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Outsourcing Decisions – the Case of Parallel Production

Abstract

Purpose – This paper aims to investigate an underexplored aspect of outsourcing involving a mixed strategy in which parallel production is continued in-house at the same time as outsourcing occurs.

Design/methodology/approach – The study applied a multiple case study approach and drew on qualitative data collected through in-depth interviews with wood product manufacturing companies.

Findings – The paper posits that there should be a variety of mixed strategies between the two governance forms of “make” or “buy.” In order to address how companies should consider the extent to which they outsource, the analysis was structured around two ends of a continuum: in-house dominance or outsourcing dominance. With an in-house-dominant strategy, outsourcing complements an organization’s own production to optimize capacity utilization and outsource less cost-efficient production, or is used as a tool to learn how to outsource. With an outsourcing-dominant strategy, in-house production helps maintain complementary competencies and avoids lock-in risk.

Research limitations/implications – This paper takes initial steps toward an exploration of different mixed strategies. Additional research is required to understand the costs of different mixed strategies compared with insourcing and outsourcing, and to study parallel production from a supplier viewpoint.

Practical implications – This paper suggests that managers should think twice before rushing to a “me too” outsourcing strategy in which in-house capacities are completely closed. It is important to take a dynamic view of outsourcing that maintains a mixed strategy as an option, particularly in situations that involve an underdeveloped supplier market and/or as a way to develop resources over the long term.

Originality/ value – The concept of combining both “make” and “buy” is not new. However, little if any research has focused explicitly on exploring the variety of different types of mixed strategies that exist on the continuum between insourcing and outsourcing.

Keywords - Outsourcing, insourcing, mixed strategy, parallel production, taper integration, concurrent sourcing

Paper type Research paper

Introduction

The concept of combining “make *and* buy” by keeping some capacity under internal governance instead of fully closing in-house production is not new. For example, Porter (1980) and Harrigan (1984; 1986) addressed the topic when debating vertical integration under the label of “taper integration.” The mixed strategy option was also researched to some extent in the “make or buy” literature during the 1980s (e.g., Leenders and Nollet, 1984; Bradach and Eccles, 1989). This topic has again attracted academic interest from a governance perspective with regard to the debate on the blurring of firm boundaries under different labels: permeable vertical architectures (Jakobides and Billinger, 2006), concurrent sourcing strategies (Parmigiani, 2007; Parmigiani and Mitchell, 2009; Mols, 2010b), and plural sourcing/governance (Heide, 2003; Puranam *et al.*, 2008). Mixed strategies were also addressed as an operational planning subject in which models were developed to understand capacity and supply chain flexibility by using parallel production lines or multiple distribution channels (e.g., Kamien and Li, 1990; de Kok, 2000; Ferdows *et al.*, 2004; Yang *et al.*, 2005; Boulaksil and Fransoo, 2010; Fredriksson *et al.*, 2010).

Therefore, the topic of mixed strategies inspired early research and more recently received renewed academic interest. The concurrent sourcing literature is centered on theoretical explanations concerning the drivers for mixed strategies (Parmigiani, 2007; Puranam *et al.*, 2008; Parmigiani and Mitchell, 2009; Mols, 2010a), and theories such as agency theory, transaction cost economics (TCE), resource-based theory (RBT), and extended resource-based theory (ERBT) are used as theoretical explanations for the occurrence of concurrent sourcing. The outsourcing literature based on TCE and RBT/ERBT is often – either implicitly or explicitly – concerned with a company’s decision to strike a balance between insourcing and outsourcing of its total operations (e.g., Quinn, 2000; McIvor 2009). Although the extant literature focused on these issues, it has also noted the need for further research (see, e.g., Rothaermel *et al.*, 2006; Puranam *et al.*, 2008; Harland *et al.*, 2005; Mols, 2010a). Drawing on Leenders and Nollet (1984), the degree to which companies should consider outsourcing of individual components could be structured around two ends of a continuum, which Leenders and Nollet referred to as “major doers” and “major buyers”, respectively (see Figure 1):

- In-house dominance with complementary outsourcing (“major doers”) and
- Outsourcing dominance with complementary in-house activities (“major buyers”).

In this view, the extent to which a company uses external resources is situated on the continuum ranging from *in-house dominance* to *outsourcing dominance*. Therefore, the level of parallel production is contingent on the different drivers in each specific case, which also ranges on this continuum (see Figure 1).

Insert Figure 1 here.

Although the mixed strategy stream of literature in general addresses different drivers from Leenders and Nollet (1984) specifically, it provides little guidance for how companies should think about how much to outsource for a specific component related to different driving forces (cf. Harland *et al.*, 2005, p. 843). Some exceptions are capacity flexibility, which is often referred to as keeping the majority of production in-house and outsourcing during demand peaks (e.g., de Kok, 2000; Yang *et al.*, 2005), and withholding bargaining power position by keeping a small part of the production in-house (e.g., Dutta *et al.*, 1995;

Heide, 2003; Jacobides and Billinger, 2006). However, few studies have focused explicitly on exploring the varieties of mixed strategies that exist on the continuum between insourcing and outsourcing of individual components or resources. To address this issue, the present paper aims to develop a model that populates the continuum between in-house production and outsourcing, using different types of mixed strategies, with a particular focus on the situation in which parallel production is continued along with a certain degree of outsourcing of a specific component or resource. This effort, which extends the work of Leenders and Nollet (1984), particularly focuses on identifying different types of mixed strategies situated between “major doers” and “major buyers.” The core of the paper is a series of cases studies on the Scandinavian wood product manufacturing (WPM) industry, which manufactures products such as floors, doors, and windows that add value to raw wood material.

This paper makes a distinct contribution to the more general field of outsourcing research. Through the case studies, we suggest a continuum that shows the existence of different types of mixed strategies between make and buy. This work is an extension of the make-or-buy and concurrent sourcing literature, which has paid scant attention to illustrating the different types of mixed strategies between in-house production and outsourcing. Furthermore, the framework provides practitioners with an *aide memoire* when considering outsourcing in a non-developed supplier market and/or to develop resources over the long term.

The next section of the paper conducts a literature review. We then present our research methodology, followed by the case descriptions in which we present and discuss five mixed strategies. Conclusions are drawn with implications for both theory and practice as well as for future research.

Literature review

The literature review is divided into three parts. First, theoretical approaches to outsourcing are reviewed to explain the manner in which mixed strategies are understood. Second, outsourcing decision frameworks are reviewed to describe how to make outsourcing decisions. Third, the review focuses on why and how organizations employ mixed strategies to build a mixed strategy framework.

Theoretical underpinnings of outsourcing

Anchored on the notion that outsourcing is more related to transfer than procurement (Gilley and Rasheed, 2000; Beaumont and Sohal, 2004; Sousa and Voss, 2007), the present paper defines outsourcing as the transference of an activity from internal governance to external control. A lot of outsourcing research has drawn on theoretical perspectives such as TCE or RBT/ERBT of the firm and adopted a strategic view of the outsourcing phenomena (McIvor, 2005; Boulaksil and Fransoo, 2010; Busi and McIvor, 2008). As Figure 2 shows, these theoretical underpinnings have two contrasting points of departure for outsourcing (Kakabadse and Kakabadse, 2001; McIvor 2008).

Insert Figure 2 here.

TCE considers the firm not as a production function, but more as a governance structure (Williamson, 1979; 1985). TCE emphasizes minimizing both production and transaction costs by determining an appropriate governance structure (Williamson, 1979, p. 245; 1985; 2008). Williamson (1991; 2008) defined three ways of organizing transactions: market, hierarchy (i.e., handling the activity within the firm), or hybrid. The latter can be characterized by

various forms of strategic alliance agreements between buyer and seller (Williamson, 1991). This setup is viewed more as a temporary contracting mode that will ultimately revert to either of the two polar modes (in other words, market and hierarchy) (Williamson, 2008). Transaction costs emerge when there is a need to allocate resources to organize transactions between parties (Johanson and Mattsson, 1987). TCE relies on two fundamental human behavioral assumptions that cause transaction difficulties: (1) bounded rationality, in which, at best, incomplete contracts are established; and (2) opportunism, which assumes that humans are self-interest seekers with guile, which is seldom transparent *ex ante* (Williamson, 1975, p. 21; 1985; 1990, p. 12). The dimensions of the transaction also influences transaction costs, thereby affecting the choice of governance mode with assets that specifically have the greatest explanatory value (Williamson, 1991).

From a RBT perspective, the firm is more than a portfolio of businesses and products; it is also a portfolio of competencies (Wernerfelt, 1984; Hamel and Heene, 1994; Long and Vickers-Koch, 1995; Javidan, 1998). RBT advocates that the firm should define its businesses on the strength of its own resources, with emphasis on leveraging the firm's core competencies. Firms' resources are fundamentally heterogeneous (Peteraf, 1993), and a competitive advantage arises from resources that are difficult for competitors to imitate (Barney, 1991; Grant, 1991). In outsourcing research based on RBT, the focus is on retaining in-house core activities that are essential for the competitiveness of the firm, with non-core activities to be outsourced (McIvor, 2005). A number of academic papers have taken an RBT perspective to address outsourcing decisions (e.g., Venkatesan, 1992; Quinn and Hilmer, 1994; Insinga and Werle, 2000; Gotfredson *et al.*, 2005).

Among other things, ERBT contends that although organizations require valuable, rare, inimitable, and non-substitutable resources to obtain a competitive advantage, these resources and capabilities can reside outside the boundaries of the firm. From this perspective, competitive advantage is achieved through "the interplay between organizations and their external environment" (Lewis *et al.*, 2010, p. 1035). The focus here is on how supply chain linkages or inter-firm relationships provide access to strategic resources in order to provide a competitive advantage. From this perspective, therefore, the decision to outsource is not based on the logic of outsourcing non-core activities to focus on core activities to achieve a competitive advantage. Instead, the primary driver to outsourcing is to obtain access to resources that cannot be easily reproduced or substituted by competitors. These resources do not need to be owned (Dyer and Nobeoka, 2000; Lewis, 2000; Lewis *et al.*, 2010).

Other researchers have argued that transaction-based outsourcing logic is insufficient. Holcomb and Hitt (2007) extended TCE and RBT to explain the conditions leading to strategic outsourcing. Their paper, which built on previous research (see Poppo and Zenger, 1998; Combs and Ketchen, 1999; Madhok, 2002; Jacobides and Winter, 2005; and Hoetker, 2005), stated that when making a strategic outsourcing decision, it is necessary to look beyond just economizing circumstances, such as asset specificity and technological uncertainty, and to include a number of other important factors. They argued that four crucial conditions exist for strategic outsourcing: capabilities, strategic relatedness, relational capability-building mechanisms, and cooperative norms (Holcomb and Hitt, 2007, p. 465).

Review of recent outsourcing decision frameworks

Among the early examples of studies that applied TCE, Walker and Weber (1984) studied make or buy decisions for firms in the United States automobile industry with the help of TCE. In fact, TCE has been a dominant means of understanding the outsourcing decision over the last three decades (Espino-Rodriguez, *et al.*, 2006; Holcomb and Hitt, 2007). Since the publication of Prahalad and Hamel's (1990) influential article on core competence and with

an increasing focus on the strategic level in outsourcing decisions, the RBT has received a more prominent position (McIvor, 2005; 2010). In the 2000s, various authors continued to develop different RBT-influenced frameworks to assist in the formulation of outsourcing strategies (see Cádiz *et al.* (2000) or Boulaksil and Fransoo (2010) for an overview and review of these frameworks).

From a single or mixed theoretical approach, the last decade has seen the development of a number of frameworks that address the outsourcing decision (e.g., Gottfredson *et al.*, 2005; Aron and Singh, 2005; Baines *et al.*, 2005; Holcomb and Hitt, 2007; Tate and Ellram, 2009; McIvor, 2008; 2009; 2010; 2011). Table 1 summarizes these frameworks.

Insert Table 1 here.

The approaches summarized in Table 1 emphasize the need to treat outsourcing as a strategic question with which to achieve the expected benefits; this concept was effectively highlighted in earlier RBT-influenced literature. For example, scholars such as Venkatesan (1992), Quinn and Hilmer (1994), and Ingsinga and Werle (2000) argued the need to link outsourcing to the overall strategy of the firm. Previous literature has focused more on the need for strategic linkages in order to avoid the risk of cost reductions and of outsourcing long-term critical activities. More recent literature has added a dimension of opportunism through which firms should think strategically to access specialized capabilities that are not available in-house (Holcomb and Hitt, 2007).

Review of literature on mixed strategies

Combining in-house production with outsourcing can be considered a plural form of governance that resides on the boundary between the firm and the supplier, where the firm is partially vertically integrated in order to make and buy the same goods (Bradach and Eccles, 1989; Parmigiani, 2007; Parmigiani and Mitchell, 2009; Mols, 2010b; Aláez-Aller and Longás-García, 2010). Various studies have identified the existence of mixed strategies in a variety of industries, ranging from the fashion industry (Ferdows *et al.*, 2004; Jacobides and Billinger, 2006) and franchising (Bradach and Eccles, 1989) to toy manufacturing (Mols, 2010b), metal-working (Parmigiani, 2007; Fredriksson *et al.*, 2010), and trucking (He and Nickerson, 2006). In fact, combining make and buy seems more common in practice than its occurrence in the literature would suggest (for examples, see Dutta *et al.*, 1995; Rothaermel *et al.*, 2006; Parmigiani, 2007; Puranam *et al.*, 2008; Mols, 2010a).

A mixed strategy contrasts with the classical view of hierarchy and markets (that is, in and out) being mutually exclusive governance forms (Bradach and Eccles, 1989; Dutta *et al.*, 1995; Herriot and Kulkarni, 2001). In the late 1980s, Bradach and Eccles (1989, p. 100) identified the lack of research on the plural governance form and stated that, “...by slavish adhering to markets and hierarches framework, ignores the obvious and fascinating issue of why companies so often both make and buy.” In contrast, a mixed strategy should not be considered an intermediate hybrid form (e.g., Williamson, 1991; 2008) because it does not refer to sourcing from a single source characterized by a mixed governance mode (for example, a temporary contracting mode such as strategic alliances), but more to dividing volume between multiple governance modes (Dutta *et al.*, 1995; Puranam *et al.*, 2008).

Several studies have reviewed and related different theoretical underpinnings in order to create propositions and draw conclusions on why and how firms apply a mixed approach. Drawing on Mols (2010a; 2010b), Table 2 summarizes these propositions and conclusions, which are then addressed in detail below.

Insert Table 2 here.

Capacity flexibility

A commonly argued driving force in the literature for mixed strategies is to help a firm balance its in-house manufacturing capacity through parallel production lines (e.g., Kamien and Li, 1990; Yang *et al.*, 2005; de Kok, 2000) or multiple distribution channels (e.g., Ferdows *et al.*, 2004; He and Nickerson, 2006; Fredriksson *et al.*, 2010). The need for production flexibility is contingent on a number of factors, including demand fluctuations, degree of automation, and technological development (Johansen and Riis, 1995). Tactical use of an external source to balance in-house production is particularly helpful for firms facing constantly fluctuating demand (Harrigan, 1986; Yang *et al.*, 2005) or partially uncontrollable in-house factors such as “*workforce and machines*” (Yang *et al.*, 2005 p. 328). This type of mixed approach aims to create flexibility in the company’s own production units and ensure high utilization of the company’s own assets (He and Nickerson, 2006; Mols, 2010b). In this sense, a mixed strategy to achieve capacity flexibility is considered a production planning strategy of the firm (Kamien and Li, 1990).

Core competence/capabilities

A mixed approach can help to (1) develop innovation strategies (Veugelers and Cassiman, 1990) and (2) increase product diversity by buying finished products instead of developing them internally (Rothaermel *et al.*, 2006). With this starting point, the core competence/capability driver is a firm’s effort to capitalize on uneven distributed capabilities, and an external party infuses the focal firm with new ideas (Jacobides and Billing, 2006; Mols, 2010b), referred to by the literature as a ratcheting strategy (Bradach and Eccles, 1989, p. 113). Arguably, a mixed strategy enables the development of suppliers and knowledge transfer from in-house to external suppliers (Mols, 2010b). Parmigiani and Mitchell (2009) suggested that firms often need to keep manufacturing capability in-house to manage their outsourcing and found that firms with in-depth expertise still often apply a concurrent sourcing strategy that further helps augment its own knowledge. Such a mixed strategy enables external suppliers to be continuously benchmarked, possibly helping to develop the vendor’s ability to manage the taken-over outsourcing (cf. Zoran *et al.*, 2012).

Lock-in risk

Complete outsourcing is often an irreversible strategy because the outsourcing company divests the capabilities it needs to perform the activity at a later stage (Lonsdale and Cox, 1997; Harland *et al.*, 2003; Dekkers, 2011). In this way, outsourcing increases supplier dependence (Walker, 1988; Lonsdale and Cox, 1997; Ellram and Billington, 2001). Such a lock-in risks shifting power to the supplier (Stuckey and White, 1993; Lonsdale and Cox, 1997; Lonsdale, 2001; Cox *et al.*, 2003). A mixed strategy could help withhold bargaining power and offer a safeguard when outsourcing (Harrigan, 1986; Mols, 2010a; 2010b; Puranam *et al.*, 2008).

Dutta *et al.* (1995) and Heide (2003, p. 26) posited that behavioral uncertainty and safeguarding problems in particular lead firms to deploy a plural governance form. Following this view, a mixed approach could be a particularly good option if the supplier market is malfunctioning to some degree or if a supply imbalance exists (cf. Walker *et al.*, 2005) from,

for instance, oligopolistic or monopolistic market structures (e.g., Scherer, 1971) or high degrees of asset specificity and opportunistic behavior in transactions between buyer and seller (Williamson, 1985). Given small parallel production, a firm may then avoid the unfair pricing (referred to in the make or buy literature as price appropriation; e.g., Walker and Weber, 1984) that a supplier uses to take advantage of the customer's dependence and to increase its portion of end customer revenues (Dutta *et al.*, 1995; Heide, 2003; Parmigiani, 2007).

Cost

From a mixed strategy perspective, the cost of having both in-house production and an external supplier is often assumed to be higher than a single governance form when the firm also needs to invest in maintaining the internal organization (Mols, 2010b). This view holds that the driver related to costs is – in the mixed strategy literature – more linked to the perspective of performance uncertainty such that a mixed strategy creates cost transparency (Heide 2003; Mols, 2010b). Thus, by obtaining superior information on cost/prices, a mixed strategy enables a company to benchmark its in-house operations to external suppliers (Puranam *et al.*, 2008). In general, companies increasingly focus on continuously analyzing their business processes to determine how competitive they are (Heywood, 2001). In such situations, outsourcing provides an opportunity to benchmark internal operations with external suppliers. Therefore, a mixed strategy can also provide clear benchmarks and performance goals for both the supplier and the outsourcing firm (Puranam *et al.*, 2008).

Summary

The review identified several driving forces for a mixed strategy. Not unexpectedly, the major driving forces for a mixed strategy resemble the traditional drivers for outsourcing, including capacity flexibility, external capabilities, and core competence (see, e.g., McIvor, 2005). These driving forces also link to some of the commonly argued outsourcing risks, such as lock-in risk, low irreversibility of outsourcing decision, and supplier performance uncertainty.

Although the literature on mixed strategies addresses drivers similar to those in the literature on outsourcing, they can differ in nature. For example, the desire to achieve operational flexibility and manage capacity constraints is a commonly argued driving force in outsourcing research (e.g., Quinn and Hilmer, 1994; Harrison and Kelly, 1993; Hendry, 1995; Bragg, 1998; Fill and Visser, 2000; C  nez *et al.*, 2000; Gilley and Rasheed, 2000). Although studies on mixed strategies and on outsourcing both view flexibility as an important driving force, the conclusions of the two research streams differ. In the outsourcing stream, the rationale is to create flexibility by giving a supplier this responsibility, assuming that a supplier market or individual suppliers have the ability to carry out the function being outsourced. In this view, the market and/or supplier have excess capacity, making them better able to arrange production flexibility more cost efficiently than the outsourcing party (McIvor, 2005). In mixed strategy studies, adding capacity from an outside source creates flexibility, but the lion's share of the production is kept in-house and is regarded as the more important production resource (Yang *et al.*, 2005).

With a starting point from the literature review and drawing on Leenders and Nollet (1984), a distinction seems to exist between companies that predominantly handle their own production – “in-house dominance” – and companies that are predominately outsourcing – “outsourcing dominance” (see Figure 3).

Insert Figure 3 here.

With an *in-house dominance* (“major doer”) outsourcing strategy, a mixed strategy is viewed in terms of what its stream of literature often refers to as volume/capacity flexibility (e.g., de Kok, 2000; Salvador *et al.*, 2007; Jacobides and Billinger, 2006; Stevenson and Spring, 2009). Such complementary outsourcing allows output to be changed quickly to manage the demand uncertainty that exists in the market or to improve the efficiency of a company’s own in-house plant manufacturing. Such a strategy may also be viewed as a way to learn how to outsource by testing smaller volumes and then gradually increasing the outsourcing (Leenders and Nollet, 1984). Complementary in-house production (“major buyer”) shows that a mixed strategy refers more to what the literature calls keeping complementary manufacturing competencies to create cost transparency (e.g., Heywood, 2001; Puranam *et al.*, 2008) and avoid lock-in risk (e.g., Harrigan, 1986; Dutta *et al.*, 1995).

Research methodology

This study applies a case study approach (Yin, 1989; 2003) to provide new perspectives to well researched areas (Eisenhardt, 1989; Bengtsson *et al.*, 1997; Voss, 2002). Cases used in case studies should be selected on the basis of being interesting for theoretical and empirical reasons and not to achieve high representativity (Yin, 1989; Bengtsson *et al.*, 1997, p. 477).

The selection of case companies was based on a sector analysis of wood product manufacturers in Scandinavia (see Brege *et al.*, 2004; Brege, 2009). The case companies were chosen from this sector based on dialogue with industry experts and the Invest in Sweden Agency (ISA)^a. Of the 17 companies approached through experts and the ISA, five cases were identified as being suitable to study mixed strategies. The objective of selecting cases for this paper was to identify companies that had experiences different from mixed strategies in several sub-industries within the wood sector.

This paper is based on data collected from 30 in-depth interviews with 14 management personnel directly involved in the outsourcing decision at the case study companies (see Table 3). The interviewees for the cases were selected to obtain a clear overview of the respective company’s outsourcing strategy to determine multiple viewpoints (cf. Voss *et al.*, 2002). Both the researchers as interviewers and company representatives identified the interviewees as being the most appropriate and best-informed individuals at each company.

Insert Table 3 here

The interviews were recorded and lasted for an average of one hour. Notes were also taken during the interviews and an interview guide was used for all sessions. To increase the validity of the study, several follow-up interviews were conducted (cf. Eisenhardt, 1989; Yin, 2003; Voss *et al.*, 2002). The results from the first round of interviews were fed into the second round, which was instrumental to increase construct validity (Eisenhardt, 1989; Yin, 2003). This process also made it possible to establish whether the interviewees agreed or disagreed with the initial findings. This research strategy provided us with a better

^a The official investment promotion agency of Sweden, which helps international companies pursue business opportunities in Sweden.

convergence of evidence because the data was collected during different occasions and was used as a quality check and created the opportunity to collect new information (Yin, 2003). Apart from these discrete interviews, data was collected through general meetings and mill visits to the case companies studied and their suppliers. Primary data collection was complemented by secondary data in the form of internal material and public annual reports. Standardization of the interviews was central to the data collection, and the interview guide helped increase reliability. Reliability was further improved through the following means: (a) asking interviewees at the initial meeting/telephone contact if they considered themselves the most suitable person to interview given the background described; (b) conducting the interviews at the interviewee's office at a time suitable for the interviewee; and (c) taking an open-ended interview approach to capture different dimensions of interviewees' views on outsourcing (Yin, 2003).

The recorded interviews were transcribed into written form for further compilation, at which time information was organized into cases for pattern matching. The comprehensive case descriptions (each ranging from 10–20 pages) were sent to the case companies for verification, correction, and the addition of comments, which also helped increase the construct validity of the data collected (Yin 1989, Ellram 1996). The analysis used a replication logic approach (for example, drawing cross-case conclusions) and linked and mapped the data to theory (Yin, 2003). Using a replication logic approach makes it possible to determine that the findings are in line with previous studies and the contradictory issues (Bengtsson *et al.*, 1997).

Case studies of parallel production

This section presents five case descriptions from the Scandinavian wood product manufacturing (WPM) sector that apply different mixed strategies. Most firms in the WPM sector started as joinery factories or sawmill-related companies, and many remained small, concentrating on serving local markets. The Swedish market is worth approximately €4–5 billion and is diversified, with over 400 companies present. WPM firms are closely related and often have the same type of suppliers for their purchase of wood raw material: sawmill companies in the primary wood industry that supply the sawn wood. Over the years, the sawmill industry consolidated, resulting in larger and fewer operational units (top 10 Swedish sawmill producers hold approximately 60 percent of total production capacity); however, a long tail comprised of smaller, local sawmills still operates (in 2011, Sweden had more than 140 active sawmills with capacity larger than 10,000 m³ per year). At the European level, the market is even more fragmented, with the top 25 producers representing less than 25 percent of total production capacity.

The supplier and customer in the context studied apply different business logics. The WPM sector is a raw material-intensive industry in which the purchasing cost of raw wood material is a substantial part of WPM firms' manufacturing costs. This characteristic makes sourcing an important issue and has a significant effect on the financial performance of the firm. Nonetheless, firms in the WPM sector did not work closely with suppliers from the primary wood industry, traditionally handled most manufacturing of wood components and parts in-house, and primarily bought standard or bulk delivery of sawn timber from the production output of multiple sawmills. This lack of confidence was mutual when suppliers to the primary wood industry stated that firms in the WPM sector insufficiently plan their raw material needs and often search the market for alternative suppliers offering lower prices. This problem resulted in arms-length customer–supplier relationships under standardized interfaces.

Simultaneously, WPM firms often have difficulty obtaining the wood raw material with just the properties needed for their manufacturing. This difficulty is related to the fact that the primary wood industry sorts its output according to different properties and quality classes. Thus, adjusting to specific customer requirements is difficult when doing so results in consequential products that are challenging to offset in the market. Thus, the sawmill is somewhat restricted in its sawing to the “standard dimensions” of sawn timber that exists in the industry.

Related to this issue is that sawmills’ production output is characterized by a divergent production flow and a high level of upstream uncertainty of input given the heterogeneity of wood. Therefore, every single piece of production input in the form of saw logs to sawmills can result in a number of various outputs to different possible customers; in other words, several possible products can be produced from the raw material input. Therefore, manufacturers of products that incorporate sawn timber products (for example, WPM firms) often procure only a portion of their production input of wood from each sawmill’s production and require multiple suppliers, which makes a single sourcing strategy more difficult to apply. The divergent production flow creates several consequent products and by-products (for example, sawdust and wood chips) that sawmills also need to offset to assure profitability (fiber costs represent approximately 70 percent of a sawmill’s total costs). Thus, for suppliers from the primary wood industry, the question is not just selecting the most valuable customer and only focusing on the most profitable product output. In fact, traditionally, all of a sawmill’s production output (including by-products) needs to be sold to assure profitability. The focus is on economies of scale in sawmill production and ensuring a high yield between production input and output. Traditionally, WPM firms guarded themselves against supply uncertainty from the primary wood industry and their own deficiencies in planning by spot purchasing sawn timber from multiple suppliers and buffers, and engaged in in-house sawmill activities to process some of the raw material.

The companies studied in this paper decided to keep parts of their production in-house but with different drivers. The strategies and motives of the five mixed strategies in our case studies are presented in a typology (see Table 4), which is further addressed in the following case descriptions.

Insert Table 4 here.

Case A – Outsourcing as a capacity regulator

Company A is one of the largest producers of wooden windows in Europe. Approximately two-thirds of the group’s sales are related to the market for remodeling/renovation and residential extension projects. Remaining sales are from new housing construction. These end-user markets have highly cyclical demand patterns that are affected by factors such as the general state of the global economy, national GDP growth and interest rates, and consumer confidence in future market development, all of which affect the demand for windows. Demand for windows in the Nordic region also experiences significant seasonal fluctuations, with lower activity in the wintertime when weather conditions are less suitable for building and renovating houses (for example, variations of 20–40 percent often occur for single houses).

Therefore, investing in large in-house production involves the risk of low-capacity utilization and high fixed costs during periods of lower demand. To manage these business cycles and the variations in seasonal demand, the group’s large-scale in-house production of

window blanks – the key component used for producing the window frames – in its four own plants is complemented by outsourcing of up to 40 percent of the volume to one large external supplier. The group applies a similar logic to outsource window glass, outsources 30–40 percent of its window glass production to two suppliers in Poland, and manufactures the majority of glass in-house.

Although outsourcing the window blanks component results in cost advantages of approximately 10–20 percent, the group has no direct plan to increase outsourcing to further enhance capacity flexibility. The group deliberately decided to keep its main capacity and interweaved capabilities in-house. Window blanks are the first input to window production, and high supply reliability of components of sufficient quality is critical to avoid costly repair activities or factory production interruptions. Small changes in quality (approximately 0.5 percent) are not a direct problem. However, a catastrophe may occur if quality deteriorates and the volume of blanks that need to be repaired doubles or triples. In fact, additional repair activities can become so expensive that it renders the cost reduction of the initial outsourcing to be quite small in comparison.

Therefore, the group director considers the outsourcing of window blanks an important capacity regulator of the company's own production. This outsourcing activity helps the company retain high capacity utilization of in-house assets despite variations in window demand. Outsourcing also provides the necessary production flexibility to assist the company in avoiding costly investments in capacity expansion that can result in overly large fixed costs during market downturns. As the CEO for company A explained:

“...we can operate our machines optimally and have a steady year-round production volume” //“...we are currently in a situation that we could take a substantial downturn [on the market] without it affecting us.” (CEO)

Case B – Outsourcing of non-cost competitive production

Company B is one of the largest wood parquet flooring manufacturers in Europe. Historically, the company's production strategy was organized to handle the entire value chain in-house, from the processing of raw wood materials to finished products, including integrated upstream processing of raw materials and even its own power plants. This strategy resulted in a very inflexible production process, resulting in the company being unable to mobilize its strength to exploit growth in market upswings. Therefore, Company B experienced overly high fixed costs during market downturns. In addition, the company is experiencing increased price pressure in a mature and fragmented market with more competition from producers in low-cost countries. To manage this situation, Company B underwent a turnaround and replaced its former integrated production strategy with a strategy focused on increasing flexibility (for example, enabling faster switchovers to new products) and finding the most efficient processing chain possible – either in-house production or outsourcing to suppliers. The new strategy prioritized downstream manufacturing activities, which allowed for differentiation and added value to customers.

The company successfully outsourced some small-volume components (such as end-pieces to the floor and some specific wear-layers) and one complete floor type. To truly enhance flexibility and improve production efficiency, management set a strategic goal to start outsourcing the mid-layer and bottom-layer (M/B-component) manufacturing of the floor – handled at three different locations – with five production lines. Manufacturing of M/B-components is a large-scale operation with large material flows: Company B uses approximately 115,000 m³ of direct raw materials per year for M/B-components and produces approximately 450 m³ per day (or approximately 30,000 m² M/B-components per day). Outsourcing this operation became more difficult than expected.

The company's goal was to reduce costs by 20 percent through outsourcing. However, Company B found no developed intermediary industry positioned between sawmilling and the company for such component manufacturing. Over several years, Company B's management spent significant time and effort looking for suitable suppliers. As part of this endeavor, the company also conducted a larger investigation into better understanding the in-house cost levels and comparing them with both domestic and off-shore suppliers (Sweden, Estonia, Finland, Ukraine, and China). Because raw material costs constitute more than 50 percent of total costs, acquiring wood cheaply is critical. However, one problem is that the raw material has a similar price everywhere.

The result of the endeavor showed that in-house production was very cost efficient and that no suppliers existed that had adequate scale and cost efficiency to take over the outsourcing. Therefore, Company B revised its formulated strategy to instead focus on outsourcing volumes of non-standard M/B components (non-standard width and length) that were primarily produced from its two less efficient production lines and M/B components produced during costly working shifts (reducing shifts from five to three). The CEO described the strategy:

“One thing is that labor costs are higher during the last shifts. The other thing is that you lose production on other shifts if you manufacture during night and day. This is because you do not have time for maintenance. If you do need to do maintenance – say your machine breaks down or something like that [in other words, other operational disturbance] – you are forced to do that during normal uptime. If you have two shifts then you can do the maintenance during the night and if you have three shifts you can do it during weekends. The marginal volume you gain is decreasing the whole time.” (CEO)

In this sense, Company B was able to outsource this production and keep most of the standard M/B component manufacturing in-house. Although the outsourcing was planned for a cost that was higher than the company's own efficient production, the company still expected to realize savings from the improved efficiency of its own in-house plant manufacturing and by avoiding costly capital investments to upgrade less efficient production. The purchasing director stated that this strategy maintained the fixed costs for the present manufacturing and avoided new investments, allowing Company B to experience a more normal rate of machinery utilization in its main plant (that is, too many costly nights shifts were prevented).

Case C – Outsourcing to improve the structure of given capacity

Company C, a large supplier of wooden windows in the Nordic region, produces approximately 250,000 wood windows per year and manufactures approximately 60,000 different types of windows. Traditionally, the company handled all of its production in-house in its main production plant, from sawn timber to complete wood windows. Company C experienced very strong revenue growth, driven by the booming housing sector in the Nordic countries that doubled its production volume of windows in just four years. The increased production volume resulted in space scarcity in the current production plant. Its location, in proximity to a city and surrounded by other manufacturers, means that little if any space is available for expansion at the current production location. In addition, Company C's window production is characterized by a complex production flow and very short production series. For example, the type of window to be manufactured is decided during the first sawing of the timber. More than 150 components exist before the planing of wood; more than 1,000

components exist after mill machining; and, after painting, the number of components again doubles several times. As the Managing Director for the company explained:

“... we can also see that the production plant has increased its volume by almost 100 percent in four years. We have had enormous volume growth at the same time as we have increased the complexity by taking in new brands ... the variety of different types [windows] has exploded.” (Managing Director)

The company focused on outsourcing to achieve market and sales expansion without making new investments in an additional manufacturing facility. As one member of the sales management team stated:

“The main overall driving force is the need for capacity.” (Member of sales management team)

To reduce the complexity of the internal production flow and simultaneously free up space to further increase capacity, management implemented a multiple production line outsourcing strategy for the manufacture of windows and window blanks. The concept was that outsourcing parts of the production would enable the company to produce a wider range of different products; for example, the company would be able to concentrate specifically on certain customers, such as DIY retailers. Although these products already exist, the capacity and space limitations and the complex production flow made producing them in the present setup too complicated. Therefore, outsourcing enabled the production of these new windows. The space made available was intended for downstream activities that add differentiation and help decrease the complex material flow (for example, painting and other window surface treatment).

Case D – Outsourcing to build own experience

Company D develops and manufactures wood floors and distributes its products worldwide. The company has a long tradition of handling all activities in-house (even processing the raw wood material). However, from a customer viewpoint, full integration is not necessarily an advantage. In addition, competition from new, low-cost entrants and substitutes (laminated flooring), as well as a stagnant wooden flooring market, increased the company's focus on production flexibility and outsourcing of non-core activities. The process manager and the R&D manager emphasized that the company's core competencies increasingly became the following: (1) handling and coordinating flows (for example, from supply centers), (2) manufacturing activities at the end of the value chain, and (3) managing markets and customers. With this in mind, the company sees less of a need to keep all manufacturing in-house and seeks a production strategy that manages some production in-house and outsources several products and components through by outsourcing agreements with external sources.

Company D is at the beginning of a radical outsourcing program. Although the company clearly intends to start several outsourcing programs, one complicating factor is its limited outsourcing experience. Therefore, Company D prefers to start by “test outsourcing” certain volumes of M/B components to external suppliers to enable it to learn how outsourcing works and then gradually extend the effort. The company started to outsource the manufacture of some complete floors, which it expects to increase in the future after it gains more experience. Another area is the M/B component, which does not create enough market differentiation and, according to the R&D manager, could just as well be outsourced as one component of an external source. A supplier then handles and coordinates the flow from raw wood material to the delivery of the complete component. Company D's objective is to find an external

supplier with a process that is more competent than its current in-house production. However, finding highly reliable suppliers with developed capabilities, scale, and experience and that can handle outsourcing is challenging. Company D does not want 10 smaller suppliers because selecting few larger suppliers to handle most of the component manufacturing is more beneficial. By starting with the test outsourcing of M/B components and then gradually increasing volumes, Company D aims to evaluate suppliers' competence and technology in handling the selected manufacturing of components. As one process manager stated:

"...outsourcing that includes transferring competence always includes risks, and, therefore, it becomes important to weigh cost reduction possibilities and accompanied supply risks." (Process manager)

Case E – Outsourcing to measure and benchmark

Company E is one of the largest wooden door manufacturers in Europe and one of the leading suppliers of internal and external door solutions in the Nordic region. During the 1980s, the company supplied pinewood furniture to IKEA, and its highest priority was tracking costs related to this customer. The company has also retained such a focus on costs. Company E's in-house production of wood components is more like a supply base that needs to be benchmarked with external sources and that ensures competitiveness in in-house production. The company aims for excellence in all processes and outsourcing has become a part of its overall strategy. Therefore, Company E uses a parallel production strategy to continuously benchmark productivity and ensure reversibility of the outsourcing decision (that is, maintaining buyer competence). This strategy also helps avoid the risk of unmotivated price increases attributable to high supplier dependency. Control over process costs is also the main reason why Company E decided to handle some simpler raw material processing plants within its boundary (for example, a sawmill in Estonia). As the group director explained:

"Then the discussion about outsourcing or insourcing comes up, we are extremely focused on cost efficiency in our own plants ... we must always be able to see how much this component costs in-house and what it costs externally." (Group Director)

The group director stated that the company prefers buying rather than making, and if a supplier can offer a price 20 percent lower than the own internal price, then the company considers either outsourcing or using the information as a benchmark to develop in-house processes. In other words, a continuous balance exists between focusing on outsourcing manufacturing activities and considering insourcing an already outsourced activity. The company is able to insource activities that are not cost-efficient enough.

Typically, the company demands that suppliers have the scale to deliver to several plants. However, Company E does not view an underdeveloped supplier market as a hindrance because it takes a more proactive approach to developing its outsourcing partners. Competence is transferred to suppliers to streamline production processes and the flow of goods. In-house expert teams handle supplier development, which often includes helping suppliers with quality problems, building manufacturing experience, and resolving production problems or lack of reliability in their supplies. In addition, the team can help start up new technology and logistical methods, which the group director stated are the most difficult aspects to outsourcing. The teams reduced startup time after outsourcing was implemented and helped coordinate the flow between the supplier and Company E. Most importantly, these teams enabled to keep within the firm both buying and the competencies of wood component manufacturing.

Discussion of findings

To understand different types of mixed strategies and the position of such strategies along the continuum from insourcing to outsourcing, the discussion is structured around the types of mixed strategies represented by the cases.

Outsourcing as a capacity regulator

The “*capacity regulator*” case applies outsourcing as a complement to in-house manufacturing. A mixed strategy is applied to maintain flexibility and ensure high utilization of a company’s own production plants during fluctuating demand (see Table 5). This application is in line with the mixed strategy stream in the literature (e.g., Harrigan, 1986; Yang *et al.*, 2005; He and Nickerson, 2006; Mols, 2010b) and moves most of the production in-house, also regarded by the case as the more important production resource.

Arguably, a mixed strategy that divides volume between in-house and supplier production runs the risk of not finding full pooling effects; this notion is related to not being able to fully rationalize in-house production (e.g., Williamson, 1985). Previous writings on mixed strategies also argued that combining outsourcing with in-house production leads to higher costs (e.g., Mols, 2010b). However, our “*capacity regulator*” case illustrates that the cost driver must be evaluated with additional parameters. For this case, the external source could offer lower costs than in-house production. An outsourcing framework (e.g., Venkatesan, 1992; Gottfredson *et al.*, 2005) would prescribe the outsourcing of such activities. However, the case company decided to keep the majority of its production in-house. A key reason is that components considered for outsourcing are often the first input to the plants and critical to continue manufacturing. A lack of quality or delays in supply can become so costly that they render the cost reduction of the initial outsourcing quite small in comparison.

From this viewpoint, a mixed strategy arguably saves total costs in the long run, whereas fully taking advantage of short-term economies of scale might not be possible. Therefore, a mismatch risk seems to exist in terms of what should be considered strategically important in a purely cost-based approach. A cost-based approach involves a heavy cost focus when formulating the risks of outsourcing strategies and disregards that components can be operation-critical and vulnerable to supplier failure. This notion aligns with several previous studies that identified a gap in the literature, and additional research is needed to bridge the gap between strategic and operational dimensions in outsourcing decisions (e.g., Boulaksil and Fransoo, 2010; Dekkers, 2011).

Outsourcing of non-cost competitive production

Much of the theoretical underpinnings of outsourcing rest on the assumption that a supplier market exists that can manage the activities considered for outsourcing, and that an actor in the market will always exist that is better suited to producing the outsourced activities (e.g., Williamson, 1985). However, the “*outsource non-competitive production*” case clearly illustrates the struggle to find developed suppliers and also the risk of lock-in. In this view, a mixed strategy has the potential to act as a safeguard to lower dependency risks in outsourcing and, thus, the risk of supplier opportunism (Williamson, 1985). Therefore, if a non-developed supplier market exists (what Walker *et al.* (2005) also termed an imbalanced supply market), a mixed strategy becomes a way to maintain control of the development and market prices. From this view, the cost driver is also strongly linked to the “*outsource non-competitive production*” case, which has working in-house production that is cost-competitive as long as no larger investments are needed. Here, a mixed strategy is applied to improve the overall cost

efficiency by outsourcing the least cost-competitive production lines. The case still considers in-house production as the most important production resource.

Outsourcing to improve the structure of given capacity

The need for capacity as a driver to apply a mixed strategy is most obvious in the “*capacity regulator*” case but can also be linked to the “*internal structure*” case from another viewpoint. Both case companies outsource to increase flexibility and avoid costly investments in in-house manufacturing (e.g., Quinn and Hilmer, 1994; Cáneez *et al.*, 2000). However, the cases are different in nature and resemble the two views that also exist in the literature. For the “*internal structure*” case, outsourcing is considered a means to manage an operational bottleneck by outsourcing the majority of certain production (see Table 5). This strategy is linked to managing the scarcity of manufacturing space, the resolution of which cannot always be fully justified by costly greenfield investments. This line of argument better follows the outsourcing stream in the literature (e.g., Harrison and Kelly, 1993; Fill and Visser, 2000).

Outsourcing to build own experience

The “*develop capability*” case is in an early-stage outsourcing phase with a focus on retaining competencies. The mixed strategy allows testing of performance uncertainty and helps develop the supplier (cf. Leenders and Nollet, 1984). Therefore, most of the production will initially be kept in-house, but the goal is to increase outsourcing as time goes on (during which time either supplier performance uncertainties are reduced or more suppliers are developed). Moreover, our “*develop capability*” case shows that a mixed strategy initially helps protect against lock-in risk, but the strategy is more the result of the company’s own lack of outsourcing experience.

Outsourcing to measure and benchmark

Similar to the “*develop capability*” case, some production is kept in-house in the “*benchmark and develop supplier*” case, which then maintains in-house complementary knowledge and competencies to support and develop suppliers. However, the manners in which outsourcing is applied compared with the “*develop capability*” case is very different. Whereas the “*benchmark and develop suppliers*” case uses in-house manufacturing as more of a complement to outsourcing, the “*develop capability*” case initially keeps the majority of production in-house (see Table 5). The concept applied by the “*benchmark and develop supplier*” case is closely related to the aim of continuous cost benchmarking and creating cost transparency. Here the aim is retaining a focus on price to avoid unmotivated increases. Thus, a cost driver is clearly obvious in the “*benchmark and develop suppliers*” case, which views both in-house production and the supplier as a supply base.

In contrast to several other make and buy studies (e.g., Jakobides and Billinger, 2006; Puranam, 2008; Mols, 2010a), the “*benchmark and develop*” supplier case does not apply a mixed strategy to access competencies that would be difficult and costly to develop internally (e.g., Quinn, 2000). Instead, component production is kept in-house, which then keeps in-house complementary knowledge and competencies to support and develop suppliers (“*benchmark and develop suppliers*” case). In this sense, the “*benchmark and develop suppliers*” case aligns well with studies that argued for a mixed strategy to transfer knowledge from in-house to external suppliers (e.g., Parmigiani and Mitchell, 2009; Mols, 2010b). Most production is outsourced, but the case description illustrates the need to keep in-house complementary competencies that are required to support the company’s core competencies. Previous studies found similarly that retaining such competencies in-house to ensure

continuous competence development (for productivity gains, for example) can even outweigh the cost advantages from outsourcing (see Broedner *et al.*, 2009). This finding adds to previous research findings on the advantages of a mixed strategy by illustrating that such a strategy facilitates not only access to external sources' capabilities but also keeps a developed resource base in-house; that is, it increases the resource base (cf. Parmigiani, 2007; Mols, 2010a).

Different types of mixed strategies along the continuum from insourcing to outsourcing

Based on the previous discussion, with a starting point as noted in Figure 1, the mixed strategies of the five case studies can be linked to the different identified drivers (see Table 5) and, thus, positioned between the two ends of the continuum (see Figure 4).

Insert Table 5 here.

The “*benchmark and develop supplier*” strategy quite clearly illustrates an outsourcing-dominant strategy that uses a mixed strategy to measure the company's own performance and supplier prices and costs. A key driver is for the company to continuously analyze its internal and external business processes to determine its competitiveness. In contrast, the “*develop capability*” strategy can be positioned as an in-house dominant strategy (see Figure 4) whose first step in an outsourcing program is to outsource some volumes to develop one's own competencies (cf. Leenders and Nollet, 1984). Contemplating gradual outsourcing is viewed as a safeguard when uncertainty exists regarding the competencies and skills of suppliers.

The three other mixed strategies can be positioned between the two ends of the continuum (see Figure 4). The “*capacity regulator*” strategy keeps the majority of production in-house and manages demand cyclicity by using outsourcing to ensure high capacity utilization of assets (that is, downward adjustment of outsourcing during times of market decline and increasing during demand peaks). The “*outsourcing non-competitive production*” strategy also keeps in-house the majority of production and focuses on cost efficiency of in-house production when combined with outsourcing. As previously shown, not all industrial contexts/settings developed suppliers with large-scale production systems (Walker *et al.*, 2005). Under such circumstances and for this case study, complete outsourcing to lower in-house costs becomes more complicated, particularly if the in-house production is up and running with little need for new investments. However, large-scale production systems can involve some production lines or products that are more costly to operate or produce in-house but could be better managed through an outsourcing agreement and by this outsource non-competitive production. The “*internal structure*” strategy highlights the use of in-house production parallel with outsourcing to reduce in-house complexity and the reallocation of operational resources. This case does not view the in-house production base for component manufacturing as a strategic resource. Instead, an outsourcing logic is more dominant and is needed to enable manufacturing of other products that are considered more important and that help create differentiation and value for customers.

Insert Figure 4 here.

Two points should be noted from this discussion. *Firstly*, similar to different contractual relationships (e.g., McIvor, 2008), companies are able to apply a large range of different possible mixed strategies. *Secondly*, all the cases studied illustrated how significant flexibility in the outsourcing decision can be created. With an in-house-dominant outsourcing strategy, flexibility refers to what the literature often terms volume flexibility (e.g., Salvador *et al.*, 2007; Jacobides and Billinger, 2006) and supply chain flexibility (e.g., Stevenson and Spring, 2009; Fredriksson *et al.*, 2010). With such a strategy, maintaining cost levels and managing the volume uncertainty that exists in the market can swiftly change output (Mols, 2010b). With an outsourcing-dominant strategy, flexibility refers more to keeping complementary competencies. However, at the same time, this concept arguably shows that flexibility means that finding the most optimal solution in each individual situation is not always possible. For example, from a TCE perspective, a mixed strategy may imply the risk of not finding full pooling effects, which is related to not being able to fully rationalize in-house production (i.e., dividing the volume between in-house and supplier production). Thus, in view of a TCE, parallel production should theoretically lead to higher costs (Williamson, 1985). At the same time, our “*capacity regulator*” strategy illustrates that full outsourcing might not be an appropriate strategy even if the external source offers lower costs. Instead, parallel in-house production works as a buffer to improve production flexibility and to avoid costly production interruptions. In this way, a mixed strategy has the potential to act as a safeguard to avoid one of the most argued dependency risks in TCE, namely small number bargaining and, thus, the risk of supplier opportunism (Williamson, 1985) and revenue appropriation (Walker, 1988). If one perceives that a non-developed supplier market exists – what Walker *et al.* (2005) also termed an imbalanced supply market – a mixed strategy is a way to maintain control over development and market prices. TCE effectively rests on the assumption that a supplier market exists that can manage the activities considered for outsourcing and that an actor in the market better suited to producing outsourced activities will always exist (e.g., Williamson, 1979). Without such a market, the buyer is viewed as needing to help develop this market.

Conclusions

This paper’s investigation of mixed strategies is aligned with previous research (e.g., Jacobides and Billinger, 2006; Parmigiani, 2007; Mols 2010a; 2010b) to illustrate that such a strategy is a distinct choice that a firm makes and not merely an intermediate mode. Based on Leenders and Nollet (1984), a mixed strategy was further explored and contributed to by adding more depth to our understanding of different types of such strategies.

By drawing on authors such as McIvor (2009) and Holcomb and Hitt (2007), from a TCE perspective, a mixed strategy is shown to save total costs in the long run, whereas being able to fully take advantage of short-term economies of scale might not be possible. Furthermore, a mixed strategy might help develop a well-functioning supplier market that prevents supplier opportunism and revenue appropriation. Thus, the buyer may need to adjust the TCE framework for its outsourcing decision to accommodate such a market. Similarly, from a RBT perspective, a mixed strategy arguably helps protect or even develops important resources that are not judged as strategically significant but that are critical for the operations. This argument adds to previous research findings on the advantages of a mixed strategy from a RBT perspective by illustrating that such a strategy also helps keep a developed resource base in-house and does not only access external sources’ capabilities; in other words, a mixed strategy increases the resource base (cf. Parmigiani, 2007; Mols, 2010a).

This paper posits that a variety of mixed strategies exist between the two governance forms of “make” or “buy.” In order to address how companies should think about how much

to outsource (Harland *et al.*, 2005), we structured this issue around two ends of a continuum: *in-house dominance* and *outsourcing dominance*. With *in-house dominance*, outsourcing is used as a function that is complementary and supportive to own in-house production to optimize the capacity utilization of the firm's own plants, to outsource less cost-efficient production, or as a tool to learn how to outsource. When *outsourcing dominates*, in-house production complements external sourcing to maintain complementary competencies and avoid lock-in risk.

Multiple studies addressed managing the balance between the in-house and outsourcing governance forms, often discussed as the risk of irreversibility (Lonsdale and Cox, 1997; Dekkers, 2011). However, more often than not, these studies centered their argument around different contractual forms and various relationship-building dimensions to avoid opportunism and competitive threats in the actual outsourcing agreement. For example, Quinn and Hilmer (1994) and McIvor (2009; 2011) suggested different types of contractual structures such as joint ventures to manage such opportunistic behavior. Tate and Ellram (2009) found that asset-specific investments and vendor training could reduce supplier-related risks. Gottfredson *et al.* (2005) suggested creating a new spin-off business when the outsourcing company has significant capability to perform the activity. Often neglected is the importance of keeping competencies and skills directly in-house, such as buying capabilities when buyer and seller mutually distrust one another, when relationships are managed at arms-length, or in sectors with very limited supplier markets.

For practitioners, this paper suggests that managers should think twice before rushing to implement a “me too” outsourcing strategy in which in-house capacities are completely closed (cf. Heriot and Kulkarni, 2001; Harland *et al.*, 2005). Taking a dynamic view of outsourcing is important, considering the need for both flexibility (strategic and operational) and to keep complementary competencies in-house (cf. Boulaksil and Fransoo, 2010; Dekkers, 2011). In particular, this statement is true in situations with a non-developed supplier market in which the components considered for outsourcing are vulnerable to supplier failure or when a company has little outsourcing experience (cf. Walker *et al.*, 2005). An option in such situations is a mixed strategy that retains some parallel in-house production and helps protect or even develops important resources that are not strategically significant but are critical for operations. Another option is a mixed strategy that keeps the majority of production in-house in order to balance demand peaks or to outsource non-standard production that does not complement large-scale, in-house production. Overall, applying a mixed strategy clearly enhances flexibility for managers contemplating outsourcing. However, it is important to recall that it is not always possible to have flexibility in terms of a mixed strategy means that finding the most optimal solution in each individual situation.

The present study takes the first steps in exploring the variety of mixed strategies that exist on the continuum between insourcing and outsourcing. We hope that our work, in combination with prior work in the area, will generate more research on outsourcing that considers outsourcing decisions from a “make” or “buy” perspective and includes the different types of mixed strategies that exist in the grey zone in between. However, additional research is needed in this area.

Other areas for further research include understanding the cost of mixed strategies and studying the supplier side. Little if any research has focused on mixed strategies from a supplier perspective. For example, if a customer retains its own in-house production, suppliers may be concerned that the customer is too short-sighted in its outsourcing. Such a mindset could cause the supplier to hesitate to fully invest in assets to take over the outsourcing, thus complicating outsourcing for the customer, which must be further addressed. Further research is also needed to investigate the costs of a mixed strategy (cf. Mols, 2010). A mixed strategy

may be an interesting approach to handling supplier-related risks in outsourcing and enable process cost benchmarking, but how costly is it? Whereas cost reduction objectives continue to be the global key driving force for initializing outsourcing (Kakabadse and Kakabadse, 2005; Dekker, 2011), retaining production in-house over an extended period may be difficult to justify.

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Table 1. Summary of recent outsourcing decision frameworks

<i>Author</i>	<i>Year</i>	<i>Study</i>	<i>Theoretical perspective</i>	<i>Key points and outsourcing framework</i>
McIvor	2010	Case	RBT	Constructs a 2x2 RBT matrix that analyzes capability (performance disparity and resources) and competitive contribution (value and imitability potential). Identifies RBT variables in outsourcing decisions, but RBT alone fails to explain opportunism.
McIvor	2011; 2009; 2008	Case	Integrating RBT & TCE	States that both TCE and RBT are needed but can sometimes provide contradictory views. Proposes a three-dimensional framework – (1) contribution to competitiveness; (2) relative capability; (3) potential for opportunism – resulting in five sourcing strategies. Potential for opportunism managed by an appropriate relationship strategy (arms-length vs. relationship).
Tate & Ellram	2009	Case	TCE	Outlines a strategic framework for supplier selection and ongoing management for purchasing services from offshore suppliers. First step, linked to supplier selection, is defining sourcing opportunities and identifying the organization's need for outsourcing. Next, in-house capabilities should be addressed. Finally, suitable suppliers should be located to start the negotiation and contract process.
Holcomb and Hitt	2007	Case examples	Integrating RBT & TCE	Using cost motives (TCE) alone limits the analysis. The paper suggests a theoretical model for outsourcing in which TCE arguments are complemented by RBT in terms of gaining access to specialized capabilities, which should help firms ensure value beyond efficient cost mechanisms.
Gottfredson <i>et al.</i>	2005	Case examples	RBT/ERBT	Outlines a three-step strategic outsourcing framework: (1) decide core vs. non-core functions based on proprietary asset and uniqueness; (2) cost/quality benchmark non-unique/proprietary functions to find best sourcing option; (3) decide on outsourcing items' need for proximity.
Aron & Singh	2005	Case examples	Influence of RBT / ERBT and TCE	Define three-step framework: (1) identify core (keep in-house), critical (potential for outsource), and commodity (outsource) processes based on value creation vs. value capture; (2) use matrix to evaluate operational (supplier failure related) and structural (opportunism related) risks; (3) decide proximity (offshore vs. local) and organizational form.
Baines <i>et al.</i>	2005	Case studies	Operationalization of earlier frameworks	Develops and tests a more interlinked five-stage decision process that guides manufacturers to a decision on their upstream and downstream strategic positioning.

Table 2. Types of driver, descriptions of subsequent mixed strategies and sources.

<i>Type of driver</i>	<i>Subsequent mixed strategy</i>	<i>Source</i>
Capacity flexibility	Balance in-house manufacturing capacity when demand varies and create effective capacity utilization.	Mols (2010b); Jacobides and Billinger (2006); Yang et al. (2005); de Kok (2000); Kamien and Li (1990); Harrigan (1986).
	Use multiple supply chains to match predictable vs. unpredictable demand (e.g., global vs. local sourcing).	He and Nickerson (2006); Ferdows et al. (2004); Fredriksson et al. (2010).
Core competence/capabilities	Access strong external competencies to develop in-house competencies and/or use strong internal capabilities to strengthen the capabilities of external suppliers.	Mols (2010b); Puranam et al. (2008); Parmigiani and Mitchell (2009); Parmigiani (2007); Jacobides and Billinger (2006); Rothaermel et al. (2006); Veugelers and Cassiman (1999); Bradach and Eccles (1989); Leenders and Nollet (1984).
Lock-in risks	Lower barriers to exit and lock-in risks by keeping buying and manufacturing competencies in-house with a mixed strategy.	Mols (2010a; 2010b); Puranam et al. (2008); Parmigiani (2007); Heide (2003); Dutta et al. (1995); Harrigan (1986).
Cost	Keep production in-house to benchmark the performance of external suppliers and create cost transparency and bargain power.	Mols (2010a; 2010b); Puranam <i>et al.</i> , (2008); Jacobides and Billinger (2006); Heide (2003).

Table 3. Overview of cases studied and data collection methods.

<i>WPM case</i>	<i>Company description</i>	<i>Interviewees</i>	<i>Secondary data</i>
Case A - Outsourcing as a capacity regulator	Large European producer of wooden windows	Group director, CEO, two production managers, project manager	Annual reports, press releases, and presentation materials
Case B - Outsourcing of non-cost competitive production	Large European wood flooring producer	CEO and purchasing director	Annual reports, press releases, and internal data (strategy documents and outsourcing calculation material)
Case C - Outsourcing to improve the structure of given capacity	Large supplier of wooden windows in the Nordic region	Managing director, sales manager, purchasing manager	Annual reports, press releases
Case D - Outsourcing to build own experience	Large European wood flooring producer	R&D manager, process manager, and product manager	Annual reports and environmental reports Annual reports and business strategy presentations
Case E - Outsourcing to measure and benchmark	Large supplier of wooden doors in the Nordic region	Group director	Annual reports and internal data (business strategy presentations)

Table 4. A typology of five different mixed strategies.

<i>Case</i>	<i>Case A</i>	<i>Case B</i>	<i>Case C</i>	<i>Case D</i>	<i>Case E</i>
<i>Description</i>	<i>Capacity regulator</i>	<i>Outsource non-competitive production</i>	<i>Develop capability</i>	<i>Internal structure</i>	<i>Benchmark and develop suppliers</i>
Mixed strategy	Ensure high-capacity flexibility in demand variations.	Outsource the least cost-competitive production lines.	Build experience before full-scale outsourcing.	Make room for capacity expansion for other activities.	Measure benchmark performance and own supplier price/cost.
Motivation	To avoid high fixed costs in-house and to maintain high utilization of own assets.	Own production is very cost-efficient and has low fixed costs; no suppliers available.	Minimal experience in outsourcing; few large-scale suppliers available.	Plant size cannot be easily expanded; avoid costly investments in a new plant.	In-house and external production is considered more as a supply base.

Table 5. Mixed strategies of the cases studied related to drivers of a mixed strategy.

<i>Case</i>	<i>Case A</i>	<i>Case B</i>	<i>Case C</i>	<i>Case D</i>	<i>Case E</i>
<i>Description</i>	<i>Capacity regulator</i>	<i>Outsource non-competitive production</i>	<i>Develop capability</i>	<i>Internal structure</i>	<i>Benchmark and develop suppliers</i>
Capacity flexibility	High importance: complementary outsourcing to manage volume uncertainty.	High importance: complementary outsourcing to improve overall capacity efficiency.	Low importance	High importance: outsourcing to improve the structure of given in-house capacity/plant size.	Low importance
Core competence/capabilities	Low importance	Low importance	High importance: retaining competencies in early stage outsourcing.	Low importance	High importance: supporting and developing suppliers.
Lock-in risks	Low importance	Low importance	High importance: "test outsourcing" to build own capability.	Low importance	High importance: retain in-house production to avoid unmotivated increases.
Costs	Low importance	High importance: improve overall cost efficiency by outsourcing non-cost-competitive production lines.	Low importance	High importance: avoid costly in-house investments.	High importance: benchmark in-house vs. external supplier.

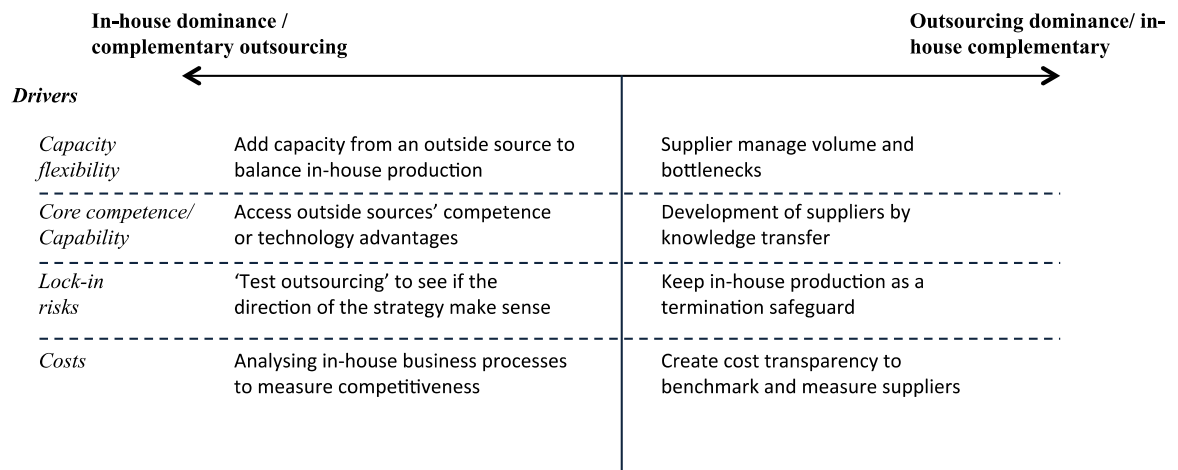


Figure 1. Drivers for a mixed strategy (adapted from Leenders and Nollet, 1984, p. 12).

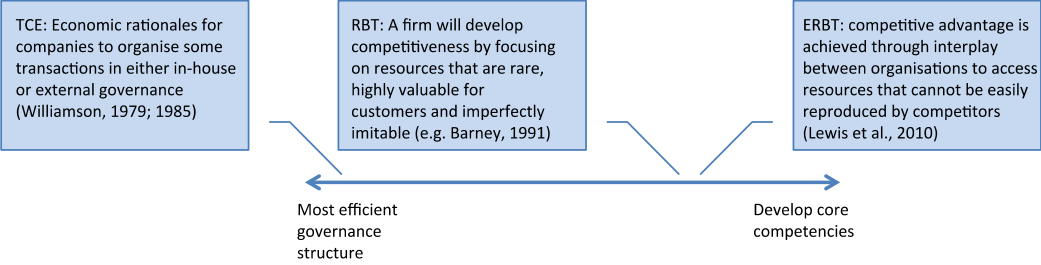


Figure 2. Theoretical frameworks for outsourcing.

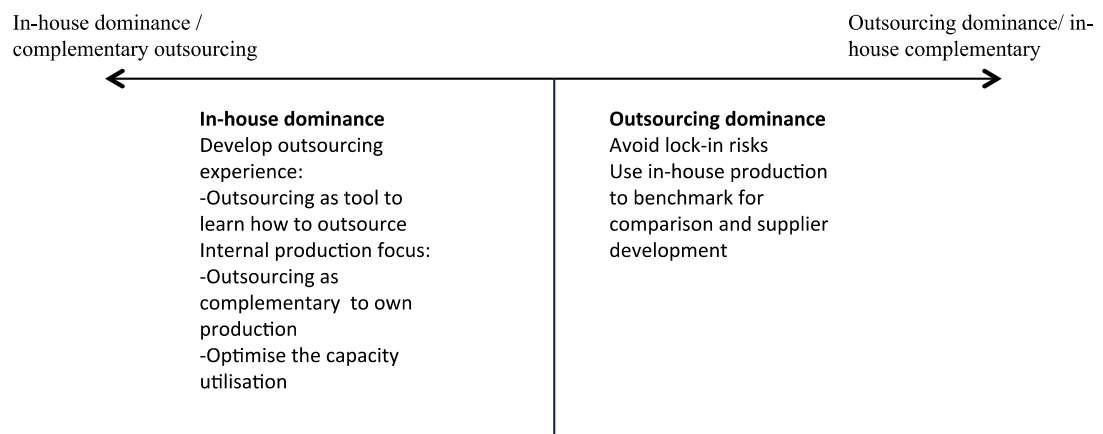


Figure 3. Mixed strategies structured across a continuum.

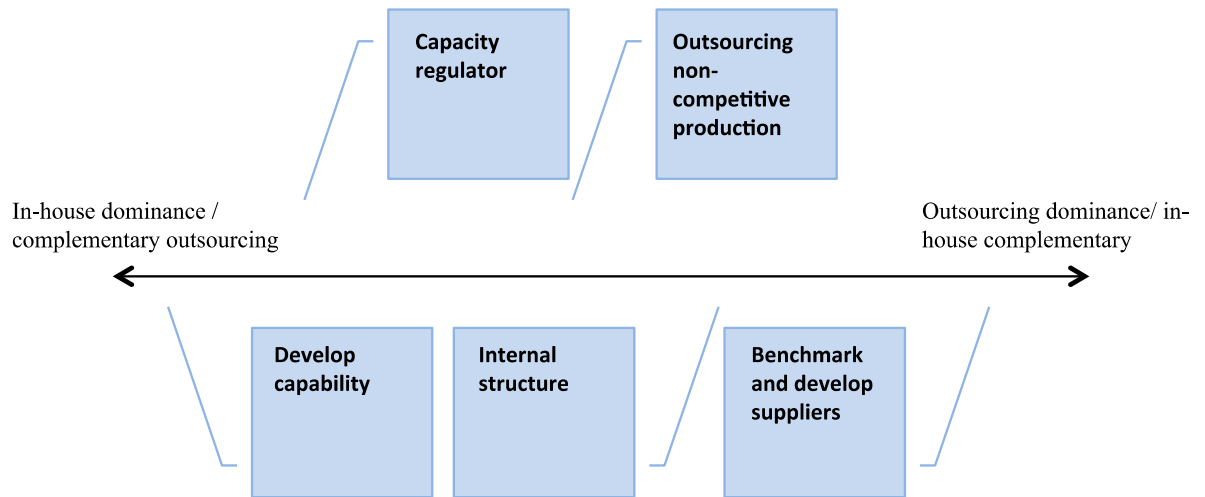


Figure 4. Five different mixed strategies structured across a continuum between in-house production and outsourcing