

Inter-organizational Cost Management in SME Networks

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Abstract

Inter-organizational cost management is a fairly new phenomenon that has been studied primarily in hierarchical networks of the car and electronics industry. As these networks are usually led by large multinational firms, inter-organizational cost management in networks comprising SMEs has gained far less attention to date. This paper contributes to reducing this deficit by analysing the development and implementation of cost management tools in two Finnish SME networks. The empirical data of the dual case study is discussed from the perspectives of agency, transaction cost, and contingency theories. In this respect, the results indicate that firm size, network infrastructure, and the variety of processes among the network members have an effect on the management accounting practices in networks. Moreover, the findings show that the cost management tools formed an integral part of a performance management development project that was supported by the main contractors of the networks. Although the SMEs did not concentrate on efficient cost management for their own, the utilization of management accounting approaches helped them to understand the evident links between their own activities, operative results, and network costs. This approach has opened a new way to the main contractors to increase the cost-awareness and to identify additional cost reduction opportunities among the SMEs.

Keywords: Cost management, performance management, networks, open-book accounting, SMEs

1 Introduction

Inter-organizational cost management has gained increasing interest in both theory and practice in recent years. In an attempt to identify and exploit new cost reduction opportunities, many firms have extended the focus of their cost management activities beyond their organizational boundaries. Car manufacturers and electronic component providers have played a pioneering role in this regard. These companies are usually large in size, manufacture standardised products and source globally. To date, research in inter-organizational cost management has mainly been limited to these firms although small and medium-sized enterprises (SMEs) dominate the economy in terms of number in most countries (in the UK, for instance, more than 90% of the firms are SMEs; Quayle 2002). Moreover, contingency theory suggests that firm size is an important variable explaining differences in management accounting practices (Chenhall, 2003). Small firms generally have less resources than large ones for developing and implementing management accounting tools. Thus, different approaches might be necessary for inter-organizational cost management in networks consisting of SMEs compared to those comprising large companies. As cost management in SME networks is largely unexplored, this paper aims to investigate the development and implementation of inter-organizational cost management tools in SMEs.

The remainder of this paper is structured as follows. Section 2 presents the theoretical background and briefly reviews previous research. For this purpose, the definitions of networks and SMEs are clarified. Section 3 outlines the research design. After that, section 4 provides empirical evidence on the design of inter-organizational cost management tools in two case networks. The observations are discussed in section 5 in light of the theoretical perspectives. Section 6 concludes with a summary and suggestions for further research.

2 Theoretical perspectives and previous research

2.1 Networks and SMEs

Although there are many different definitions of networks in the literature, there is a general consensus that *networks* consist of legally independent firms and their relationships (Ebers & Jarillo, 1997; Pfohl & Buse, 2000). Different views, however, are held in particular regarding the boundaries of networks. In this respect, there are two streams of research.

First, networks are perceived as open systems of business relationships. It has been argued that “*any business network boundary is arbitrary and depends on perspective*” (Anderson et al., 1994, p. 4). Moreover, changes in one relationship are considered to affect the company as well as its other relationships (Håkansson & Lind, 2004). Consequently, the network analysis takes the perspective of the focal relationship and includes interdependencies with related ones. In contrast to this view, networks can also be perceived as closed systems of firms and their relationships (Lambert & Cooper, 2000; Harland et al., 2001). In this latter case, networks are defined by the end product that the network members produce and deliver to a customer. Networks are considered as single entities that compete against alternative end product networks. Individual network members, however, can be part of several networks, even of competing ones.

This study follows the latter definition of networks. Within this stream of research, various network typologies and taxonomies have been developed (Lamming et al., 2000; Pfohl & Buse, 2000; Harland et al. 2001). Key characteristics influencing the nature of a network are the type of transactions, the kind of network coordination, and the geographical scope. Hence, operative and strategic, hierarchical and non-hierarchical, as well as regional and international networks can be distinguished. Furthermore, the size of the network firms plays an important role as well. Large multinational companies usually have more resources to develop network relationships than SMEs. In addition, there are differences in the governance system. While management and ownership is usually separated in large firms, SMEs often have owner-managers. Thus, networks of SMEs are somewhat specific and may demand specific approaches for network management.

Similar to networks, no common definition exists for SMEs. D’Amboise and Muldowney remark: “*Rigorously defining small business has always been difficult, even controversial.*” (1988, p. 226). As regards quantitative criteria, annual sales and number of employees are most often used to define SMEs. However, different thresholds are used for these criteria. Firms are characterised as small or medium-sized if they employ less than 250, 300, 500 or even 1,000 people, for example (e.g. definition of the EU; D’Amboise & Muldowney 1988; Hopper et al., 1999; Wijewardena et al. 2004). Moreover, it is important to note that quantitative criteria alone are generally not sufficient to capture the nature of SMEs. For this reason, qualitative criteria such as the ownership are used as well to define SMEs. Consequently, it has been argued that “*networks of SMEs are specific because the shareholder and the manager of a SME are often the same person. Therefore, each partner strongly preserves its independence and often runs its own decision-making processes among the network*” (Burlat et al., 2003, p. 400).

2.2 Agency, transaction cost and contingency theories in the network context

Management accounting systems provide information for different purposes. On the one hand, management accounting information serves to support the manager’s own economic decisions. On

the other hand it influences the behaviour of (subordinate) managers. In the perspective of *agency theory* (Jensen & Meckling, 1976; Fama, 1980), subordinate managers do not necessarily act in the interest of top management due to potential conflicts of interest and information asymmetries between the two. These agency problems cause agency costs as a result of suboptimal solutions. The existence of management accounting systems can be explained in this theoretical perspective as a mechanism to reduce agency costs. As agency costs tend to increase with the degree of information asymmetry, and as the latter increases with firm size, it can be expected that large firms have more sophisticated management accounting systems than SMEs. This proposition has been supported by empirical evidence of prior research for both single firms and networks (Chenhall, 2003; Kajüter & Kulmala, 2005).

Management accounting systems do not only reduce agency costs, however, they also cause costs for generating and reporting information. These costs can be considered as transaction costs in terms of *transaction cost theory* (e.g. Williamson, 1975, 1985). According to this theory, transaction costs are a consequence of a “friction in the market” or a result of “using the price mechanism”. They comprise search costs, contracting costs, monitoring costs and enforcement costs. It seems reasonable to assume that transactions costs increase with the number and heterogeneity of accounting systems used in the firms of a network. Thus, formalizing or standardizing cost management in inter-organisational relationships may be an appropriate approach to reduce transaction costs. This may be the case in particular for SME networks, given the resource constraints of their members.

Another theoretical perspective for the analysis of inter-organizational cost management in SME networks is *contingency theory*. Originally developed to explain the structure of organizations by particular circumstances (e.g., Lawrence & Lorsch, 1967; for SMEs Neilsen 1974), contingency theory has also been adopted to explain the shape of management accounting systems in single firms (Waterhouse & Tiessen, 1978; Otley, 1980; Fisher, 1998; Chenhall, 2003), and, more recently, in networks (Kajüter & Kulmala, 2005). For the purpose of the latter, the traditional contingency approach, which distinguishes between exogenous environmental and endogenous firm-specific factors (e.g., Anderson & Lanen, 1999), has been extended by a third category of network-specific context factors (Kajüter & Kulmala, 2005). As regards firm-specific factors, size is a key variable to explain differences in (inter-firm) management accounting practices, supporting the agency theory perspective. Hence, theory suggests that inter-organizational cost management practices may differ according to the size of network firms. Moreover, as a network-specific factor, trust is often mentioned as an enabling mechanism for inter-organizational cost management (e.g. Cooper & Slagmulder 2004). Mutual trust among the partners facilitates the disclosure of cost data in inter-firm relationships because a misuse is considered to be unlikely. On the other hand, if the cost information provided by management accounting systems is not abused, the disclosed data may contribute to building trust in inter-firm relationships (Seal et al., 1999; Dekker, 2003). Thus, referring to Tomkins (2001), management accounting systems in networks may provide information of type 1 (to warrant trust) and of type 2 (to master events collaboratively). Tomkins, however, further argues that the information needs in inter-firm relationships vary according to the specific purpose of the relationship and its stage of development and, thereby, implicitly refers to contingency theory. Based on these theoretical perspectives, the following section briefly reviews prior research of inter-organizational cost management in SME networks.

2.3 Previous research on inter-organizational cost management

The review of previous research focuses on two relevant areas: inter-organizational cost management and small business management. Research in inter-organizational cost management has been focused on the development and use of cost management techniques such as target costing or kaizen costing in supply chains and networks (Cooper & Slagmulder, 1999; Seal et al., 1999; Berry et al., 2000). Moreover, management accounting practices specific for inter-firm relationships like open-book accounting (OBA) have been analyzed in prior studies (Munday, 1992; Carr & Ng, 1995; Mouritsen et al., 2001; Kulmala 2004; Kajüter & Kulmala 2005). Since the research is still in its early stages, empirical studies are mostly qualitative in nature. They are thus based on single or cross case analysis that describes current practice. Only a few studies explicitly take a contingency theory perspective (e.g., Cooper & Slagmulder, 2004; Kajüter & Kulmala, 2005). Although some empirical work investigates SMEs (e.g., Kulmala, 2004), the particular perspective of these firms as opposed to large companies is not considered.

Research on SMEs “*tends to be descriptive and focuses only on a few areas of investigation*” (Lee et al., 1999, p. 301). Most relevant to this study from a content point of view is the research on supply chain management, planning and control processes, and cost accounting systems in SMEs. Empirical evidence from UK surveys suggest that supply chain management practices have been adopted by only a minority of SMEs, although many of them seem to be aware of the concept and its potential of gaining and sustaining competitive advantage (Tulip, 2000; Quayle, 2002). However, there is no clear evidence about the positive effects. While some empirical findings indicate that firms with supply chain partnerships have higher growth rates compared to those firms that have not developed such cooperative relationships (Wynarczyk & Watson, 2005), other research results suggest that supply chain management is negatively associated with SME performance (Arend & Wisner, 2005). In explaining the latter, it is argued that networking may help SMEs to overcome size and resource constraints, but on the other hand also induces higher transaction costs due to the need of handling complex network relationships, an area in which SMEs usually have less managerial experience. As a consequence, SMEs appear to implement supply chain management not as deeply as large firms leading also to fewer advantages. Furthermore, SMEs are often only minority partners within networks and the prevailing imbalance of power might entail the feeling of not being able to influence the supply chain or even the fear of being treated unfair by larger network partners (Tulip 2000).

Empirical studies on planning and control processes in SMEs revealed a positive effect on performance (Peel & Bridge, 1998; Wijewardena et al., 2004). Thus, planning and control sophistication seems to be an important success factor for SMEs. Compared to planning and control, far less research has been conducted regarding cost accounting systems in SMEs. The empirical results of exploratory research in Japanese SMEs indicate that the cost accounting systems resemble those of larger Japanese firms (Hopper et al. 1999). However, these findings may be biased by the sample of SMEs holding intermediate positions in supply chains and operating in internationally competitive markets. Furthermore, the findings suggest that also Japanese firms outside of a keiretsu are not inclined to practice OBA in inter-firm relationships. “*If information sharing is common in Japan then it may be due to economic pressures rather than cultural norms*” (Hopper et al., 1999, p. 78).

To conclude, research on inter-organizational cost management in SME networks is largely unexplored. The remark “*All areas of small business management require more research*”

(D'Amboise & Muldowney, 1988, p. 236) is still true today and particularly relevant for cost management (Quayle, 2002). Thus, this study aims to contribute to reduce this gap.

3 Research design

3.1 Methodology

Because an in-depth understanding on a scarcely studied area was needed, a qualitative research approach was chosen. Comparing the objectives of this study and the data gathered from the case companies, a statement of Miles & Huberman (1994, p. 1) justifies the qualitative approach: *"With qualitative data one can preserve chronological flow, see precisely which events led to which consequences, and derive fruitful explanations."* In qualitative research, researchers typically have a relationship to every single observation, i.e. interviewed informant. The researcher can, first, go back to issues that were not clear in the first place or in a certain context, second, ask the informant to focus some of his/her messages or acts for example in terms of why, how and what questions, and third, challenge some or all the actions of the informants in order to encourage the informants to explain and motivate their activities. Identifying the nature of the informants and the motives behind their activities may be easier when the researcher has continuous or recurrent access to the context of the informant.

For this qualitative, exploratory research approach the case study methodology seemed most appropriate (Eisenhardt, 1989; Yin, 1994; Stake, 1995). It was applied at two cases. In both cases the firm network was the unit of analysis. As mentioned above, a network comprises a group of firms and their relationships. It is defined by the end product (Harland, 1996; Lamming et al., 2000). The first case, a watercraft equipment network – called here the Offshore case – presents a full-scale open-book practice concentrating more than previous literature on the suppliers' point of view. The second case, a roof-building network – named here the Roof & Steel case – describes how a main contractor developed the cost management competencies of very small network partners. Both cases are used as evidence of how management accounting approaches and tools can be utilized in SME networks.

The Offshore network was studied in 2003, the Roof & Steel network in 2005. The purpose of the replication was to identify whether some of the first findings could have replicate nature (Eisenhardt, 1989). In replicate studies it is important to have some similarities and some differences between cases (Leonard-Barton, 1990; Yin, 1994). The similarities between the networks were their hierarchical structure, their functional products, and their strategic nature. Both networks were led by a main contractor. The networks' products can be classified as functional and therefore they require a similar managerial focus on continuous cost reduction (Fisher, 1997). Furthermore, the networks were characterized by non-standardized transactions among the partners. They can thus be considered primarily strategic in nature (Pfohl & Buse, 2000). However, while The Roof & Steel network includes a couple of very small firms, their role and actions are mainly operative even though the main contractor sees them as part of their strategic choice. Hence, the network has many features from the "operative" class in the classification of Pfohl & Buse (2000). Finally, the global economic trend had similar direction, namely optimism, during both analyses. The main difference between the networks was the size of the suppliers and the existence of cost accounting systems. While the Offshore network consisted of medium-sized firms with normal cost accounting systems, the Roof & Steel suppliers were mostly micro firms having less than 10 employees and no formal cost accounting systems.

3.2 Data collection

The empirical data was collected in both cases by action research. “*Action research engages the researcher in an explicit program to develop new solutions that alter existing practice*” (Kaplan 1998, p. 89). In this way, the researcher influences the informant as well as the research results (Coughlan & Coughlan, 2002; Kaplan 1998; Argyris and Schön 1996). However, organisations generally reveal more information to a researcher who assists in developing the organisation than to a researcher that is only making observations. In contrast to consulting, action research is characterised by the collection and analysis of detailed data, and the publication of the research results “*so that others can independently develop and validate the ideas*” (Kaplan, 1998, p. 114).

In addition, the experimental development research method was applied (e.g. Hyötyläinen, 2000). This method is a form of constructivist research approach (e.g. Kasanen et al., 1993) and it was used as a way to enter into the area of management accounting in the case companies. “*Experimental development research method is characterized by four features: (1) the research is performed as an intensive case study; (2) it rests upon and aims towards theoretical generalization; (3) it is based on experimental development intervention; (4) its goal is methodical discipline*” (Hyötyläinen, 2000, p. 19).

In the Offshore case, the researchers were responsible for creating activity-based cost accounting model for certain products and a mechanism for carrying out OBA between main contractor and suppliers. The purpose of these procedures was to lead some the Offshore network companies to the intended state of well-managed costs and profitability. The researchers followed the needs and the pace of participating companies, and no commercial or pre-ready accounting tools were applied.

In the Roof & Steel case, the researchers were responsible for building a cost structure model for all roof assembly firms and for creating performance measures for the roof assembly network. The purpose of this procedure was to increase the involvement and cost awareness of the roof assemblers, but nothing about the form of the model or the measures had been decided before the project. In addition, due to the interventional experiment the researchers were able to observe any changes in the behaviour of the network companies.

In both cases, most of the data was collected in the firm-specific pre-project analyses with the managers of the firms, in the dyadic building of cost structure models between the researchers and the firm representatives, and in network-specific workshops including personnel from many functions in different network firms. These activities formed a timeline during which the researchers could naturally and iteratively collect data, analyze it, suggest actions, and reflect the effect of these actions.

4 Empirical evidence

4.1 Offshore network

4.1.1 Background

The Offshore network consists of the main contractor, Offshore, and several of its suppliers. In this study, only two suppliers were included into the cost structure analysis. Offshore is an equipment provider for watercrafts. It had around 250 employees. Offshore is a Finnish private company fully

owned by a consolidated metal industry company¹. The primary activities of Offshore include the design, marketing, and manufacturing of propeller systems. The suppliers are responsible for manufacturing most of the components in the propeller systems. In 2002, Offshore had heard about the progress in inter-organizational cost management and its cost-reductive results in another Finnish network. Offshore benchmarked this network and decided to develop similar inter-organizational cost management practices. In particular, Offshore expected cost reductions by involving suppliers in inter-organizational cost analysis and discussion.

At the same time, Offshore was worried about the performance variance and attitude atmosphere of their suppliers in the supplier network. As the procurement manager of Offshore stated in Spring 2003: *“We are sure that some of our suppliers could organize cost-reduction even without our help but the problem is that some of the suppliers may not be capable, or even willing, to do this although we would help.”* The first analysis of the situation brought two observations. Firstly, cost accounting methods and cost management practices prevented Offshore from seeing the real cost structure of their main product in the supply network. Secondly, there was a severe doubt which suppliers might be interested in participating in a cost management development program initiated by Offshore.

The initial suggestion for analyzing the cost structure of the whole Offshore network was made in spring 2003. In a brief network analysis, Offshore decided, though, to proceed with two different kinds of volunteered pilot suppliers. Pilots were chosen as an approach because of the suspiciousness towards success if proceeding with the whole network in the first place. The first pilot supplier was a machine shop specialized in heavy welding and assemblies that had annual sales of ca. 11 M€ and sold about one fourth of its production to Offshore. The second pilot supplier was a gear & drive product factory that had annual sales of ca. 9 M€ and sold about 40% of its production to Offshore. The major difference between these suppliers was that the machine shop was mostly an independent firm but the product factory was highly dependent on a global company of which it had been part of since the 1960's. Both suppliers had a business relationship of more than ten years with Offshore. Offshore could have chosen any of its volunteered suppliers for piloting the cost analysis but these two suppliers were selected because they were categorized as “strategically important” (see e.g. Olsen & Ellram, 1997) in the supplier classification of Offshore.

4.1.2 Value chain flow chart and open-book accounting

The cost management development program comprised three phases. In the first phase, the cost structure of one product of each of the pilot suppliers was analyzed using activity-based costing (ABC). The products were chosen because they were the most important and most expensive products sold to Offshore. Using ABC as an accounting method was not more than a question of accounting tools. This means that any cost accounting method could have been selected but during the discussions on accounting techniques the researchers and the companies agreed that in their business environment ABC had strongest potential. However, it should be remembered that the suppliers were not familiar with ABC but the calculations were made by an external researcher. Each of the suppliers provided the researcher with all the cost data needed. The cost analysis was organized in summer 2003. The result of this first phase was a value chain flow chart similar to the one reported by Kajüter & Kulmala (2005) in the Eurocar case. The value chain flow chart with all details that were analyzed in this study is illustrated in Figure 1.

¹ In order to retain confidentiality, the sales of different units of the consolidated company cannot be published.

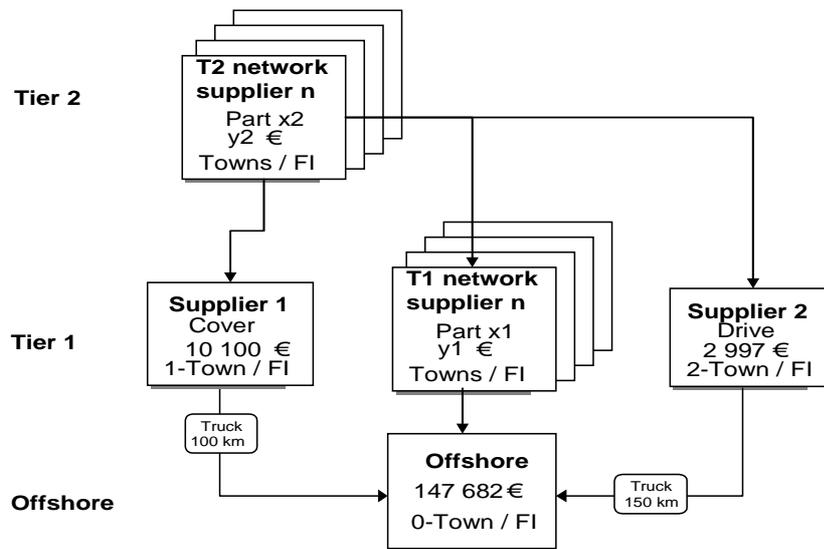


Figure 1. Value chain flow chart of the Offshore network. (Suppliers 1 and 2 were involved in the cost management development, other suppliers were present in open-book education.)

The second phase of the process was inter-organizational analysis of the results of the ABC calculations between each of the suppliers and Offshore. Both suppliers opened the ABC calculations to Offshore and the form of this presentation was standardized between the suppliers. In this phase, suppliers and Offshore tried to understand which actions by Offshore explain the cost accumulation at the supplier's and how suppliers could make their operations more efficient. The first supplier began to reduce the direct working hours of a subassembly because Offshore could show how this is possible. The goal of reducing the working hours by changes in the process was ca. 40%. This supplier rapidly reached almost 20% cost reduction and Offshore was satisfied with the speed of changes. The second supplier decided not to take instant actions. Offshore could not show immediate cost reduction potential in the manufacturing process of this supplier. Instead, the supplier underlined the long-lasting relationships with Offshore and their ability to develop in the long-run. In addition, this supplier admitted that they have to prepare for the potential new competition from Far-East countries. Hence, the overall cost efficiency was approached by concentrating more on the administrative costs in the relationship than on the direct work. In this second phase, the pilot suppliers opened their books concerning the total costs of one of their products to Offshore. Solutions to problems were searched in the spirit of reaching a win-win situation.

The third phase of the process was directed to the whole network. Offshore organized education for all suppliers that were interested in inter-organizational cost management and especially OBA. The education concentrated on how the product costs can be calculated using ABC, how the cost structure of a supplier is disclosed to a customer in OBA, and how the supplier and the customer can jointly influence the cost structure of a product by changing the product design and the operations. In the network education, the external researcher introduced the accounting method used and highlighted some of the surprising observations. The education of the network was organized in Fall 2003. It was hoped that, as a result of this education, more suppliers would commit to the open

cost analysis. The first comments from other than the pilot suppliers were positive, but as previous management accounting studies have proved in general, words and comments are typically more than actual actions taken. Hence, the future will show how many suppliers will go through the procedure of the pilot suppliers and in which magnitude the whole network will be involved in inter-organizational cost management.

4.1.3 Inter-firm relationships within the network

The first pilot supplier (Supplier 1 in Figure 1) was almost more eager in conducting the cost analysis than Offshore. It expected to identify such cost-reduction potential that could not be identified in its internal analyses. Furthermore, Supplier 1 management knew they were a too expensive supplier for Offshore in the long run so that something had to be done in order not to lose the business. An explanation for the expensiveness was that in the ABC analysis the product profitability (profit / total cost) for the cover was 18%. The sales manager of Supplier 1 shouted: *“When they (Offshore) see this, they will demand us to cut down the profit immediately!”* As mentioned before, this did not happen. On the contrary, Offshore helped in identifying how the cost could be cut, not the profit margin.

The second supplier was not very interested in the inter-organizational cost structure analysis. The supplier felt that they were almost forced to participate in the analysis because their product was so important to Offshore. Additionally, the facility manager of the second supplier was unwilling to open its books even to the external researcher in the first place. However, a major change in the attitudes of this facility manager took place during the project. A primary explanation to the attitude change became from the results. The cost analysis showed that Supplier 2 sold the drive with 3% loss. Having noticed this, the facility manager began searching for inefficiencies in the factory. The search was extended to cover buyer-supplier interfaces not only in the production but also at the governance structure level. Finally, the facility manager mentioned that all their costs can be presented in the network education. This was even more than what was needed in the education.

A very surprising resistance of change originated from the Offshore’s senior buyer. He was willing to see the costs of the suppliers and wanted the cost analyses to be conducted but he did not believe in ABC. He was more interested in the direct costs than in the indirect costs. Therefore, he put far more effort into the first supplier’s development because the problem there was in the direct working hours. The second supplier was more or less left without the senior buyer’s support in the development because the focus there was on the indirect costs. An explanation for this behaviour may be the senior buyer’s background: He was an engineer and had technical work experience, but was less familiar with the administrative procedures of sourcing, purchasing and buying.

Offshore was the initiator of the cost analysis in the network. Offshore also provided the circumstances for the win-win discussions. It organized the cost analysis education in the supplier network. Offshore’s motive came from another network’s positive experiences and from the actual need to reduce costs. Although the cost accounting systems of the individual network members were not harmonized, a common standard was used for presenting the cost elements. The accounting method used in the Offshore network was standardized between the network members so that the suppliers’ products were calculated in a similar way. Moreover, the network education was based on this application of ABC. The cost elements were analyzed in the spirit of setting targets so that target cost thinking was applied. From 2003 on, all Offshore’s suppliers, also those that did not participate in the pilot cost management analyses, have known how the format of analyzing cost data and the procedure of carrying out open-book practice look like in which

Offshore wants the suppliers' to be involved in. Offshore did not expect the suppliers to change their accounting systems but they wanted a standardized presentation of the costs.

In 2006 the situation had changed dramatically. In the operative level, the senior buyer of Offshore had retired. This meant that the purchasing approach in Offshore had changed towards more holistic analysis instead of negotiating only on price cuttings and direct working hour savings. Hence, the style of asking suppliers to be involved in open-book procedures was now more sophisticated. This had created an atmosphere in which some, but not all, suppliers, that were present in the 2003 multilateral education but did not belong to the two pilot suppliers, had proceeded in the path of OBA. However, the accounting methods between different suppliers were not standardized, most of the suppliers did not use ABC, and Offshore had not demanded all the suppliers to use standardized cost presentation format. To summarize, Offshore still had no total, standardized, and detailed presentation on the networked cost structure of propeller systems in the spirit of what is reported for example by Kajüter and Kulmala in the Eurocar case (2005).

With the pilot suppliers, Offshore was very lucky. Offshore was still one of the most important customers of Supplier 1 and their mutual business had increased more than 10 per cent. In open-book arrangements, Offshore was the leading company from Supplier 1 point of view. Supplier 1 had not shown their cost structure in such a detail and in such extent to any other of its customers. The development that started in 2003 had gone further and more products had been taken under open-book analyses. Supplier 1 seemed to feel that especially during the on-going economic boom Offshore does not even think about misusing their cost data by comparing certain sub-components with lower cost suppliers but rely on continuous incremental cost-saving potential of cooperating with Supplier 1. Although Supplier 1 had good experiences on OBA, there were even significant customers with whom Supplier 1 would not like to carry out OBA. *“With certain customers, there is always the fear of being replaced by low cost country manufacturers or exploited in the IPR questions”*, said the management.

Supplier 2 was sold to a large gear, drive & shift specialized company shortly after 2003. The role of this supplier was changed from a product factory manufacturing side-products compared with the primary product lines of the global owner into a development and manufacturing unit producing the core products of a 170 M€ sales company. This shift was a technological leap to Offshore, because now they had all the newest innovations in this product group in their use. In the previous years, the development potential of Supplier 2 was smaller. However, the accounting system and accounting thinking was in 2006 more centrally organized than three years before. This means that Offshore should negotiate with the larger consolidated company if they were willing to set demands on the format in which Supplier 2 presents their costs. In practice, Supplier 2 and Offshore discuss costs in the spirit of OBA, but the costs are presented in the formats of new accounting system's reports. While the details of the pilot product case in 2003 have taken a step backwards, the variety of products that are under OBA discussion has extended. There seemed to prevail a status quo in which all the participants are almost satisfied: Supplier 2 management could not change their owner's accounting thinking but have some local freedom, the owners wanted to put all their units into same accounting system but were not willing to ruin an effective OBA culture, and Offshore could not increase its negotiating power over the owners but decided to enjoy slow accounting progress along with fast technological progress.

4.2 Roof & Steel network

4.2.1 Background

The Roof & Steel network consists of the principal (Roof & Steel Ltd) and seven of its primary partners (called here as roof assemblers). In 2004, the annual sales of Roof & Steel was about 420 M€ and it employed ca. 900 people (the proportion of sales in the roof business was ca. 2%), while the average annual sales for roof assemblers was about 0.3 M€ and the average number of employees was four. The structure of the network is illustrated in Figure 2. The fixed arrow lines show the monetary flows. Roof & Steel pays the roof assemblers for their assembly work, and the house builders or renovators pay Roof & Steel for all the work and the material. The roof assembly firms do not own the roof materials in any phase. The dashed arrow lines show the material and service supply flows. Roof & Steel delivers the material to the construction site where the roof assemblers then perform the assembly work.

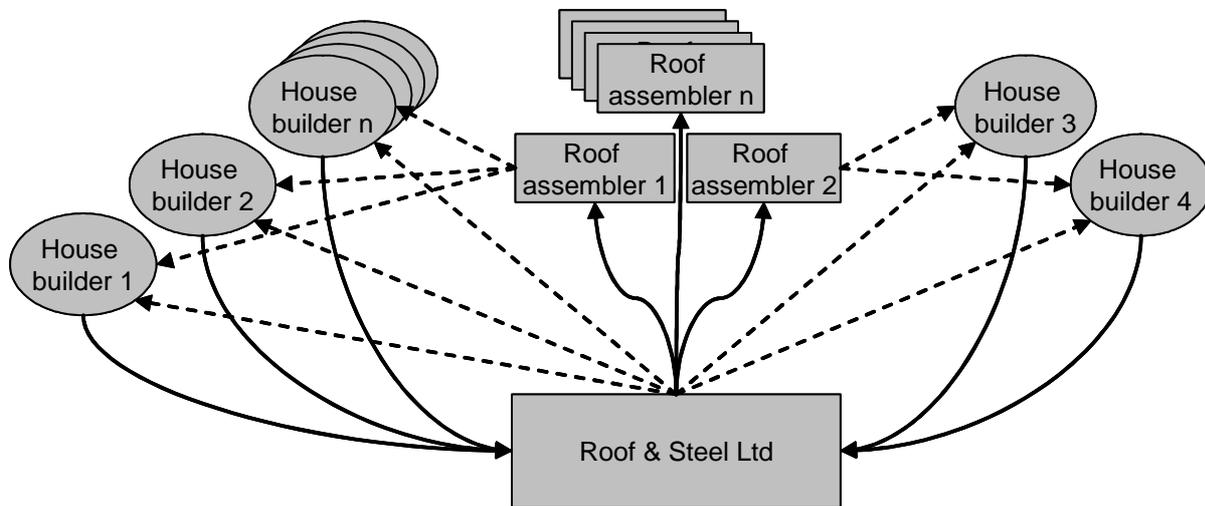


Figure 2. Structure of the Roof & Steel network

Within the roof building service, Roof & Steel delivers customer service, design, production, logistics, and everything else but the roof assembly and sales. A house builder cannot choose which roof assembler will perform the assembly work nor can the roof assembler choose the construction sites. On the contrary, Roof & Steel makes both of these selections. House builders may not even be aware of the fact that the roof assemblers are independent firms, because they wear Roof & Steel clothes. On the other hand, while the roof assemblers are mainly understood as Roof & Steel employees, the quality of their work will be identified as the quality of Roof & Steel although Roof & Steel has no juridical power over the decision-making in roof assembly firms.

The network had been developing since the mid-1990's. In 2004, however, Roof & Steel decided to re-organize the network so that the roof assemblers would become more aware of their role in the business of Roof & Steel and more interested in joint process development discussions. The assembly network firms naturally did not have knowledge and resources (time, funding) for the collaboration nor the cost control development. Although Roof & Steel had some knowledge and intended to invest money into development work, it did not have the necessary personnel resources

available. In this situation, external researchers were asked to carry out a network development project.

4.2.2 Generic cost model for roof assembly

The interests of Roof & Steel and the individual roof assembly firms met as regards costs and quality of the assembly service. The initial position regarding management accounting and control was frustrating in 2004: six out of the seven roof assemblers did not have any accounting system and relied on the bookkeeper for financial results. Hence, it can be argued that these assembly firms did not have a clear view on their cost efficiency and unit costs of assemblies.

Firstly, Roof & Steel wanted to make the assemblers more aware of the cost structure of the assembly work and, as a result, to make them more active in controlling the costs of the overall operations. Most of the roof assemblers worked exclusively or primarily for Roof & Steel. The direct cost was controlled by Roof & Steel who owned all roof material. The assemblers were responsible for all wasted material and the assemblers paid their employees only for performed working hours. Hence, direct costs were known quite well in each assembly order. Because the pricing between the assembly firms and Roof & Steel is based on an agreed lump sum per assembled roof, the roof assemblers mainly calculated all their indirect costs and split the annual sum equally between the roof assemblies. This procedure caused an increase in assembly prices, because the assembly firms did not actually control the indirect costs. Instead, they only calculated them afterwards and added them to the next year's margin. Secondly, the assembly firms were concerned about their competitiveness because Roof & Steel expected a decreasing price trend while the assemblers' indirect costs seemed to be increasing. In this situation, most of the assembly firms felt helpless because they did not find a solution for reducing the costs of direct work. The only option would be to apply a new accounting system. At the same time, almost all the assemblers felt that Roof & Steel is such an important and advanced principal that they want to keep on working for it. Hence, something should be done regarding cost management, because otherwise Roof & Steel would, at least in the long run, search for new assemblers.

In order to deepen the understanding of end customers' profitability, the cost structures of roof assembly work and roof assembly firms were modelled. The generic cost structure consists of three cost categories: direct cost, group-level cost, and firm-level cost. The direct costs, that were controlled, form only one of the three structural parts of the overall costs. The direct costs are roof assembly specific so that every roof causes its own direct costs. The group-level costs relate to the independent assembly groups. Roof assembly work is organized in every firm independently so that groups do the work and groups may have different profiles (number of workers, experience of workers, type of lorry, distance between office and assembly location etc.) and thus specific group-level costs as well. For example, different groups have different quality and reclamation costs due to different styles of performing the assembly work. Finally, firm-level costs mainly depend on the firm's infrastructure or the owner's life style. This means that some firms use an expensive bookkeeper while others carry out bookkeeping by themselves, some owners want to have an office in an industrial hall while others do the paper work at home. In general, cost management in assembly firms should be performed on three levels: direct work on site, assembly group profiles, and owner's life style.

Cost category	Cost element	Measured, €	Calculated on average, €	Simulated in the new cost model
Direct (site costs, all assembly sites separately)	Accessories & tools	60,00	5,00	
	Fuel	40,00		X
	Telephone calls			
	Wages (work time)	1 840,00		X
	Site inspections	40,00		X
	Idle time wages	60,00		X
	Social expenses	1 202,80		X
Group-level (total annual cost, all assembly groups separately, must be allocated to assembled sites)	Lorry	5 653,49		X
	Group tools	1 441,39		
	Clothes	300,00		
	Reclamation costs	2 760,00		X
Firm-level (annual costs, firm's infrastructure together, must be allocated to assembled sites)	Owner's salary	19 375,00		X
	Salaries of other office workers	11 625,00		X
	Office costs	8 400,00		X
	Data system costs	200,00		
	Postal costs	50,00		
	Bookkeeping	300,00		
Revenues (Sales of each assembly site separately)		2 540,00		X

Remark: Some numbers are changed in order to retain the confidentiality.

Figure 3. Breakdown of the assembly firms' generic cost structure

Figure 3 illustrates the detailed breakdown of the assembly firms' generic cost structure. There are some specific issues to be mentioned. First of all, everything but the site-specific phone calls can be measured. The costs for phone calls are an exception because they are not material and it would make to much effort to trace them to the different roof assembly sites.

Secondly, a new cost model for the total costs of an assembly firm was developed so that cost elements marked "simulated" in figure 3 were parameters that could have different values. The simulation means, for example, that by inserting a new purchase price and a new usage (driving kilometres) for the assembly groups' lorries, the new total annual costs of the assembly firm were calculated. These total costs were further divided to individual assembly sites. Similarly, the total network could easily simulate the cost-saving potential of changing the parameters of any of the simulated issues. For example, moving from a big office to a smaller one resulted in savings that would lead to lower charges to the assembled roofs. The simulation provided precise cost estimates and was easy to handle. While the cost accounting competences of the roof assemblers were limited, with the simulation they did not have to care about the allocations and assignments, which were organized through the researcher-built cost model in the background. In addition, the roof assemblers could easily compare whether, for example, moving to a smaller office would bring more or less savings than reducing reclamations. In the network, Roof & Steel could concentrate on recommendation of such practices that would lead to the highest cost-saving potential.

Thirdly, the annual sales to Roof & Steel were added to the model in order to control and simulate profit as well. By adding the sales, the assembly firms were able to simulate also the work load for the assembly groups and individual employees, and to calculate how many new roof assemblies (sales) are needed in order to launch a new assembly group profitably.

In the simulation, averages for direct costs and revenues were applied. These averages were calculated from the 2004 roof sales and assembly data of Roof & Steel. The average was named “standard roof assembly”. It is reasonable to believe that the variety of the roofs assembled will not change too much due to rather conservative consumers in this field. Using the expected number of standard roof assemblies for the simulation simplified the model so that the input data could be based on averages. At the end, this multi-parameter simulation worked as the actual control tool in the new cost model. Due to the simulation, all the assemblers could estimate the annual depreciation for lorries, for example, and apply life-cycle thinking for lorry fleet instead of buying new lorries based on an earlier “time-to-change” feeling.

4.2.3 Increased cost awareness within the network

After the new cost model and the simulation tool had been developed, a rather unusual initiative from the network group took place: The entire SME network including Roof & Steel wanted to organize trainings for the wider group of roof assemblers in order to get all assemblers together to discuss cost issues. The purpose of these trainings was to introduce and instruct the use of the new management accounting tools as well.

The seven primary roof assembly firms were invited to the trainings that were held by external researchers but organized and paid for by Roof & Steel. The training included shaping the characteristics of doing business within networks, introducing the average cost structure of roof assemblies, and simulating the most typical decisions of the assembly firms including, for example, the types of lorries used, the ways to handle customer complaints, the specific needs for having an office, etc. All these phases were interactive so that the information needs of the assemblers were taken into account. The average cost structure was easily accepted by the assemblers because the original values for cost elements (see figure 3) were taken from their own firms and reflected the experienced economic reality rather well.

What actually made this kind of training possible was the simplicity and similarity of roof assembly processes. Simplicity was important because the generic cost model did not have to deal with inventories, intangible assets etc., because the roof assembly work was well-known by all the people involved. Similarity was important, because if the network members’ processes vary a lot, there are no possibilities for generic cost structure modelling and an efficient all-in-one training.

During the simulation phase, an active discussion and analysis regarding the effect of alternative decisions on the total profitability of firms began. Almost all participants wanted to change some or all figures in the simulation to meet their own economic situation. An assembler captured the point: *“I did not know that the customer complaints have so much influence on the poor profitability.”* In general, the cost awareness increased by the simulation. Even though the overall cost structure of the assembly firms was not very well-known before the development process, the most important benefit for them in the future is expected to result from the simulation, because in all decisions regarding the simulated parameters, the assembly firm can now foresee the economic effect on the annual result before making the decision.

After the trainings organized by Roof & Steel, all assemblers, without exceptions, decided to adopt the new cost model and the simulation. Because the tools were developed by external researchers, Roof & Steel paid for the tools on behalf of the assembly firms. This, likewise the whole network development project, can be seen as an investment in the development of network partners. On the

other hand, the assemblers understood the situation and intended to benefit from it. Most of the assemblers still needed additional instruction after the joint training. However, the performance and the cost structure of assembly work and the effect of individual choices regarding the process or the equipment were somehow opened to the group of assemblers having rather poor economic knowledge. Since the assemblers were shown that they can improve their profitability through changes in the process or in the firms' infrastructure, they may also now have more incentives than before to reduce costs and to execute the commonly agreed actions. The awareness regarding cost reductions has primarily relied on removing the profitability advantage from the assemblers to Roof & Steel by reducing assembly prices. With the cost structure simulation, assemblers could see that reducing prices does not have to mean reducing profitability. In contrast, a win-win situation of reducing prices by half of the cost reductions was simulated.

As a result, the assemblers considered possibilities for dyadic open-book calculations with Roof & Steel. For many years, the sales manager of Roof & Steel had posed questions on the roof assemblers regarding the profitability of real estate warehouses and fixed offices. Without any calculations, the assemblers had mainly answered that "*their businesses need real estate*". Roof & Steel suggested that all assemblers carry out a detailed open-book cost analysis. For confidentiality and trust-building reasons these calculations were finally carried out by neutral researchers and without Roof & Steel representatives. One of the authors used the cost simulation with each of the assembly firms and asked for certain decision-making parameters that were agreed with Roof & Steel beforehand. The cost effects of these parameters were included with real assembly firm cost data into the individual simulations. As a direct result, one of the assemblers gave up his former real estate warehouse, for example, because a fixed warehouse for moving assembly groups turned out to be too expensive. This led to realized cost savings of over 100 €/ month in one assembly firm. The assembler even gave a comment to the sales manager: "*Well, there is no use for having a warehouse.*" Another firm started to use the lorries for a fixed number of years which made the depreciation assigned to each assembled roof easier to calculate beforehand.

4.2.4 Inter-firm relationships within the network

The relationships between different roof assemblers became double-edged in 2004. On the one hand, these firms located in the Southwest of Finland were all competitors. They were almost equally capable to assemble any roof. On the other hand, they were all aware that Roof & Steel had enough work for all. Hence, they believed that Roof & Steel would minimize costs by giving assembly orders equally to all assemblers according to the work load and optimal location of assembly groups. Interestingly, these settings did not change during the development process. Even after the group training, only the largest assembly firm was heading towards growth. However, the training may have far-reaching consequences in the future, because many assemblers finally began to think like entrepreneurs do. Before, they could be described as "independent workers" employed by Roof & Steel. Today, they really plan, and also have tools to evaluate the financial consequences of their managerial decisions. This means a movement from "workership" towards entrepreneurship.

A very important point in the development of the small assembly firms, the potential for growth, was addressed in the discussions but not analyzed in depth. There were three reasons for this. First, some of the assembly firms were so small that their primary mission is to employ the owner. These firms did naturally not strive for growth and they did not have the managerial skills needed. Second, growth means investments, for example employment of new assembly groups, purchase of lorries, etc. The assembly firms mainly expected Roof & Steel to guarantee increased demand if they

invested in new equipment. In the conservative and rather stable roof building market, Roof & Steel could not promise increasing demand immediately because most of the new volume should come from other assemblers. Investment and demand needs were simulated with the new tools. Thirdly and most interestingly, Roof & Steel did not want any of the assemblers to grow by merging with other assemblers, because this would have increased the negotiating power of the assemblers. In other words, alliances among assembly firms were not desired. While the development process took place in competitive markets, Roof & Steel did not intend to create a strong assembly actor from a group of scattered small firms.

An important change in the attitudes towards Roof & Steel took place during this process. While the price negotiations had left the assemblers with a feeling that Roof & Steel wants to cut their prices, profitability, and owners' income, the cost simulations carried out by the researchers showed them that Roof & Steel is primarily aiming to reduce house builders' total costs. Linking this information with the potential and encouraged growth made the assemblers think that maybe Roof & Steel is not immediately replacing the current assemblers with new ones. This observation indicates increased trust and the opportunity for Roof & Steel to get their development ideas more easily accepted by the assemblers in the future.

5 Discussion

A formalized procedure of illustrating the cost structure in a network means that all network members reported their costs to their direct customer similarly (Kajüter & Kulmala, 2005). Comparing this earlier finding and the practical emergency and results of the management accounting development in the Offshore network, the procedures represent a similar development. Although this might be explained by the involvement of the external researchers, it also shows that the benefits of standardizing the calculation and presentation form between network members are not case-specific. At least in such manufacturing business as the case networks take part in, the formalized and standardized network procedure was eagerly adopted and it led to positive changes. Comparing this with latest network accounting studies (see e.g. Håkansson & Lind, 2004; Kulmala, 2004; Cooper & Slagmulder, 2004; Mouritsen et al., 2001; Tomkins, 2001), standardized and formalized accounting procedure within a network is a rather new approach.

A very relevant question arises after this study: Is the standardization of the presentation of costs within network companies a key issue in network management? At least two perspectives on the issue can be taken into account. Firstly, transaction cost theory explains different forms of organizing economic activity (see e.g. Williamson, 1985, 1975). Basically, so called transaction costs can be separated to four different classes: search costs, contracting costs, monitoring costs and enforcement costs. Transaction costs are as a "friction in the market" or a "cost of using the price mechanism". In light of transaction cost theory, formalization and standardization of presenting any information may represent removing the friction from inter-organizational relationships, which, in turn, reduces administrative costs, especially monitoring costs, in the governance of relationships. Hence, the case studies may mean that standardized cost information in networks reduces the cost of conducting cost analyses within networks, increases the possibilities to identify inter-organizational cost-reduction potential, increases the feeling of justice and commitment of network members, and, in general, reduces the overall cost of using price mechanism in the market.

On the other hand, referring to trust discussion (see e.g. Cooper & Slagmulder, 2004; Axelsson et al., 2002; Tomkins, 2001; Mouritsen et al., 2001), an important factor explaining the success of network arrangements is trust. In the light of trust theories, formalized and standardized cost

information may be related to calculative trust. This calculative trust, in turn, may be needed in keeping the network members together because it is natural that only part of the network members are fully committed to the future of the network and some members are committed only as long as benefits overrule costs. While calculative trust is built up from exact calculations and analyses, cost information is an important part of this type of trust. Increased calculative trust could, in the long term, create overall trust also into such relationships that do not include too much goodwill trust. When overall trust is increased, the probability of members leaving the network during bad times could be reduced. Hence, Offshore case may represent one step in the path of increasing different types of trust, and thereby overall trust as well, by the means of standardizing cost information within networks.

This study leaves the relationship between the case networks and the two theoretical perspectives, transaction cost theory and trust, unmeasured. However, the empirical evidence clearly shows that the need for measuring the proposed relationships exists. While this study is only a first attempt in the empirical analysis concerning the role of standardized cost information in network-wide OBA, the results show that the Offshore network does not operate as it was used to after the changes in the presentation of cost information. This is strong evidence supporting the interpretation that standardized cost information in networks affects not only the procedure of OBA but also the structural factors explaining changes in the practice of management accounting.

Our empirical evidence gives an interesting insight into a case in which underlying assumptions of different parties regarding other parties were changed by using independent mediators as information carriers. Regarding *agency theory*, the evidence is clear: The roof assemblers would not have listened to the cost management tool development and cost reduction efforts suggested by Roof & Steel without a neutral party. The information asymmetry regarding management accounting tools and their effect on cost management capabilities was huge. Furthermore, the conflicting interests in the price negotiations had driven the roof assemblers deep into their "foxholes" so that any constructive criticism concerning their working methods from Roof & Steel's side was interpreted as an attempt to use the power against a supplier. However, while Roof & Steel noticed that the attitudes prevented all network developments, they decided to employ agents to provide information sharing incentives to suppliers through profitability improving cost-reductions. This was a similar approach to the case reported by Jarimo et al. (2005). When the agents (the researchers) provided roof assemblers with information on earlier development efforts in other industries and in other companies, the assemblers were more ready to review their managerial systems. This turned out to be beneficial for the entire network by improving cost awareness, implementing more efficient cost management tools, and realizing cost savings even though Roof & Steel was the only one who invested into the development process.

From the point of view of SMEs, our empirical findings support propositions that claim networking to have a positive effect on the cost management practices of small firms. In this case, roof assemblers were involved in a large-scale management accounting training without any effort or initiative from their side. In addition, a cost structure model and a simulation tool for accounting and controlling the costs were developed. Referring to earlier studies (e.g. Hopper et al., 1999; Kajüter & Kulmala, 2005), it can be stated that networking is a phenomenon that seems to induce smaller firms to adopt modern cost management practices in order to meet the expectations of the networks' main contractors. Thus, networking of firms contributes to speed up the diffusion of management accounting practices. However, whenever a win-win solution is possible, the faster adoption does not seem to happen against the will of the smaller firms because of their increased understanding. In this regard, the role of main contractors in hierarchical networks may be emphasized by providing potential for SMEs: If a larger and more aware company invests in

training SMEs (typically less aware companies), the faster removal of information asymmetry may mean competitive advantage compared to other networks. The case evidence shows that a straightforward training of a selected number of key network members seemed to assist Roof & Steel in cost-reduction efforts.

The management accounting systems developed in the cases provided information mostly in the spirit of Tomkins' (2001) information of type 2 (to master events collaboratively). The networks seemed to be heading towards standardized accounting systems (a standardized ABC at Offshore suppliers and a generic cost structure model for all roof assemblers), joint problem solving (profitability simulation experiments with all roof assemblers), and improving the processes (reducing quality failures, minimizing unused capacity and non-necessary resources). Whether the management accounting approaches developed also provide information of type 2 (to warrant trust), remains to be analyzed at a later stage of the network evolution. However, similar to previous studies, the empirical evidence shows that the direction of cost information flow was one-way only, i.e. from suppliers to customers (Carr & Ng, 1995; Seal et al., 1999; Mouritsen et al., 2001; Dekker, 2003).

The rather easy and fast changes in the management accounting practices of the roof assemblers may be explained by the initial status of their management accounting systems. The less sophisticated the cost accounting systems, the lower the resistance against changes. As the roof assemblers had almost no tools at the beginning of the network development, they were interested in improving their competencies in this field. When the researchers suggested a cost model and a simulation that seemed realistic, the acceptance for using these tools was easy. After the acceptance, also the ideas of Roof & Steel could be pre-calculated and proven to be cost-reducing. Hence, the empirical findings support the contingency factors in the contingency framework for OBA in networks (Kajüter & Kulmala, 2005, p. 198) by showing that if cost accounting systems (endogenous firm-specific factor) are developed or infrastructure (network-specific factor) is available, it is possible to proceed independently from the starting level. Even though this case included very small firms that participated in open network training, full OBA without mediators did not yet take place. This supports the earlier literature claiming that larger firm size is an endogenous firm-specific contingency factor increasing the likelihood of OBA practices (Kajüter & Kulmala, 2005).

The primary contribution of this study to *contingency theory* is that the development of networks regarding management accounting may depend on the simplicity and degree of standardization of network members' processes. If the network of Roof & Steel were a multifunctional group of companies operating in totally different areas and with different processes, researchers could not have developed a generic cost structure model, which, in this case, made the roof assemblers to believe in the possibilities to improve. With the generic model, seven roof assemblers were told at the same moment that their business activities can be simulated beforehand and, thus, managed more cost efficiently. In addition, if the process of roof assemblers was not rather well-known by Roof & Steel personnel, the value added for open-book arrangements would have been higher. In that case, open-books would have increased the understanding of the customer more than it did in this case. This means that by revealing their costs, the roof assemblers did not give too much new information to the Roof & Steel.

The contingency framework of Kajüter & Kulmala (2005, p. 198) should be complemented with further network-specific context factors: Simplicity (high) and variety (standard) of network members' processes. Firstly, the more complex the suppliers' processes are, the lower is the pre-understanding the customers have on the suppliers' cost structure. OBA seems to add less value to

the customer, if the supplier's processes are known well. While the process improvement potential by OBA seemed low in this case due to this pre-understanding, its power in increasing the overall cost-awareness of the suppliers was significant. Secondly, the more similar the processes of the network members are, the easier it seemed to convince the members on their abilities to improve current processes. In the network training, researchers could take examples from the reality of any of the roof assemblers' process and costs, still without revealing whose business is under analysis, and the other assemblers immediately understood the meaning of these examples.

Although the findings of this study contribute to enhancing our understanding of inter-organizational cost management in SME networks, a number of limitations have to be mentioned. First, the conclusions drawn above are based on a dual case study only. The possibility to generalize the findings is therefore limited. Second, SMEs in different industries may have several ways to be involved in networks. Hence, the way networking was organized with Offshore or Roof & Steel may not be generalizable in other cases. Third, the involvement of researchers in developing the cost management tools certainly had an effect on the practices, at least on the level of what kind of ideas were taken into deeper analysis.

The case study approach reduces, naturally, the overall generalizability of the observations. On the other hand, "*network research has been described as pre-paradigmatic and it has thus been recommended that research should concentrate more on theory building than theory verification*" (O'Donnell & Cummins, 1999, p. 83).

6 Conclusion

Inter-organizational cost management is a fairly new phenomenon that has been studied primarily in hierarchical networks of the car and electronics industry. As these networks are usually led by large multinational firms, inter-organizational cost management in networks comprising SMEs has gained far less attention to date. This paper contributed to reducing this deficit by analysing the development and implementation of cost management tools in two Finnish SME networks.

The empirical data of the dual case study was discussed from agency and contingency theory perspectives. The results indicated that firm size, network infrastructure, and the variety of processes among the network members have an effect on the management accounting practices in networks. The primary contribution of this study to *contingency theory* is that the development of SME networks regarding management accounting may depend on the simplicity and degree of standardization of network members' processes. The higher the customer's pre-understanding on the suppliers' processes, the lesser the need for the supplier to hide the process details. The lower the variety of processes, the easier it is to convince many process owners at the same time that certain management accounting tools and management practices may be efficient.

Moreover, the findings show that the development, implementation, and utilization of cost management tools were heavily supported by the main contractors of the hierarchical networks. Although the SMEs did not concentrate on efficient cost management on their own, the management accounting tool implementation helped them to understand the evident links between their own activities, operative results, and network costs. This approach opened a new way to the main contractors to increase the cost-awareness and to identify additional cost reduction opportunities among the SMEs. In general, networking is a phenomenon that seems to induce smaller firms to adopt modern cost management practices due to the interests of the networks' main

contractors. As a result, network arrangements seem to contribute to the spread and diffusion of management accounting practices across firms.

While the evidence from inter-organizational cost management and its' development in SMEs is still anecdotal, there is a growing demand for quantitative and statistical analysis on the effect of networking on cost accounting and cost management practices in SME networks. Further research might therefore explore, for example, how different approaches to network development affect the design of cost management tools in networks. Moreover, the use of target costing and other cost management practices that have been observed in networks of large firms, could be analyzed in SME networks to investigate whether these tools are applicable in this context as well.

References

- D'Amboise, G., Muldowney, M., 1988. Management Theory for Small Business: Attempts and Requirements, in: *Academy of Management Review*, **13**, pp. 226-240.
- Anderson, J.C., Håkansson, H., Johanson, J., 1994. Dyadic Business Relationships Within a Business Network Context, *Journal of Marketing*, **58**, pp. 1-15.
- Anderson, S.W., Lanen, W.N., 1999. Economic transition, strategy and the evolution of management accounting practices: the case of India, *Accounting, Organizations and Society*, **24**, pp. 379-412.
- Arend, R.J., Wisner, J.D., 2005. Small business and supply chain management: is there a fit? in: *Journal of Business Venturing*, **20**, pp. 403-436.
- Argyris, C. and Schön, D. *Organizational Learning II – Theory, Method, and Practice*. Addison Wesley, Reading, 1996.
- Axelsson, B., Laage-Hellman, J., Nilsson, U., 2002. Modern management accounting for modern purchasing. *European Journal of Purchasing & Supply Management*, **8**, pp. 53-62.
- Berry, T., Cullen, J., Seal, W., Ahmed, A., Dunlop, A., 2000. *The Consequences of Inter-Firm Supply Chains for Management Accounting*, CIMA, London.
- Burlat, P., Besombes, B., Deslandres, V., 2003. Constructing a typology for networks of firms, in: *Production Planning & Control*, **14**, pp. 399-409.
- Carr, C., Ng, J., 1995. Total cost control: Nissan and its U.K. supplier partnerships, *Management Accounting Research*, **6**, pp. 346-365.
- Chenhall, R.H., 2003. Management control systems design within its organizational context: findings from contingency-based research and directions for the future, *Accounting, Organizations and Society*, **28**, pp. 127-168.
- Cooper, R., Slagmulder, R., 1999. *Supply Chain Development for the Lean Enterprise – Interorganizational Cost Management*, Portland, Productivity Press.
- Cooper, R., Slagmulder, R., 2004. Interorganizational cost management and relational context, *Accounting, Organizations and Society*, **29**, pp. 1-26.
- Coughlan, P., Coughlan, D. 2002. Action research for operations management. *International Journal of Operations & Production Management*, **22**, pp. 220-240.
- Dekker, H., 2003. Value chain analysis in interfirm relationships: a field study, *Management Accounting Research*, **14**, pp. 1-23.

- O'Donnell, A., Cummins, D., 1999: The Use of Qualitative Methods to Research Networking in SMEs, *Qualitative Market Research: An International Journal*, **2**, pp. 82-91.
- Ebers, M., Jarillo, J.C., 1997. The Construction, Forms, and Consequences of Industry Networks, *International Studies of Management & Organization*, **27**, pp. 3-21.
- Eisenhardt, K.M., 1989. Building Theories from Case Study Research, *Academy of Management Review*, **14**, pp. 532-550.
- Fama, E.F., 1980. Agency Problems and the Theory of the Firm, in: *Journal of Political Economy*, **88**, pp. 288-307.
- Fisher, M.L., 1997. What Is the Right Supply Chain for Your Product?, *Harvard Business Review*, **75**, pp. 105-116.
- Fisher, J.G., 1998. Contingency theory, management control systems and firm outcomes: past results and future directions, *Behavioral Research in Accounting*, Supplement, **10**, pp. 47-64.
- Gumbleton, K., 1999. Lean supplier networks, in: Cooper, R., Slagmulder, R. (eds.), *Supply Chain Development for the Lean Enterprise – Interorganizational Cost Management*, Portland, Productivity Press, pp. 115-144.
- Håkansson, H., Lind, J., 2004. Accounting and network coordination, *Accounting, Organizations and Society*, **29**, pp. 51-72.
- Harland, C.M., 1996. Supply Chain Management: Relationships, Chains, Networks, in: *British Journal of Management*, **7**, Special Issue, pp. S63-S80.
- Harland, C.M., Lamming, R.C., Zheng, J., Johnsen, T.E., 2001. A taxonomy of supply networks, *Journal of Supply Chain Management*, **37**, pp. 20-27.
- Hopper, T., Koga, T., Goto, J., 1999. Cost accounting in small and medium sized Japanese companies: an exploratory study, in: *Accounting and Business Research*, **30**, pp. 73-86.
- Hyötyläinen, R. 2000. Development Mechanisms of Strategic Enterprise Networks – Learning and Innovation in Networks. VTT Publications 417. Espoo. Technical Research Centre of Finland.
- Jarimo, T., Pulkkinen, U., Salo, A., 2005. Encouraging suppliers to process innovations: a game theory approach. *International Journal of Technology Intelligence and Planning*, **1**, pp. 403-423.
- Jensen, M.C., Meckling, W.H., 1976. Theory of the Firm: Managerial Behavior, Agency Costs and ownership Structure, in: *Journal of Financial Economics*, **3**, pp. 305-360.
- Kajüter, P., Kulmala, H., 2005. Open-book accounting in networks. Potential Achievements and reasons for failures, in: *Management Accounting Research*, **16**, pp. 179-204.
- Kaplan, R. S. & Norton, D.O. 1996. *Translating Strategy into Action - The Balanced Scorecard*. Boston, Massachusetts: Harvard Business School Press.
- Kaplan, R. S. 1998. Innovation action research: Creating new management theory and practice. *Journal of Management Accounting Research*, **10**, pp. 89-118.
- Kasanen, E., Lukka, K., Siitonen, A. 1993. The constructive approach in management accounting research. *Journal of Management Accounting Research*. **5**, pp. 243-264.
- Kulmala, H. I. 2003. *Cost Management in Firm Networks*, Doctoral Dissertation, Publications 418, Tampere University of Technology, 131p.
- Kulmala, H.I., 2004. Developing Cost Management in Customer-Supplier Relationships: Three Case Studies, *Journal of Purchasing & Supply Management*, **10**, pp. 65-77.
- Lambert, D.M., Cooper, M.C., 2000. Issues in Supply Chain Management, *Industrial Marketing Management*, **29**, pp. 65-83.

- Lamming, R.C., Johnson, T.E., Zheng, J., Harland, C.M., 2000. An Initial Classification of Supply Networks, *International Journal of Production and Operations Management*, **20**, pp. 675-691.
- Lawrence, P., Lorsch, J., 1967. *Organization and environment*. Irwin, Homewood.
- Lee, K.S., Lim, G.H., Tan, S.J., 1999. Dealing with Resource Disadvantage: Generic Strategies for SMEs, in: *Small Business Economics*, **12**, pp. 299-311.
- Leonard-Barton, D., 1990. A Dual Methodology for Case Studies: Synergistic Use of a Longitudinal Single Site with Replicated Multiple Sites, *Organization Science*, **1**, pp. 248-266.
- Miles, M. B., Huberman, A. M., 1994. *Qualitative data analysis: an expanded sourcebook*. Sage publications. 2nd edition.
- Mintzberg, H., Ahlstrand, B. & Lampel, J. 1998. *Strategy safari. A guided tour through the wilds of strategic management*. The Free Press, New York.
- Mouritsen, J., Hansen, A., Hansen, C., 2001. Inter-organizational controls and organizational competencies: episodes around target cost management/functional analysis and open book accounting, *Management Accounting Research*, **12**, pp. 221-244.
- Munday, M., 1992. Accounting cost data disclosure and buyer-supplier partnerships: a research note, in: *Management Accounting Research*, **3**, pp. 245-250.
- Neilsen, E.H., 1974. Contingency Theory Applied to Small Business Organizations, in: *Human Relations*, **27**, pp. 357-379.
- Olsen, R. F., Ellram, L. M., 1997. A Portfolio Approach to Supplier Relationships. *Industrial Marketing Management*, **26**, pp. 101 – 113.
- Otley, D.T., 1980. The contingency theory of management accounting: achievement and prognosis, *Accounting, Organizations and Society*, **4**, pp. 413-428.
- Peel, M.J., Bridge, J., 1998. How Planning and Capital Budgeting Improve SME Performance, in: *Long Range Planning*, **31**, pp. 848-856.
- Pfohl, H.-C., Buse, H.P., 2000. Inter-organizational logistics systems in flexible production networks, *International Journal of Physical Distribution & Logistics Management*, **30**, pp. 388-408.
- Quayle, M., 2002. Supplier development and supply chain management in small and medium size enterprises, in: *International Journal of Technology Management*, **23**, pp. 172-188.
- Seal, W., Cullen, J., Dunlop, A., Berry, T., Ahmed, M., 1999. Enacting a European supply chain: a case study on the role of management accounting, *Management Accounting Research*, **10**, pp. 303-322.
- Stake, R.E., 1995. *The Art of Case Study Research*, Sage Publications, London.
- Tomkins, C., 2001. Interdependencies, trust and information in relationships, alliances and networks, *Accounting, Organization and Society*, **26**, pp. 161-191.
- Tulip, S., 2000. SMEs shun supply chain integration, *Supply Management*, **5**, p. 10.
- Waterhouse, J., Tiessen, P., 1978. A contingency framework for management accounting systems research, *Accounting, Organizations and Society*, **3**, pp. 65-76.
- Wijewardena, H., De Zoysa, A., Fonseka, T., Perera., B., 2004. The impact of planning and control sophistication on performance of small and medium-sized enterprises: Evidence from Sri Lanka, *Journal of Small Business Management*, **42**, pp. 209-217.

- Williamson, O. E. 1975. *Markets and hierarchies: analysis and antitrust implications*. The Free Press. New York.
- Williamson, O. E. 1985. *The economic institutions of capitalism: firms, markets, relational contracting*. The Free Press. New York.
- Wynarczyk, P., Watson, R., 2005. Firm Growth and Supply Chain Partnerships: An Empirical Analysis of U.K. SME Subcontractors, *Small Business Economics*, **24**, pp. 39-51.
- Yin, R.K., 1994. *Case Study Research, Design and Methods*, 2nd edition, Beverly Hills, Sage Publications.