

OUTSOURCING FROM A SUPPLIER PERSPECTIVE

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Abstract

This paper investigates outsourcing from a supplier perspective. More specifically, it focuses on strategic and also operational factors that are addressed when a supplier considers taking over outsourcing that they have not handled previously. The supplier side has not been given the same attention as the customer side in the outsourcing literature to date, and this paper represents a step towards complementing this predominant customer focus. The paper applies a case study approach. Data collection is based on 23 in-depth interviews in the Scandinavian wood products industry. The paper finds that cost advantages in comparison with customers' large-scale capacity production are difficult to achieve in the context studied. Under the circumstances, there are limited possibilities for economies of scale; in addition, new investments are needed to build manufacturing capacity. The recommendation for practitioners is to consider what new competencies are required when entering into an outsourcing agreement. In addition, it is critical that the outsourced manufacturing is profitable by itself, and that the revenues derived from the delivered components are sufficient to cover the resulting costs.

Keywords: Outsourcing, forward integration, supplier value-adding strategies.

1 INTRODUCTION

Outsourcing can be defined as transferring an activity from internal to external control (see, e.g., Gilley and Rasheed, 2000; Sousa and Voss, 2007; Nordigården et al., 2014); it has been widely applied in a range of industry types and contexts (for an overview see, e.g., Rothery and Robertson, 1995; Willcocks and Lacity, 1998; Lonsdale and Cox, 1997; Kern et al., 2002; McIvor, 2005; McIvor, 2010). This heavy outsourcing activity has even led to the emergence and development of new sectors and new types of sub-suppliers (see Harland et al., 2005; Nordigården et al., 2014). Outsourcing from the viewpoint of the client company has been researched in-depth from various angles and theoretical starting points (for an overview, see Cáneez et al., 2000; Malmgren, 2010; Boulaksil and Fransoo, 2010; Rehme et al., 2013); however, the supplier side has not been given the same attention in the outsourcing literature (Hussey and Jenster, 2003; Sousa and Voss, 2007; Malmgren, 2010; Shams and Yen-Chun, 2011).

Outsourcing provides new opportunities for existing upstream suppliers or new actors to move forward and take over outsourced activities. At the same time, taking over outsourced activities will affect the role and position of the company (Lilliecreutz, 1996). From this point of view, becoming the outsourcing supplier results in new demands and requirements on the supplier's capabilities and competence base; that is, the supplier should not assume that existing skills can be applied in the same way in the new business areas (Hayes and Wheelwright, 1984; Lilliecreutz, 1996). A key challenge for the supplier is often that of finding new ways to add value by either improving performance or augmenting the product offer (Harland et al., 2005). Therefore, taking over outsourcing can be seen as vertical integration, which often results in entering a new business area (e.g., Malmgren, 2010). However, when discussing downstream integration, previous literature often focuses on companies that manufacture products, and downstream integration that involves moving towards distribution role to improve the strategy, operating profit margins and financial situation (see, e.g., Hayes and Wheelwright, 1984; Harrigan, 1984; Barnes and Sinclair, 1985; Scherer and Ross, 1990; Porter, 1998). In contrast, the current paper studies downstream integration from the perspective of a manufacturer of wood raw materials that also intends to start making semi-finished goods (in the form of wood components) by taking over outsourcing.

This paper's empirical basis is the Scandinavian wood-product manufacturing sector. Suppliers of wood act within the sawmill industry, which faces tough competition, with a mix of national and international actors and highly cyclical return patterns (Stendahl et al., 2013; Rehme, et al., 2013). Raw materials take up the major share of production costs, and this leads to a high production orientation with a focus on high operational utilization and volume yield (e.g., Staland et al., 2002; Nord, 2005; Nordigården, 2007; Stendahl et al., 2013; 2014; Nordigården et al., 2014).

By taking over outsourcing, suppliers aim to move away from a commodity product market to products that customers are willing to pay a higher price for, and also build stronger relationships with their customers (Roos et al., 2001; 2002; Stendahl et al., 2013; Stendahl and Eliasson, 2013; Rehme et al., 2013; Nordigården et al., 2014). This value-adding strategy is assumed to help improve the suppliers' financial performance (Hansen et al., 2002; Stendahl et al., 2013; Stendahl and Eliasson, 2013). At the same time, sawmill suppliers have little experience of handling component manufacturing, which raises questions related to how suppliers of wood raw materials would manage to integrate forward to take over outsourced activities, and what kinds of mechanisms (for instance, scale, scope or competencies, ability to learn) must be developed (cf. Hayes and Wheelwright, 1984).

With this starting point, the present paper aims to investigate outsourcing from a supplier perspective. More specifically, the paper focuses on strategic and also operational factors that are addressed when a supplier is considering taking over outsourcing that they have not handled previously. This paper contributes to the general field of outsourcing research by furthering understanding of the outsourcing phenomenon from a supplier perspective. This represents a step forward that complements the present predominant focus on the customer side (cf., Augustson, 1998; Auguste et al., 2002; Hussey and Jenster, 2003 Sousa and Voss, 2007; Malmgren, 2010; Shams and Yen-Chun, 2011).

The remainder of this paper is structured as follows. First, a literature review is conducted, which becomes the basis for analyzing the empirical material collected; second, the research design is presented; third, the empirical material is presented; and finally, a discussion is conducted and conclusions drawn, with implications for theory as well as recommendations for practitioners.

2 FRAME OF REFERENCE

The analysis of key strategic and operational factors that are addressed when a supplier is considering taking over outsourcing they have not handled before will be conducted by looking at three main areas. These areas are summarized in Table 1 and discussed in more detail below.

Table 1. Three main analysis areas

Dimension	Approach	Source
Type of driver	Understanding the driving forces to take over outsourcing via forward integration.	Bain (1965, 1968); Scherer (1975); Hayes and Wheelwright (1984); Chandler and Hikino (1990); Porter (1998)
Capability position	Understanding potential comparative cost advantages as supplier.	Stuckey and White (1993); Klein and Hiscocks (1994); Porter (1998); Greaver (1999)
Business-related risks	Assessing risks of vertically integrating forward.	Auguste et al. (2002); McIvor (2005; 2010); Lilliecreutz (1996)

2.1 *Driver for vertical integration and taking over outsourcing*

For suppliers taking over outsourcing of manufacturing activities it is important to offer an advantage over the customer's current production methods (Greaver, 1999; Auguste et al., 2002; Abrahamsson et al., 2003). Otherwise, such downstream integration will result in the outsourced activities being performed in a similar way to that previously conducted by the client, which most likely will not significantly offer any significant cost savings (Auguste et al., 2002). A challenge that many companies miss is that "vertical integration usually requires developing superior management skills in a new area, not simply applying existing skills" (Hayes and Wheelwright, 1984, p. 305).

One way to manage this is to more significantly differentiate the outsourced activity by controlling more critical elements of the production process and increasing the value added (Harrigan, 1984; Porter, 1998). In this view, applying forward integration can help to more strongly differentiate the supplier itself, even if the products provided are not superior to those of competitors (Porter, 1998). At the same time, forward integration reduces uncertainty in the demand flow (Ibid.).

Porter (Ibid.) argued that downstream integration helps suppliers to access distribution channels, and reduces the bargaining power of customers. Porter (Ibid.) even stated that it can be enough argument for a supplier to implement forward integration even if the only saving made comes from raising price-realization possibilities. In the same lines as Porter, Hayes and Wheelwright (1984, p. 286) stated that the main two arguments for why firms implement forward integration are to increase returns or improve control. In this view, downstream integration is seen to cause lock-in effects that can be beneficial for the provider in terms of reducing the possible bargaining power of customers (Porter, 1998), and even shift power in favor of the supplier (Stuckey and White, 1993; Lonsdale and Cox, 1997; Cox et al., 2003).

2.2 Capability position

Offering cost advantages by means of forward integration can be defined as economies of integration (Porter, 1998). These cost advantages will be discussed here in terms of: (1) economies of scale, (2) economies of combined operations, (3) economies internal control, information and relationships, (4) economies of scope, and (5) offering lower factor costs. These approaches are summarized in Table 2.

Table 2. Cost capability possibilities for suppliers considering taking over outsourced manufacturing

Focus	Key points for cost advantage	Example of application	Source
Scale	Economies of scale – lower long-run cost by scale advantages.	Increase scale over that of customers.	Bain (1965, 1968); Scherer (1975); Chandler and Hikino (1990); Porter (1998)
Combined operations	Economies of combined operations – reduce cost by improving the production or handling process.	Eliminate operation steps.	Bain (1968); Silberston (1972); Harrigan (1984) Auguste et al. (2002)
Relationships and information	Economies of relationships and information – stable relationships will enable reduction of cost via better forecasting and planning.	Fine-tune production.	Hayes and Wheelwright (1984); Porter (1998)
Scope	Economies of scope – multiple types of outsourced items and use of the same production process to reduce costs.	Use excess capacity in production line.	Panzar and Willig (1981); Bailey and Friedlaender, (1982); Harrigan (1984); Chandler and Hikino (1990)
Factor cost	Lower factor costs (e.g., labor or raw materials).	Automate production or source from low-cost country.	Brück (1995); Abrahamsson and Brege (2003); McIvor (2005)

2.2.1 Economies of Scale

Economies of scale relate to lowering the total costs and unit costs by having larger and larger plants (Bain, 1965, 1968; Scherer, 1975): “those that result when the increased size of a single operating unit producing or distributing a single product reduces the unit cost of production or distribution” (Chandler and Hikino, 1990, p. 17). Thus, with larger, or even multiple, plants the efficiency can increase; consequently, up to a certain point the unit costs can be increasingly lowered (Bain, 1968). Economies of scale can also be linked to the collective pooling effects from several customers, which, from the perspective of transaction cost economics, make market governance more favorable if transaction costs are disregarded (Williamson, 1979).

Suppliers should not underestimate economies of scale when it comes to reaching levels of value that their customers could not reach on their own (Vesey, 1978; Porter, 1998). On the same lines, Auguste et al. (2002) argued that firms that have been successful in taking over outsourced routine operations (e.g., extra manufacturing capacity), have achieved economies of scale by defining the boundaries of activities handled and minimizing customization. Here, economies of scale will tie up many desirable customers, and barriers to entry will be created if significant economies of scale or capital requirements are needed (Porter, 1998). Without achieving economies of scale by means of having multiple customers there is a large risk that the supplier will provide the outsourced activities at similar costs to those their customers would incur by conducting them in-house, resulting in a lose-lose situation (Auguste et al., 2002).

In this view, companies with the largest capacity will have a cost advantage, and economies of scale in terms of forward integration, which will be related to lowering costs by incorporating longer run-lengths into production and avoiding too many changeovers and long run-in times (Haynes and Wheelwright, 1984).

2.2.2 Economies of Combined Operations

Economies of scale alone may not be enough for suppliers to maintain cost advantages over their customers for an extended period of time. Providers must also realize economies of scale in terms of specialization; that is, “the focus needed to identify areas that are susceptible to improvements and the knowledge needed to act successfully on that awareness” (Auguste et al., 2002, p. 55). For suppliers, cost savings can be made via improvements in the production and handling process, which can be defined as economies of combined operations (Porter, 1998). Such integration economies will arise by linking operations together and eliminating operation steps (Bain, 1968; Silberston, 1972; Harrigan, 1984). This can include, for instance, improved production processes, or reduced handling and transportation costs (e.g. by locating facilities in close proximity to each other) (Porter, 1998, p. 303).

2.2.3 Economies of Relationships and Information

Building on scale and combination of operations, Porter (1998) argued that downstream integration will result in cost benefits because more stable relationships will arise. From this perspective, such relationships will enable the supplier to develop specialized procedures for dealing with the customer; for instance, increased transparency and information availability that will help to enable longer runs (that is, better possibilities for economies of scale), and smooth production flow for the whole supply chain (Ibid.). By means of such relationships, overtime can be avoided via the provision of faster and more reliable feedback (Hayes and Wheelwright, 1984). Porter (1998) referred to this as economies of relationships, which should be especially relevant for forward integration as it allows the upstream supplier to fine-tune its products and production to customer specifications (p. 305). This can be especially important for capital-intensive companies – for example, industries such as pulp and paper, petroleum and steel where high-capacity utilization is key for ensuring return on capital employed (e.g., Porter, 1998; Hayes and Wheelwright, 1984). Porter (1998) also argued that vertical integration will offer economies of internal control and coordination as the costs of coordinating activities and scheduling are likely to be at lower level in circumstances of integration (Ibid., p. 303).

2.2.4 Economies of Scope

While economies of scale refers to the size of the operating unit, economies of scope are related to lower the firm’s costs within a single manufacturing unit to produce more than one product (Panzar and Willig, 1981; Bailey and Friedlaender, 1982; Chandler and Hikino, 1990). For example, large cost reductions by production of several different products based on the same raw material within the same production unit (Chandler and Hikino, 1990, p. 24). In this view, the opportunity for economies of scope is related to the opportunity for a firm to exploit excess capacity (Panzar and Willig, 1981). A supplier would be able to reap the benefits of economies of both scale and scope if it produces fairly standardized components (Bailey and Friedlaender, 1982).

2.2.5 Factors costs

Outsourcing research from the customer perspective has suggested that reducing costs provides a particularly strong motivation for initializing outsourcing (see, e.g., Brück, 1995; Bragg, 1998; Greaver, 1999; McIvor, 2009; Malmgren, 2010). Cost advantages can arise from the supplier’s lower factor costs, especially in terms of labor costs (McIvor, 2005; McIvor, 2010); indeed, Brück (1995) argued that these savings can be large enough to make other cost advantages insignificant.

2.3 Business-related risks

The forward integration strategy has also several risks, which often are linked to investments, capability or cost considerations (Hayes and Wheelwright, 1984; Stuckey and White, 1993; Klein and Hiscocks, 1994; Lilliecreutz, 1996; Porter, 1998; Auguste et al., 2002); these are summarized in Table 3. Porter (1998) argued that vertical integration increases the proportion of a firm’s fixed costs, which means increased business risks in terms of sensitivity to cyclical swings in customer demand. Related to this is an investment risk due to the reduced flexibility when integrating forward. Another investment risk arises if the forward integration does not yield any entry barriers (Ibid.).

Table 3. Example risks arising from taking over outsourced activities

Example of risks	Implications	Source
Cost uncertainty and investment risks	Costs must be borne whether the market is at a peak or a downturn. Need of making large investments. Low switching costs for customers.	Hayes and Wheelwright (1984); Klein and Hiscocks (1994); Porter (1998); McIvor (2005; 2010)
Low fit of current capabilities	Not certain that the developed capability base used in current manufacturing necessarily qualify for further integration	Stuckey and White (1993); Lilliecreutz (1996); Porter (1998); McIvor (2010)
Inability to yield added value (which customer also failed to achieve)	Performing activities in the same way is unlikely to realize any larger cost savings.	Lilliecreutz (1996); Auguste et al. (2002)

3 METHODS

This paper is based on a case study approach (Eisenhardt, 1989; Voss et al., 2002; Yin, 2003), and studies outsourcing from the supplier side in order to get an overview of key strategic and operational factors that are addressed when a supplier is considering taking over outsourcing. Selection of the supplier for the case study was conducted together with experts in the industry with the aim of providing interesting insights from both a theoretical and empirical perspective (Bengtsson et al., 1997). The firm studied is a large supplier of sawn timber to industrial end-users in the wood product manufacturing sector in Europe; it also sells to the Asia, Africa and Middle East markets. In order to understand both sides of outsourcing, interviews with one of the firm's customers (a large floor manufacturer) in an outsourcing project were also conducted. The choice of customer was straightforward due to the outsourcing project they were involved in with the supplier. The interviews provided very interesting possibilities to study the same outsourcing project from both the customer and supplier perspective.

The paper draws on qualitative data collected through 23 in-depth interviews of executive management at both the supplier and customer side (see Table 4). Interviews were conducted at the companies' respective offices and lasted about one to two hours. In addition, data collection was conducted in relation to production line, mill and plant visits, as well as visits to both the supplier and customer workshops. Secondary data, such as annual reports, internal presentation materials and press releases, was used to complement the qualitative interviews. Follow-up questions were also asked via telephone in order to confirm and discuss the findings. The collected data resulted in the creation of longer case descriptions, which were sent to the interviewees to obtain their comments and feedback in order to further improve the validity and reliability of the data collected (cf. Voss et al., 2002; Yin, 2003). Analyzing the data and conducting comparisons with the theoretical framework were carried out simultaneously with the ongoing data collection process, and helped to make follow-up interviews more targeted (cf. Yin, 1989, 2003).

Table 4. Classification of interviews conducted

Type of interviewee	Supplier	Customer
General managers	9	6
R&D or technical managers	3	
Sales and production managers ²		3
Total number of interviews	14	9

4 EMPIRICAL DESCRIPTION

The supplier develops, manufactures and sells sawn and planed timber, but also building components in terms of engineered wood. Its two largest customer segments are industrial end-users (such as wood product manufacturing firms and modular house manufacturers) and do-it-yourself retailers and builders' merchants. The supplier has a vision to become one of the leading actors of processed forest raw materials in terms of the production, development and marketing of wood-based products and systems.

The customer is an international leader in wood flooring products. In comparison, to many other manufacturers in the same industry, the customer has its own global sales division. While many other wood product manufacturers are dependent on sales to national markets, about 80–90 percent of this firm's sales are in exports. The customer is currently focusing a significant amount of resources on the market side. For example, in order to improve its brand-name awareness, the company is focusing resources on developing its product range. The CEO of the customer explained that this is a clear transfer from a production to a market focus:

“There is no doubt that we focus capital there...we put more and more money on the market side... the costs for the market side [are] increasing at the same time as I lower [costs] in manufacturing, it is a very clear transfer.” CEO, customer

As a consequence of the position shift, outsourcing comes in focus to improve flexibility, lower costs and minimize investment. According to the customer's purchasing manager, one basic idea of this increased outsourcing is to better manage rapid switchovers to new expanding segments, and improve flexibility.

The supplier conducted an analysis prior to starting to make components for the floor manufacturer. In taking over the outsourcing, the supplier was able to deliver complete components that could then be put directly into the final production of the floors.

4.1 Drivers for taking over outsourcing

The supplier sees as a good market potential for manufacturing of components and finds the floor component project highly interesting. The mill manager and the CEO expressed the opportunities as follows:

“The remaining process is that the floor manufacturer would glue on the wear-layer and the final design [as profiling and surface treatment].” Sawmill manager, supplier

“[Floor manufacturers] have a lot of production but their strength is their brand name and their market organisation...[for] the rest it is of little importance as to who makes it.” CEO, supplier

By implementing a value-adding strategy the CEO of the supplier stated that spillage can be lowered, and consequentially products can potentially be converted for use in other types of components. Lowering spillage is an important issue for industrial customers, such as window, floor, door or furniture manufacturers. As the supplier's CEO and the mill manager explained:

“We must be able to have a higher value on the spillage and must be at least as skilled at converting off-grade [products] to a value that is larger than what [customers] are doing today...” CEO, supplier

“It is easy to see when you look at the flow that there must be a lot of money to save.” Sawmill manager, supplier

Looking at sawn timber products, the actual spillage from sawing in the sawmill operations can vary in terms of both the width and the length. The supplier CEO stated that if a couple of percent-length spillages constantly result when a customer buys sawn timber, the production manager at that company would probably like to avoid such spillage and instead buy the right lengths and more complete components. The CEO stated this strategy in the following way:

“...we can convert the spillage [so] we get to a product of certain value or a higher value than it has for secondary processed wood product industries.” CEO, supplier

The sales manager expressed a similar view, stating that using the raw material in better ways in combination with eliminating process steps are critical factors for succeeding with a value-adding strategy.

4.2 Supplier capability

In order to offer lower costs, the supplier has implemented several key steps, mainly related to: (1) eliminating production steps, (2) rationalizing production, (3) being able to use the raw material in a better way, and (4) keeping investments at a low level. The supplier capability position is summarized in Table 5. It is notable that the main capability advantages are found more in the sawmill production in terms of manufacturing improvements and integrating the component mill on-site.

Table 5. Cost-cutting logic at the supplier Production setup for component manufacturing

Value chain position	Wood sawing	Wood drying	Component manufacturing	Final component manufacturing
Activity	Taking about 15,000m ³ of spruce and pine wood, representing about 7.5 percent of production output from the sawmill.	Drying the selected wood.	Manufacturing beams with full integration with the sawmill.	Working with external party.
Cost-cutting logic	Avoiding process duplication and cutting production steps by already, during the first sorting activity, picking out the right material to be used for the component manufacturing.	Directly drying the wood to the right moisture quota top avoid duplicating the production processes.	Eliminating process steps by avoiding the need to process the timber through the dry-sorting and grading station. Improve use of the raw material by using more dimensions of the sawn wood and using both spruce and pine wood.	Avoiding investments by using external supplier.

However, several aspects must be considered in relation when taking over outsourcing. When becoming a supplier of components, the CEO argued that the production offered must be at least as cost efficient as the customers' present production costs. To enable this, he stated that this usually requires that the customer has older equipment and is not willing to make large greenfield investments into its plant. When the customer has such investment need in relation to old equipment, the CEO stated that it is likely that they will be able to produce components at a lower cost level than the customer can achieve.

"...if you outsource you do not want it to cost more. But it does not necessarily have to be a much lower cost. Just this, and not needing to make the necessary investments [can be enough]." CEO, supplier

However, during the project the supplier and customer faced difficulties in reaching an agreement on the cost levels. The customer required the supplier to produce components at a cost lower than the present in-house variable cost level. The CEO of the supplier pointed out that there is always a capital cost when starting a new production line due to investments made and a need for some kind of profit margin on the business performed. Similarly, the mill manager stated that it is very difficult to produce below the customer's variable cost and not include the investment cost that is necessary to start making the components. The mill manager and the CEO agreed that becoming a component supplier is a great challenge. In short, taking over such manufacturing puts high demands on a sawmill:

"It has been like this because it requires rather special conditions for a sawmill to be able to meet the demands a floor manufacturer has...." Sawmill manager, supplier

"We made the conclusion that the north of Sweden is not possible [for outsourcing], because then you have the same labour costs and the transportation costs increase." CEO, customer

Increased added value achieved by taking over the components also requires very precise drying. One difficulty is that the sawmill cannot just dry its whole production run at the low moisture quota. Instead, the sawn timber must be sorted prior to drying. In addition, drying the timber to such low moisture quotas can result in a bottleneck for the whole production. The time to dry timber is time consuming which means that the drying of wood for components can take extra time (about three more days). This can delay other flows of timber that needs to be dried.

4.3 Business-related risks

From the supplier perspective, when taking over outsourcing, key business-related risks include difficulties in lowering costs, obtaining several customers in order to lower the interdependency with related investment risks, and capability development. The CEO of the supplier argued that a primary consideration must be that the value-adding strategy is profitable in and of itself, and not dependent on other sales of sawn timber. Hence, before taking over any large-scale outsourcing of manufacturing from customers, the supplier must ensure that profitability can be achieved based on the outsourcing from the specific customer (for example, ensuring that the manufacturing volume offered by the customer is enough to make the development of such manufacturing profitable). However, the CEO stated that difficulties can be faced in achieving profitability considering the required investments and accompanying costs. The sawmill manager expressed this challenge in the following way:

“...you must be extremely efficient – [the customer] more or less demands that you should beat their variable production costs at the same time you are investing 20 million. That [requires] a technology leap and large-scale thinking. Then you must have all [equipment and efficient production] when you push the [start] button, [but you also] need delivery contracts otherwise there will be no board in the world that will finance [such project].”
Sawmill manager, supplier

Thus, a company that outsources components but has its own efficient production must have an investment need in order to consider external supplier costs competitive. In general, the mill manager stated that a primary risk with this kind of forward integration is dependency as a consequence of only having one main customer. The outsourcing project was relatively large, and required an investment of about SEK 20–25 million into a new production line. However, despite the large investment the volumes produced would be rather small. Taking over part of the customer’s component manufacturing would consume about 15,000 m³ of raw-material output. However, this still only consume 7 to 8 percent of the total output of sawn timber from the sawmill; or, if considering the whole group:

“The component manufacturing [project] would consume 3 percent and then we would have invested SEK 20 million. If it would be the same amount for the rest it would be a gigantic amount.” Technical manager, supplier

In relative numbers, a component that consumes only 7-8% is a very small volume for a sawmill that produces around 200,000 m³ per year. At the same time, the volume that this component consumes is almost at the upper limit if a cost advantage is to be obtained by not purchasing the sawn timber externally. The mill manager stated that the problem for an individual sawmill is that it would not have enough input volume to generate the necessary volume of sawn wood with the “right quality” to make the component. In fact, increasing the volumes of wood produced is even problematic. The dilemma arises from the fact that taking higher-quality classes or purchasing externally will mean losing some of the expected cost advantages. Thereby, even partial outsourced volumes from a larger customer would almost reach the upper limit as to what a large sawmill, such as the one studied here, could manage. This causes limited possibilities to expand volumes to include more customers. Using higher quality sawn timber would not really either be an option when this would mean a loss of cost advantages:

“You do not want to put in sawn timber of higher quality, as soon as you start buying externally the synergy effect disappears. Then you are in the same situation as [the customer].” Sawmill manager, supplier

“[We] were expected to manage 1 million m², but then we principally would not have the capacity to deliver to somebody else. Then you cannot spread the cost for the factory on a larger [scale] production.” Technical manager, supplier

Therefore, the supplier's limited capacity possibilities create a large dependency. Also, a risk is that this can negatively affect other customers. This is because even though one offer from a customer to saw a certain product may yield good margins for that project, the total margin for the sawmill can be lowered due to the rise of many consequence products¹. As a consequence, both the technical manager and the mill manager argued that sawn wood production at the sawmill should not be too much steered on the basis of one individual customer. If it were, there would be too many consequence products that are difficult to offset, and the result would be low profitability. The supplier has some room to steer its sawmill production in order to get the right dimensions to fit the component manufacturing. However, they are still tied to the standard qualities and dimensions that exist on the market for sawn timber. Clearly, it is not easy to steer the whole sawmill production based on requirements from a integrated component mill or one individual customer need.

5 DISCUSSION

In line with earlier literature, the supplier studied basically is in a need of enter a new business area when taking over outsourcing, which also leads to new business risks (cf. Stuckey and White, 1993; Lilliecreutz, 1996). The main risk relates to the difficulties in creating cost advantages, and results in an overall situation that is unprofitable due to high investments, which is in line with previous literature (cf. Auguste et al., 2002; Abrahamsson et al., 2003). There is also a need to develop new competencies and manage a new production setup (cf. Klein and Hiscocks, 1994). In addition, the customer in this case study has long experience from manufacturing the specific component in its own large-scale manufacturing facility, which makes it more difficult to obtain capability advantages from the start.

The empirical material illustrates that the supplier would be more skilled at using the raw material and completing the manufacturing operations, and is thus suited to taking over this process. However, considering the main requirements for a supplier to be able to well take over outsourcing of manufacturing (cf. Auguste et al., 2002), it seems that the challenge lies in creating large scale advantages in the component manufacturing. From a supplier perspective, when taking over outsourcing a key business-related risk seems to be related to difficulties in lowering costs, managing the need to have several customers to lower interdependency with related investment risks, and also capability development.

In this context, it is not likely that the supplier studied will have larger-scale component manufacturing. According to Porter (1998), this means that the supplier will not exclusively specialize in such component manufacturing. The limited possibilities for economies of scale in the downstream component manufacturing puts the focus on finding other ways to lower costs. For the supplier studied these are mainly related to economies of combined operations and improving production set-up. Table 6 summarizes the expected cost advantages for the supplier studied for the component in question.

Table 6. Considered cost advantages for the supplier studied

Source	Focus	Theoretical argument for cost advantages	Possibility for supplier studied	Applicability for supplier studied
Bain (1965, 1968); Scherer (1975); Chandler and Hikino (1990); Porter (1998)	Scale	Economies of scale – lower long-run cost from scale advantages.	Low: component initially requires very large-scale sawmill.	Low: component project is with customer with larger internal scale
Bain (1968); Silberston (1972); Harrigan (1984) Auguste et al. (2002)	Combined operations	Economies of combined operations – reduce cost by improving the production or handling process.	High: potential for cutting production steps and improving the production set-up.	High: integration allows production improvement.
Hayes and	Relationships	Economies of	Low: new business	Low: not

¹ "Sawn timber products emerging from a specific sawing pattern not meeting technical and appearance properties based on that particular sawing pattern thus requiring further processing and/or sales activities finding other end-users" (Nord, 2005, p. 236). Thus, non-standard sawn timber that can lower overall profitability due to difficulties to sell them on the open market (Ibid.)

Wheelwright (1984); Porter (1998)	and information	relationships information – better forecasting and planning.	and area for the supplier but some fine- tuning could be done to production.	applicable when new business area for the supplier.
Panzar and Willig (1981); Bailey and Friedlaender, (1982); Harrigan (1984); Chandler and Hikino (1990)	Scope	Economies of scope – multiple types of outsourced items and use of the same production process to reduce costs.	Low: large investments needed to manage this.	Low
Brück (1995); Abrahamsson and Brege;(1995)	Factor cost	Lower factor costs (e.g., labor or raw material).	Medium: need to invest in automation.	Medium: supplier can use raw material more efficiently.

The limited *economies of scale* in the component manufacturing when taking over outsourcing is a interesting finding, considering that other studies in have put forward that scale is especially a strong motivation for outsourcing (see, e.g., Brück, 1995; Bragg, 1998; Greaver, 1999; Cachon and Harker, 2002). The argument is often that a supplier with a larger capacity (cf. Porter, 1998) can benefit from pooling effects from several different customers (Williamson, 1979), and thereby should thus be able to achieve lower unit costs. From a theoretical viewpoint this is of course not impossible in the context studied, but it will require a very large upstream production input/output (cf. Sherer, 1975).

Developing *cost advantages via economies of information and relationships* (cf. Porter, 1998) when taking over outsourced manufacturing is not clearly demonstrated in this case. One reason for this may be that this is a new business area for the supplier. In addition, the customer's demands and requirements include consideration of a somewhat fixed manufacturing volume and specification of component manufacturing. Nevertheless, when working closely with the customer, improved communication is expected. It is indicated in the present case that the supplier could somewhat fine-tune the production output from the sawmill to fit the component manufacturing (cf. Porter, 1998).

Economies of scope in the sawmill and component manufacturing are not so much closely related to use excess capacity. Component manufacturing is quite specific to the production taken over from the customer, where investments in a production line will, to a large extent, be limited to making that specific component. For the supplier studied factor costs seem especially important when the raw material cost makes up a large part of the total cost. However, *factor costs* can only be leveraged to some extent by improving the use of the sawmill output (that is, by lowering spillage and converting consequence products to other types of components or products) and using more types of different sawn timber.

6 CONCLUSIONS

Taking over outsourcing results in multiple strategic and operational implications, as summarized in Table 7. In fact, taking over outsourced manufacturing cannot necessarily be considered as a way to offset all of the supplier's product output to move away from a commodity product market to products that customers are willing to pay a higher price. In line with earlier studies, this paper finds that a key challenge for a supplier taking over outsourcing lies in capturing value that their customer has failed to achieve (see cf. Lilliecreutz, 1996; Augustson, 1998; Auguste et al., 2002). A main factor addressed by the supplier studied relates to creating sufficient cost reduction to take over production and meet customer expectations (cf. Auguste et al., 2002). In the context studied, cost advantages from a supplier perspective are mainly economies of combined operations (cf. Porter, 1998) and improving the value chain constellation by: (1) avoiding duplicating production processes, (2) removing unnecessary production process steps, (3) improving use of the raw material, and (4) keeping investment costs to a minimum. A critical issue to achieve this is integrated onsite component manufacturing. Without development of the value chain there is a risk of ending up in the same situation as the customer, but with larger costs due to investments made and less scale in the component production.

Table 7. Strategic and operational factors from a supplier perspective

Analysis area	Strategic level	Operational level
Driver	Value-adding strategy important to improve overall business returns.	Offset all of sawmill's product output and match the specific component production need for sawn timber.
Capability	Cost is the focus of the overall analysis.	Component production setup and changing sawmill value chain.
Business related risks	Dependency on one larger customer and large investments consume small total volumes of sawmill output.	Limited capacity in the sawmill and steering sawmill production output.

From a theoretical perspective, the manufacturing costs should be lower when buying from external parties, in comparison with in-house production (cf. Williamson, 1979, 1985). The argument underpinning this is that suppliers have the possibility for specialization, with the resulting advantages of scale and pooling effects from several different customers (Williamson, 1985). In this situation, it is thus easier to distribute the total costs over a larger number of units (Scherer, 1975; Chandler and Hikino, 1990). Hence, if a company can avoid any transaction costs by having an external party as a supplier (cf. Williamson, 1979, 1985), buying instead of in-house manufacturing should always offer lower costs. However, the present findings in this context are that economies of scale in comparison with the customer's large-scale capacity are difficult to achieve. Therefore, it is clearly not certain that economies of scale in all contexts and for all components should be assumed as a given to motivate outsourcing. In this view, a customer with developed large-scale operations can make both economies of scale and combined operations of the supplier insufficient to reach customer's cost levels. In particular, if investments are also needed at the supplier to build up capacity. This is an interesting finding, because previous studies in other contexts have argued that large-scale production to lower costs should provide an especially strong motivation for initializing outsourcing (see, e.g., Brück, 1995; Bragg, 1998; Greaver, 1999; Cachon and Harker, 2002; Harland et al., 2005; McIvor, 2005; Malmgren, 2010).

The recommendation for practitioners is to investigate in depth what new competencies are required before entering into an outsourcing agreement. It is critical that the manufacturing taken over is profitable in itself, and that the costs that arise are covered by the revenues of the components delivered. To achieve this, it is important to capture the values that customers have failed to achieve, which can also mean taking an investment risk.

REFERENCES

- Abrahamsson, M., Andersson, D. and Brege, S. (2003). "Outsourcing – Från mode och trend till balanserat strategibeslut." *Management Magazine* (05).
- Augustson, M. (1998). "IT outsourcing relationships: a transaction cost analysis of two cases." IMIE licentiate thesis, no. 8. Linköpings studies in Science and Technology Thesis No. 667: LIU-TEK-LIC-1998:02. Division of Industrial Management and Economics. Department of Management and Economics, Linköping, Linköping University.
- Auguste, B., G., Hao, Y., Singer, M. and Wiegand, M. (2002). "The other side of outsourcing." *The McKinsey Quarterly* (1).
- Bain, J. S. (1965). *Barriers to New Competition*. Cambridge, Harvard University Press.
- Bain, J. S. (1968). *Industrial Organization*. New York, John Wiley & Sons.
- Bailey, E. E and Friedlaender, A. F. (1982). "Market structure and multiproduct industries." *Journal of Economics Literature* XX (September): 1024–1048.
- Barnes, C. S. and Sinclair, S. A. (1985). "Forward integration in the building product market and its impact on the financial performance of selected forest products firms." *Forest Products Journal*, 35(11/12).
- Bengtsson, L., Elg, U. and Lind, J.-i. (1997). "Bridging the transatlantic publishing gap: How North American reviewers evaluate European idiographic research." *Scand. J. Mgmt.* 13(4): 473–492.
- Boulaksil, Y. and Fransoo, J. C. (2010). "Implications of outsourcing on operations planning: findings from the pharmaceutical industry." *International Journal of Operation & Production Management*, 30(10): 1059–1079.
- Bragg, S. M. (1998). *Outsourcing – A Guide to. Selecting the Correct Business Unit. Negotiating the Contract. Maintaining Control of the Process*. New York, John Wiley & Sons.
- Brück, F. (1995). "Make versus buy: The wrong decision cost." *McKinsey Quarterly* (1): 29–47.
- Cáñez, L. E., Platts, K. W. and Probert, D. R. (2000). "Developing a framework for make-or-buy decisions." *International Journal of Operations & Production Management*, 20(11): 1312–1330.

- Chandler, A. D. and Hikino, T. (1990). *Scale and scope: the dynamics of industrial capitalism*. Cambridge, MA, Belknap Press.
- Cox, A., Lonsdale, C., Watson, G. and Qiao, H. (2003). "Supplier relationship management: a framework for understanding managerial capacity and constraints." *European Business Journal* 15(3): 135–145.
- Eisenhardt, K. (1989). "Building theories from case study research." *Academy of Management Review* 14(4): 532–550.
- Gilley, M.K. and Rasheed, A. (2000). "Making more by doing less: an analysis of outsourcing and its effects on firm performance." *Journal of Management*, 26(4): 763–790.
- Greaver, M. F. (1999). *Strategic outsourcing: a structured approach to outsourcing decisions and initiatives*. New York, AMACOM.
- Harland, C., Knight, L., Lamming, R. and Walker, H. (2005). "Outsourcing: assessing the risks and benefits for organisations, sectors and nations." *International Journal of Operation & Production Management* 25(9): 831–850.
- Harrigan, K. R. (1984). "Formulating vertical integration strategies." *The Academy of Management Review* 9(4): 638–652.
- Hayes, R. H. and Wheelwright, S. C. (1984). *Restoring Our Competitive Edge – Competing Through Manufacturing*. New York, NY, John Wiley and Sons.
- Hussey, D. and Jenster, P. (2003). *Outsourcing: the supplier viewpoint*. *Strategic Change*, 12(1)
- Kern, T., Willcocks, L. P. and van Heck, E. (2002). "The winner's curse in IT outsourcing: Strategies for avoiding relational trauma." *California Management Review* 44(2): 47–67.
- Klein, J. A. and Hiscocks, P. G. (1994). "Competence-based Competition: A Practical Toolkit." *Competence-Based Competition*. Edited by G. Hamel and A. Heene. West Sussex, John Wiley & Sons.
- Lilliecreutz, J. (1996). *En leverantörs strategi – från lego- till systemleverantör*. Ekonomiska institutionen. Linköping Studies in Management and Economics. Linköping, Tekniska högskolan i Linköping. Dissertation.
- Lonsdale, C. and Cox, A. (1997). "Outsourcing: risk and rewards." *Supply Management* 3: 32–34.
- Malmgren, M. (2010). *Managing risks in business critical outsourcing: a perspective from the outsourcer and the supplier*. Linköping Studies in Science and Technology. Dissertation; 1309.
- McIvor, R. (2005). *The outsourcing process: strategies for evaluation and management*, Cambridge, Cambridge University Press.
- McIvor, R. (2010). "The influence of capability considerations on the outsourcing decision: the case of a manufacturing company." *International Journal of Production Research*, 48(17): 5031–5052.
- Nord, T. (2005). "Structure and developments in the solid wood value chain". Department of Civil and Environmental Engineering, Division of Structural Engineering, Timber Structures. Luleå, Luleå University of Technology. LTU-LIC--05/57--SE.
- Nordigården, D., (2007). "Outsourcing in the wood product manufacturing sector – a combined customer and supplier perspective." Linköpings Universitet, Linköping Studies in Science and Technology. Dissertation; 1149
- Nordigården, D., Rehme, J., Brege, S., Chicksand, D. and Walker, H. (2014). "Outsourcing decisions – the case of parallel production." *International Journal of Operations and Production Management* 34(8): 974–1002.
- Panzar, J. C. and Willig, R. D. (1981). "Economies of Scope." *Sustainability Analysis, AEA Papers and Proceedings* 71(2).
- Porter, M. E. (1998). *Competitive strategy: techniques for analyzing industries and competitors: with a new introduction*. New York, Free Press.
- Rehme, J., Nordigården, D., Brege, S. and Chicksand, D. (2013). "Outsourcing to a non-developed supplier market: The importance of operational aspects in outsourcing." *Journal of Purchasing and Supply Management* 19(4): 227–237
- Roos, A., Flinkman, M., Jäppinen, A., Lönner, G. and Warensjö, M. (2001). "Production strategies in the Swedish softwood sawmilling industry." *Forest Policy and Economics* 3: 189–197.
- Roos, A., Flinkman, M., Jäppinen, A., Lönner, G. and Warensjö, M. (2002). "Identification of value-adding strategies in the Swedish sawn industry." *Scand. J. For. Res* 17: 90–96.
- Rothery, B. and Robertson, I. (1995). *The Truth About Outsourcing*. VT, Gower.
- Scherer, F. M. (1975). *The Economics of Multi-Plant Operation: An international comparisons study*. Cambridge, MA, Harvard University Press.
- Scherer, F. M. and Ross, D. (1990). *Industrial Market Structure and Economies Performance*. Boston, Houghton Mifflin Company.
- Shams, R and Yen-Chun J. W. (2011). *Logistics outsourcing in China: the manufacturer-cum-supplier perspective*. *Supply Chain Management*. 16(6): 462–473.
- Silberston, A. (1972). "Economies of scale in theory and practice." *The Economic Journal* 82 (325): 369–391.

- Sousa, E. and Voss, A. C. (2007). "Operational implications of manufacturing outsourcing for subcontractor plants: An empirical investigation." *International Journal of Operations & Production Management* 27(9): 974–977.
- Staland, J., Navrén, M., Nylinder, M. (2002). "Såg 2000 Resultat från sågverksinventeringen 2000." Institutionen för skogens produkter och marknader. Rapport No. 3.
- Stendahl, M. and Eliasson, L. (2014). "Integrated production of semi-finished components in sawmills, part II: Management of internal operations." *Wood Material Science & Engineering* 9(1): 12–30
- Stendahl, M., McCluskey D. and Eliasson, L. (2013) "Integrated production of semi-finished components in sawmills, part I: External interactions." *Wood Material Science & Engineering* 8(4): 253–270,
- Stuckey, J. and White, D. (1993). "When and when not to vertically integrate." *Sloan Management Review* (Spring): 71–83.
- Vesey, J. T. (1978). "Vertical integration: its affect on business performance." *Managerial Planning*, May–June.
- Voss, C., Tsikriktsis, N. and Frohlich, M. (2002). "Case research in operations management." *International Journal of Operations & Production Management* 22(2): 195–219.
- Willcocks, L. P. and Lacity, M. C. (1998). "The sourcing and outsourcing of IS: shock of the new?" *Strategic Sourcing of Information Systems – Perspectives and Practices*. Edited by Willcocks, L. P. and Lacity, M., Wiley & Sons, West Sussex.
- Williamson, O. E. (1979). "Transaction-cost economics: the governance of contractual relations." *Journal of Law and Economics* " 22(2): 233–261. Reprinted in *Industrial Organization* (1990). O. E. Williamson. Brookfield, USA, Edward Elgar Publishing.
- Williamson, O. E. (1985). *The Economic Institutions of Capitalism: firms, markets, relational contracting*. New York, Free Press.
- Yin, R. K. (1989). *Case Study Research: design and methods*. Newbury Park, CA, Sage Publications,.
- Yin, R. K. (2003). *Case Study Research: Design and Methods*. Thousand Oaks, CA, Sage Publications.

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