contribution of such challenges to the poor health and safety performance of the sector^a is the principal reason for the supply chain orientation of the regulatory provisions on health and safety management in the construction industry. The regulatory framework provided by the Construction (Design and Management) Regulations and its supporting guidance^{4,5,6}, therefore, encourages purchasers to exploit the opportunities they have as powerful supply chain players to influence improvement among suppliers.

^a See www.hse.gov.uk/construction/resources/inquiries.htm

The three volumes of the Donaghy Report present a detailed review of health and safety in the industry over the recent past and identify the major structural and organisation factors that help contribute to its poor performance.

The aim of this research paper was to assess the impact of the ODA's supply chain strategies on the OHS management and performance among its contractors.

The scope of this report

The findings of this research paper will be analysed with, and contribute to, the ongoing wider project. As a result, this report is purely a descriptive account of the case study. The analysis of the findings, and their implications in the light of the rest of the research, are not presented here and their development is still underway at the time of writing.

Aims

The aim of this research paper was to assess the impact of the supply chain strategies of the procurer, the Olympic Delivery Authority (ODA), on the occupational health and safety (OHS) management and performance among its contractors. The intention was to discover how significant features of the relationships between the ODA, Tier One and lower tier contractors influence the delivery of effective health and safety management on the Park. In addition, the project was designed to explore both the driving factors underlying those relationships and the preconditions for transferability.

Methods

Supply chain leadership and management practices relating to health and safety were studied by focusing on the activities of one main contractor (selected by the Learning Legacy Project team) on the Park.

The intention was to gain an adequate understanding of the 'how' and 'why' of supply chain operation in influencing OHS management by evaluating how those at the head of the supply chain influence what happens within it.

Semi-structured interviews were carried out with managers, supervisors and workers throughout the supply chain. Participants were approached through their organisations and provided with the study information sheet, summary leaflet and consent form in advance. Written consent was obtained from each individual prior to interview. Table 1 gives outline details of the organisations that took part in the research.

Interviews and group discussions were carried out between September 2010 and March 2011. In total 28 people took part in the study across 20 interview sessions. The positions of all the participants are given in Appendix 1.

Ethical approval

The study and its methodology were approved by the Cardiff University School of Social Sciences Ethics Committee. Both were also scrutinised and approved by the Learning Legacy Project team.

Tier	Approximate overall number of employees	Business type
One	3,000	Civil engineering
Two	500	Commercial landscaping
Two	100	Landscaping and engineering
Two	100	Marine-based civil engineering, dredging and remediation
Three	100	Water features, irrigation and waste water treatment
Three	200	Commercial grounds maintenance, gardening and landscaping
Three	500	Civil engineering

Table 1: Participating organisations

Results

Park OHS performance outcomes

The safety record on the Park was impressive and remained significantly higher than the industry average throughout the work. In February 2011 the Park achieved its 17th set of one million man hours worked without a reportable incident since 2006. The ODA's contribution to this has been recognised by the British Safety Council (in the form of both the five-star and Sword of Honour awards)⁷.

Supply chain health and safety management on the Park

From the outset, the ODA's intention was to set and maintain rigorous health and safety levels and principles. These were described in detail in its Health, Safety and Environment (HS&E) Standard⁸. The strong emphasis on incorporating health and safety from the inception and planning stages of all the work was also clear from the Standard's opening policy statements and throughout the other documentation and systems.

In addition, commitment to involvement in the supply chain was immediately apparent, with the ODA acknowledging from the start of the work the significant potential influence it was trying to use as the client to achieve its aims in relation to health and safety. This reflected the ODA's acceptance that the client

has the potential to be one of the biggest influences over the way a project is run and consequently, the way in which the workers involved are protected.

The methods the ODA used to influence supply chain health and safety management ran throughout the process of supplier involvement – from prequalification and tender, through induction, training and certification, to day-to-day monitoring and formal inspection and audit. Fundamental to this approach was the requirement that Tier One and lower level contractors must use their own health and safety management systems to meet the ODA's HS&E Standard and its corresponding key performance indicators (KPIs)⁹. In addition, Tier One contractors were responsible for cascading the approach down the supply chain and ensuring that their sub-contractors also met both the Standard and the KPIs⁹.

Suppliers' experiences on the Park

Suppliers' views of the systems and procedures used on the Park were mixed. On the one hand some initiatives were seen as excessive, rigid and unnecessarily time-consuming. On the other, however, there were elements of the system that suppliers reported intending to adapt and continue to use on future projects.

The ODA acknowledged from the start of the work the significant potential influence it was trying to use as a client to achieve its aims in relation to health and safety.



The aquatics contractor engaging with their supply chain on diversity

Although there were exceptions, the research found the ODA's approach to health and safety management did successfully extend throughout the supply chain.

Furthermore, there were also acknowledgements from some of those in particularly the lower tier organisations, that their companies' health and safety systems had been improved by the experience of working on the Park. The key to these different views was practical and pragmatic: suppliers could accept systems and procedures but only on the proviso that those working within them could see both why they were in place and that they would benefit some part of the work.

An undercurrent to this acceptance among some, however, was concern about the additional burdens and costs, in monetary, production and temporal terms, that compliance incurred and which suppliers simply had to absorb. This was also reflected in the awareness that, despite attempts to maximise the number of organisations, particularly smaller enterprises, able to bid for work on the Park, the sheer complexity of tendering for and, if successful, delivering the work, limited the number and type of organisations that actually went through the process.

There was also a strong awareness among suppliers of the unique setting, scale, time-frame, high profile, and, crucially, correspondingly huge budget of the Park as a construction site. Interviewees clearly felt that there was a significant 'Olympic Park' effect in relation to many aspects of their work, including health and safety, which they knew could not be reproduced elsewhere.

In addition, they were very clear that their health and safety reputation had been influential in securing their work on the Park and stood to be significantly enhanced by their continued success in such a high profile project.

Although there were some significant exceptions, interviews with staff in the supplier organisations at all three tiers generally confirmed that the ODA's approach to health and safety management did successfully extend throughout the supply chain.

Factors that were key to this achievement were:

- clarity and transparency of roles, responsibilities and expectations from the outset; and
- the involvement and particularly, the empowerment, of workers at all levels in relation to health and safety.

This was all underpinned by the generally very effective communication across the site, which was apparent up as well as down the supply chain, and enhanced by the significant opportunities provided for, and encouragement of, shared learning both within and between tiers.

How the Park compared with suppliers' previous experiences

When considering how their experiences on the Park compared with previous projects, suppliers suggested that the procurement process and subsequent systems, monitoring procedures, controls, audits and inspections were, in the main, familiar from their work elsewhere.

This was reflected in an awareness that suppliers' investment in health and safety was growing proportionately and would continue to do so as it was increasingly important to have appropriate documentation and an excellent safety record in order to win further work. However, it was also clear that health and safety was not always such a paramount factor.

A clear distinction was drawn by some interviewees between their client on the Park (the ODA or a Tier One or Tier Two organisation) and previous clients, particularly smaller ones. In the current situation, health and safety was much more frequently seen as an overriding factor, whereas for other clients money was very often far more significant, with health and safety regarded as a bonus but not their number one priority.

Transparency of governance and the emphasis on consideration of health and safety from inception is a significant feature of the approach adopted on the Park.

Discussion

As noted at the outset, the findings of this research paper will be analysed with, and contribute to, an ongoing wider project. This report, therefore, is a purely descriptive account. However, it is possible to draw some preliminary, summary conclusions.

The findings show very clear evidence of a conscious attempt, from the outset, to use the supply chain strategically for health and safety management, with the ODA describing itself as 'incredibly intrusive into the supply chain for all sorts of reasons'.

It is also equally clear that the Park has had an extremely impressive safety record that has been maintained at a level significantly above the construction industry standard throughout.

Among the most significant features of the approach adopted on the Park were the transparency of governance and the emphasis on the inclusion and consideration of health and safety from inception, including both design and procurement, of all work. The influence of external factors is clear here, in that these are key features of the Construction (Design and Management) Regulations.

It was also clear from our interviews that this kind of approach, particularly the inclusion and assessment of organisations' health and safety record during the procurement phase, was something organisations expected when tendering. This also seemed to be increasing the importance of organisations' reputation for health and safety management and performance – something they recognised and often felt would be enhanced by their Park involvement – to being awarded future work.

Currently, this developing market 'norm' only applies to any great effect on larger-scale projects, very often those with public bodies as clients. Its impact, therefore, is unlikely yet to have filtered through to the smaller organisations that make up the majority of the construction sector.

Communication within the supply chain, both vertically and laterally, was also a key feature on the Park. At an organisational level, there was an emerging feeling from the Tier One contractor, for example, of a two-way relationship with the ODA in terms of the development of health and safety procedures and systems. Similarly, it was clear that contractors at all levels had had the opportunity to learn from each other; that is from contractors at their own and at both higher and lower tiers. At an individual level, there was also evidence of worker involvement in health and safety and of the empowerment of workers by giving them the 'authority' to report near misses, to stop unsafe work and to discuss and contribute to the development of ways of working. The key to both these levels of communication was, again, the transparency of governance as well as the physical presence and involvement of clients on suppliers' sites.

The research, however, also provided evidence of the less positive effects of supply chain management. Again, this was apparent at both the organisational and the individual level. For some organisations, particularly those in the lower tiers of the supply chain, there were significant costs associated with complying with the health and safety requirements of their clients.

These were apparent both in monetary and production terms, and were something they had to absorb. It should also be noted here that all of the organisations that took part in this research were experienced and generally medium or large enterprises that would be expected to have had some previous experience of building in these kinds of factors to their tenders for work (the rigorous procurement process procedures, not least those concerning health and safety, and their formidable reputation within the sector, having acted as a barrier to some organisations, particularly smaller ones).

The London 2012 construction programme gave unprecedented opportunities for shared learning and development of careers, teams and health and safety systems.

Similarly, for some individuals there had been very significant increases in the levels of paperwork they were expected to complete, which was sometimes finished in workers' own time. At both the organisational and individual levels there was also some feeling of 'overkill', particularly where the reasons behind specific requirements were not clear or when rules seemed to be applied without due consideration of the circumstances.

The Park was a unique project and some of its unique aspects clearly influenced health and safety management. Its sheer scale (physically, financially and temporally), as well as its incredibly high profile (sectorally, publicly and globally) certainly had a significant impact.

Again, this was generally positive as it gave unprecedented opportunities for shared learning and the development of careers, teams and health and safety systems. It also ensured that the reputations of all those involved were at stake (and, potentially, well placed to be advanced), thus giving the opportunity for its use as a lever to influence health and safety management throughout the supply chain. Inevitably there were also negative effects, such as the greatly magnified problems associated with any logistically complex build.

Broadly, however, the 'Olympic Park' effect seemed to have been a positive one for the strategic influence of health and safety management.

Overall, the preliminary findings of this case study support Walters and James^{3,10} and Walters' et al¹¹ conclusion that, in certain circumstances, supply chain relations can act to support the implementation of safety management practices among suppliers in a way that overcomes competing tendencies to circumvent OHS management arrangements in the pursuit of financial and production demands.

In particular, Walters and his colleagues concluded that this was most likely when external economic, social and regulatory pressures serve to engender 'reputational risks', and this research paper supports that conclusion.

The ODA's 'incredibly intrusive' approach to supply chain health and safety management has largely been successful. This is arguably because of its recognition and strategic use of its huge potential influence over its suppliers, which is, at least in part, the result of the unique setting of the build and its consequent reputational might.

The learning legacy at this stage seems to be that the supply chain can be used effectively to enhance health and safety performance and management.

Conclusion and learning legacy

The study's preliminary findings identify key factors driving the effective use of supply chain strategies for health and safety management as including:

- the reputational risk associated with high profile projects; and
- pre-existing and well-developed health and safety management systems throughout the supply chain (effectively a prerequisite for those tendering to work on the Park).

This is a narrow set of circumstances which do not generally exist on most builds or within many of the small and medium sized enterprises that make up the majority of the UK construction sector.

These findings will be further explored in this ongoing research project through comparison with the findings from the other research both within and beyond the construction sector. The learning legacy at this preliminary stage, however, seems to be that the supply chain can be used effectively to enhance health and safety performance and management. However, its beneficial impact in engaging genuine supply chain support is significantly influenced by ensuring that suppliers understand why actions are required and that such requirements manifestly align with those criteria without also imposing significant additional workload on suppliers.

Successful impact, therefore, is dependent on the client's on-going determination to fully exploit their influence to ensure both clarity and transparency of governance, and worker involvement and empowerment, through effective communication up and down the supply chain. The circumstances which most effectively support this are rarely found on UK construction sites, so this legacy is unlikely to be fully transferable without significant change in the industry which may require support through regulation.

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Related research

This research summary is part of a suite of research projects and independent evaluations undertaken on health and safety on the London 2012 construction programme comprising:

- leadership and worker involvement;
- site communications and other health and safety initiatives;
- CDM 2007 Regulations: duty holder roles and impact;
- safety climate tool and measuring site culture;
- health and safety in the supply chain;
- occupational health programme provision on the Park and Athletes' Village;
- food safety and sustainability;
- preconditioning for success.

Full research papers will be published by the authors at a later date.

Appendix 1: Positions of the interview and discussion group participants

Interview number	Position
	Procurer – head of supply chain
1	Head of Health and Safety
2	Deputy Head of Procurement
3	Director of Construction
4	Head of Procurement
	Deputy Head of Procurement
	Supplier and procurer – Tier One
5	Contract Manager
6	Procurement Manager
7	Health and Safety Manager
8	Project Manager
9	Contract Manager
10	Supervisor
	Supervisor
11	Worker
	Worker
	Supplier and procurer – Tier Two
12	Supervisor
13	Manager (link to Tier One and Tier Three)
14	Health and Safety Advisor (Tier Two but also acting for Tier Three)
15	Procurement Manager
18	Project Manager
19	Worker
	Worker
20	Supervisor
	Supplier – Tier Three
16	Manager (link to Tier Two)
14	Health and Safety Advisor (Tier Two and also for Tier Three)
17	Project/Procurement Manager
20	Supervisor
	Supervisor
21	Worker
	Worker



MAYOR OF LONDON



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