



# The antecedents of supply strategy

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## Abstract

**Purpose** – Because the role of supply management has become more strategic for firms, the importance of the existence of supply strategy has also increased. Therefore, the aim of this study is to discuss the existence of supply strategy in a firm and to analyze the determinants that may affect the process of building and development of supply strategy.

**Design/methodology/approach** – Based on previous literature, four hypotheses are established. To discover the effect of found antecedents on the existence of supply strategy, a logistic regression analysis is performed by using SPSS software.

**Findings** – Using empirical data collected from 100 Finnish firms, it is found that the capability of supply management is the main antecedent of the existence of supply strategy. The rate of internationality from overall purchases, the rate of total purchases from turnover and the centralization of supply management have a minor effect on supply strategy formation.

**Research limitations/implications** – The limitation of this study is that the group sizes of dependent variable are not equal, which can bias the results. Furthermore, small sample size in statistical analysis may have effects on the generalization of the results.

**Originality/value** – The study emphasizes the influence of capability as a main determinant of building effective supply strategy.

**Keywords** Supply management, Supply chain, Purchasing, Strategy, Capability, Supply chain management

**Paper type** Research paper

## Introduction

Definitions of the strategic management concept have varied considerably since the early work of Chandler (1962) and Ansoff (1965). An organization's strategy determines the extent of the alignment between its external environment and its internal structure and processes (Galbraith and Nathanson, 1978). Strategy formulation is a decision-making process (Fredrickson, 1984), and "a pattern in a stream of decisions" (Mintzberg and Waters, 1985). Thus, it is an analytic process involving the establishing of long-term goals. Strategic management, on the other hand, is a system of corporate values, planning capabilities, and/or organizational responsibilities, which connects strategic thinking with operational decision-making on all levels and across all functions in the firm (Gluck *et al.*, 1980). As Fredrickson (1990) puts it: "Strategic management is concerned with those issues faced by managers who run entire organizations, or their multifunctional units."

As the concept of strategic management has evolved, different organizational functions have begun to consider their role in the process. Since the early 1990s there has been a pronounced need in the field of purchasing and supply management to be integrated into the strategic management process (Ellram and Carr, 1994; Carr and Smeltzer, 1997).



Furthermore, several studies (Carr and Smeltzer, 1997; Kocabasoglu and Suresh, 2006) have shown that supply management is a strategic function in many firms. As Ellram and Carr (1994) state, strategically managed purchasing and supply management constitutes a potential value-added resource to the firm.

Because the role of supply management is becoming increasingly strategic, the importance of having a supply strategy has also increased. Yeung (2008) found strategic supply management to be highly correlated with a firm's competitive advantage and business performance and thus, the existence of supply strategy and the strategic nature of supply management are highly important. Previous studies have mainly discussed the single elements of supply strategies (Cousins, 1999; Ellram, 1990; Humphreys *et al.*, 2000), presented the collection of all the elements of supply strategies (Ahtonen and Virolainen, 2009), and discussed the concept of supply strategy and strategic supply management (Ellram and Carr, 1994; Carr and Smeltzer, 1997; Harland *et al.*, 1999; Nollet *et al.*, 2005). However, there is a notable research gap concerning the existence of supply strategies and the reasons why and in which situations firms form supply strategies. Thus, the aim in this study is to discuss the existence of a supply strategy in a firm and to analyze the determinants that may affect the process of its building and development.

### Strategy and supply management

According to Corey (1978), a strategy can be seen as a plan of action designed to achieve given goals and objectives. Pettigrew *et al.* (2002) state that the core aspects of organizational strategy include its direction, purpose, strategic leadership, organization, and competitive performance. Both sellers and buyers have strategies that define how they act in different situations (Andersson and Servais, 2010). This study explores the antecedents of supply strategies and thus, the concept of supply management need to be discussed before the strategies of buyers, i.e. supply strategies, can be analyzed.

#### *Supply management*

According to Cousins and Spekman (2003), firms have moved in management focus from the flow of goods and services into the organization (i.e. purchasing) to the supply process, which also affects decisions guiding the firm's future competitive position and the management of its internal and external resources (Cousins, 2002). Cousins and Spekman (2003, p. 20) determine that "Supply management is, therefore, concerned with the flow of goods and services through the organization with the aim of making the firm more competitive." Cox and Lamming (1997, p. 62) define supply management as "the strategic management of external and internal resources and relational competencies in the fulfilment of commitments to customers." This study complies with these definitions and at the same time incorporates the diverse terminology that characterizes the research on purchasing and supply management. As Cousins and Spekman (2003) have defined, purchasing refers to the management of the flow of goods and services into the organization. The concept of supply management, instead, refers to:

[...]the process of planning, implementing, evaluating, and controlling strategic and operating purchasing decisions for directing all activities of the purchasing function toward opportunities consistent with the firm's capabilities to achieve its long-term goals (Kocabasoglu and Suresh, 2006, p. 201).

Thus, supply management is seen as strategic and long-term issue which includes more than just the management of the flow of goods and services. Based on the discussion, the term purchasing is too narrow concept for the purposes of this study, and therefore, the term supply management is used instead.

Strategic supply management could be seen as investment on the part of a buying firm in transaction-specific assets that could produce benefits from vertical integration without the costs of actual ownership (Carr and Pearson, 1999). Hence, by utilizing supplier networks firms can obtain manufacturing capabilities without making capital investments (Narasimhan and Das, 1999). The strategic nature of supply management arises from the activities in which the buying firm engages in order to foster superior relations with suppliers for mutual benefit (Paulraj and Chen, 2007). Therefore, the exploitation of the firm's external resources, and the maintenance and management of these relations are the primary tasks and responsibilities of strategic supply management. Accordingly, the current literature on supply management is becoming increasingly focused on supplier relationships (Fynes *et al.*, 2008). Corporate acquisitions, outsourcing and the relocation of manufacturing to low-cost countries create huge challenges and increase the complexity of supplier relationship management. Hence, firms emphasizing its role as one of the elements of competitive advantage are actively striving to foster better relationships with their suppliers.

#### *Supply strategy*

Nollet *et al.* (2005), discussing the concept of strategy in supply management, suggest that the clear definition and formulation of a supply strategy present a number of challenges. Indeed, the concept of a supply strategy is defined in various ways in several studies. Corey (1978) describes supply strategies as plans of action for obtaining supplies and dealing with sellers. According to Scheuing (1989, p. 140), the purchasing strategy is:

[...] a set of rules that guides the configuration of the firm's purchasing effort over time in response to changes in competition and the environment so as to permit the firm to take advantage of profitable opportunities. In other words, the entire process of formulating, implementing, and evaluating purchasing strategy is directed at producing an optimum fit between a firm's corporate and purchasing resources on the one hand and its environmental constraints and opportunities on the other.

Furthermore, Watts *et al.* (1992, p. 5) refer to a purchasing strategy as "the pattern of decisions related to acquiring required materials and services to support operations activities that are consistent with the overall corporate competitive strategy." Even if the above-mentioned studies use the term purchasing, they clearly refer to the whole supply process and not just the management of the flow of goods and services, and thus can be used as definitions of the concept of supply strategy.

The supply strategy should always be integrated into the business and other company strategies such as the production strategy, and it should be based on the objectives and strategic principles of the firm. Supply strategies vary from one purchasing situation to another because each situation is unique. Thus, every strategy has to be tailored to the type of product being purchased, the stage of the procurement cycle, past purchasing history, the nature of the supply environment, and the buying company itself: its resources, negotiation strength, and its purchasing policies (Scheuing, 1989). Supply strategies consist of several elements that define actions in supply situations and

determine relationships formed with different suppliers and the relationship types. Ahtonen and Virolainen (2009) have argued that supply strategy elements include strategic decisions concerning the make-or-buy decision, the firm's core competencies and capabilities, the size of the supply base, the geographic area of supply activities, collaboration with suppliers in the form of partnership and network, collaboration with other buyers, as well as the level of centralization and decentralization.

Harland *et al.* (1999) relate the supply strategy to the integration of supply activities within firms, in dyadic relationships, in chains of firms and in inter-organizational networks. The intention of supply strategy is to create value to customers and to be innovative in building competitive capabilities (Nollet *et al.*, 2005). Faes and Matthyssens (2009) state that most of the previous research takes a static approach to supply strategy and considers the chosen option to be relatively stable over time. However, they continue that strategies do change and therefore, cannot be considered purely from stable perspective but the dynamic perspective should also be acknowledged. It is obvious that because the business environment is constantly changing, the supply strategies should be modified as well.

### **The antecedents of supply strategy**

Strategies are based on the visions of leaders related to the factors and characteristics that determine the firm's competitiveness. In the case of supply management, the main characteristics of strategy formation focus on cost effectiveness and reducing the total spend and supply risks (Kraljic, 1983). Furthermore, Mol *et al.* (2004) found that global sourcing and purchase internationality shape supply management strategies. Consequently, new knowledge and capability are required, as well as alignment of the organizational structures within the purchasing function (Das and Narasimhan, 2000). Hence, in order to increase effectiveness, purchasing volumes and capability, the centralization of supply management has become the prevailing practice in many large companies (Matthyssens and Faes, 1997). In sum, the main determinants that may affect the process of building and developing a supply strategy are:

- the turnover proportion of total purchases;
- the internationality rate in terms of total purchases;
- the centralization of the purchasing function; and
- supply management capability.

These determinants are described in more detail below.

#### *The turnover proportion of total purchases*

According to Zsidisin *et al.* (2003), the management's ability to control costs is critical to the firm's financial success. Moreover, because purchases comprise the largest single expenditure item in most firms, the ability to effectively manage and reduce costs may result in the accumulation of valuable, non-transferable and non-imitable resources that could provide significant competitive advantage. Several studies report that the importance of supply management and its strategic role is emphasized when the proportion of purchasing costs is fairly high (Ellram and Carr, 1994; Kocabasoglu and Suresh, 2006). However, calculating the total spend in a complex multinational and/or decentralized organization may be an overwhelming task. Many firms therefore

establish separate projects in order to map out the main purchase categories and the amounts of money involved on an annual basis. They have also invested heavily in software and ERP systems to ease the control of their total spend. It could be argued that the bigger the share of purchases from the firm's turnover, the higher is the need to have a strategy that sets the rules and guides the configuration of the firm's purchasing actions. Given the above, we put forward the following hypothesis:

- H1. The turnover share of purchases has an impact on the decision to formulate a supply strategy.

#### *The centralization of supply management*

Centralization is an internally focused supply management action aimed at aligning strategic purchasing practices according to the firm's goals (Narasimhan and Das, 2001). It is seen as a way of achieving better performance and efficiency, especially in global firms with geographically spread business units and plants. It is therefore often considered a strategic issue and is included among the firm's global strategies. The debate over the advantages and disadvantages of the centralization of the supply management function has been lively in the supply management literature and it has shown that a clear trend of centralization is going on in the firms (Johnson and Ivey, 2003). Many of the studies take an international or global perspective to the issue. Globalization is a driver toward centralized supply management and global strategy. It is proposed that the organizational structure of the firm and the distribution of supply management expertise in a firm globally determine the level of centralization (Hartmann *et al.*, 2008). However, the basic problem – how to organize and manage a certain function in a dispersed environment – is not specifically tied to global issues. The problem can be present even if the firm operates purely domestically.

Global strategies are commonly analyzed through the global integration-local responsiveness paradigm (I-R) (Doz and Prahalad, 1991). In terms of supply management, there would appear to be two contradictory forces influencing companies' supply strategies: standardization and efficiency pressures pushing purchasing toward worldwide centralization, and customization and responsiveness pressures that push purchasing and supply management toward more decentralization (Brandes, 1994). Proponents of the I-R paradigm commonly assume that environmental forces primarily determine integration and responsiveness. However, Luo (2002) identifies specific organizational characteristics that are associated with integration, pointing out that the degree of integration may be attributable to the firm's strategic capabilities, organizational infrastructure and strategic intent. His argument is that the strategic infrastructure and organizational needs together constitute the organizational dynamics that influence the optimization of integration and responsiveness. Paulraj *et al.* (2006), in conceptualizing supply integration, claim that it is constituted of relational integration, process integration, information integration, and cross-functional teams.

In the light of previous research, it could be concluded that the centralization of the supply management function in a global company does not merely mean change on the operative level, but also implies an overall strategic change in the supply policy. The search for the right balance between integration and responsiveness affects the interest groups of a firm more broadly, both externally and internally. Because centralization was in previous studies linked with achieving better performance and efficiency and considered as a strategic issue, we therefore put forward the following hypothesis:

H2. Purchasing centralization has an impact on the decision to formulate a supply strategy.

### *The internationality rate in terms of overall purchases*

In this paper internationality in terms of purchasing refers to the extent to which firms buy raw materials, services and products from foreign markets, and the magnitude and level of their relationships with foreign suppliers (Mol *et al.*, 2004). In general, purchasing internationality is associated with the concept of global sourcing. Birou and Fawcett (1993), as well as Trent and Monczka (2003), distinguish international sourcing from strategic global sourcing, defining international sourcing as purchasing from abroad without coordination between the business units of a single firm, and global sourcing as the coordination and integration of purchasing requirements among business units worldwide. Quintens *et al.* (2006, p. 171) define it as:

[...] an activity of searching and obtaining goods, services and other resources on a possible worldwide scale, to comply with the needs of the company and with a view to continuing and enhancing the current competitive position of the company.

They argue that global purchasing includes all the phases of the purchasing process, the strategic responsibilities involved, and the firm's ambitions to influence competitive advantage positively via organizational alignment and process implementation.

Global sourcing has changed the objectives of supply management from focusing only on the firm's inputs to the management of the whole supply process. It may be difficult in a complex organization to distribute relevant supplier information evenly between business units. Thus, the skills and knowledge embedded in purchasing and supplier management may be fragmented, which causes an increase in the costs and risks related to suppliers and deliveries. Hence, achieving global and cross-business synergies is extremely difficult in a decentralized and complex environment, and having a global supply strategy and the ability to implement it is of utmost importance. We therefore posit the following hypothesis:

H3. Purchasing internationality has an impact on the decision to formulate a supply strategy.

### *Supply management capability*

The capability concept derives from the resource-based view (RBV) (Wernerfelt, 1984), the aim of which is to provide an explanation of why firms are different and how they can achieve competitive advantage through the utilization of their internal resources and capabilities. The stronger the role of these resources as the basis of the firm's success, the more it depends upon them. The characteristics of the firm's resources and capabilities, which may generate economic rents, form its strategic assets (Amit and Schoemaker, 1993). Furthermore, it is stated that academics and practitioners tend to emphasize capability, rather than individual skills, as an influencing factor of performance and competitiveness (Kale *et al.*, 2002; Helfat and Peteraf, 2003). According to Eltantawy *et al.* (2009, p. 926), "supply management scholars began using the resource-based view to draw theoretical foundations for understanding how skills and practices act as sources of competitive advantage".

The connection between skills and the strategic role of supply management is frequently highlighted (Cruz and Murphy, 1996; Carr and Smeltzer, 1997; Eltantawy *et al.*, 2009;

Feisel *et al.*, 2010). Empirical studies have reported a positive relationship between supply management skills and firm performance: the level of skills may predict the level of performance (Carr and Smeltzer, 2000). Moreover, supply management is considered to be an important resource and a knowledge-acquisition interface that can give a firm competitive advantage through supplier network (Rungtusanatham *et al.*, 2003). There is a wealth of research on individual skills and knowledge in the supply-management context. Supply management skills have been described as personal traits (Faes *et al.*, 2001), technical knowledge (Carr and Smeltzer, 2000), and supplier-network-management skills (Narasimhan *et al.*, 2001). However, the research on supply management capability as an organizational-level asset is still inconclusive.

Das and Narasimhan (2000) distinguish between supply management skills and capability. They argue that practices are internally observable activities that can be measured, and that capability is a latent phenomenon that facilitates the structuring, development and management of the supply base in alignment with the firm's business priorities. Merminod *et al.* (2007) suggested more recently that the development of supply management capability and the linking of supply management with other departments were crucial acts in complex global supply networks carried out in order to preserve competitiveness. Hence, accumulation of knowledge and capability of supply management increases the understanding about the importance of structured strategy. We therefore posit our fourth hypothesis:

- H4.* Supply management capability has an impact on the decision to formulate a supply strategy.

## Research method

### *Sample and data collection*

The empirical data was collected by means of a structured survey distributed in Finland and aimed at large Finnish firms with a turnover of at least €50 million. A total of 570 companies were identified from the company register of Statistics Finland. The companies were contacted first by telephone in order to reach the suitable key informant to answer and to inform the respondent of the questionnaire beforehand. The aim of the telephone contacts was also to increase the response rate. The questionnaire, preaddressed postage-paid return envelope, and the covering letter describing the purpose of the research, were mailed to all eligible respondents. 100 responses were received, the response rate thus being 17.5 percent. Non-response bias was assessed on a number of variables (e.g. size of staff and turnover, market share, year of foundation) by comparing early and late respondents, following the suggestions of Armstrong and Overton (1977).

On average, the turnover in the respondent companies was €323 million. Of these companies, 12 percent represented trade, 6 percent information technology, 17 percent the chemical industry, 9 percent the energy industry, 14 percent construction, 21 percent metals and machinery, 10 percent traffic and services, and 11 percent the forest and other industries. The questionnaire was addressed to general executives from top management and the directors responsible for supply management. Of the respondents, 76 percent worked in sourcing, and over half of them had more than five years of experience in their present position. The majority (64 percent) reported that their number of full-time purchasing employees was less than five.

Most of the respondents (81 percent) reported that purchasing was a separate department in the organization. When asked about the centralization level, 52 percent

responded that the function was fully or partly centralized. Furthermore, 46 percent added that the purchasing function was centralized in a single location. Most of the informants (67 percent) estimated the proportion of total purchases conducted through a centralized purchasing department (as a percentage of the financial value) at 80 percent at least.

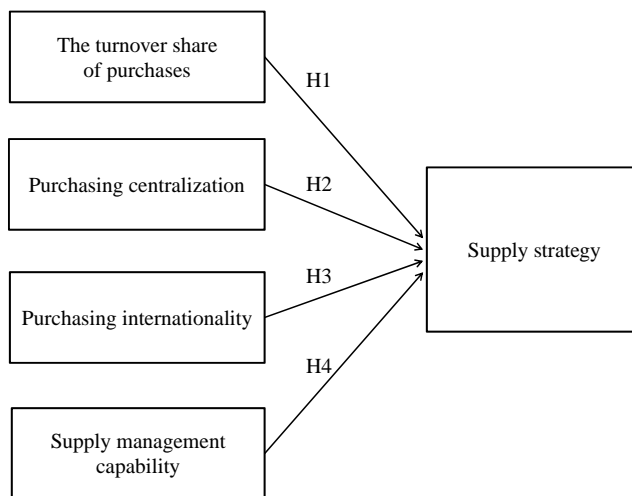
In terms of location, 37 percent of the respondent companies operated mainly domestically, and 63 percent in foreign markets: only four of them used domestic suppliers exclusively. In response to the question about the proportion of purchasing costs in the organization's turnover, 34 respondents gave a figure of 60, and 19 percent of them claimed it was at least 80 percent. Most of the respondents (88 percent) indicated that they had a purchasing strategy, and of those 80 percent indicated that it was documented.

### *Analysis and results*

The effects of the antecedents on the existence of a supply strategy were assessed by means of logistic regression analysis. Logistic regression is a suitable method when the dependent variable is non-metric, and binary or dichotomous (Hosmer and Lemeshow, 2000). The four hypotheses posited above were considered, and Figure 1 shows the testing model.

With regard to the independent variables, the turnover share of total purchases, the centralization of purchasing, and internationality were measured on a single-item Likert scale ranging from 1 to 5, whereas a composite variable was formed for supply management capability, consisting of four separate items. The Cronbach's  $\alpha$  reliability measure of the composite variable for the standardized items was 0.629. Table I presents the items included in the study.

The dependent variable was a dichotomous statement: "Does your organization have a purchasing strategy?" to which the respondent answered yes (1) or no (2). Of the 99 responses received, 87 indicated that there was a purchasing strategy, and 12 that there was not. Logistic regression works on the assumption that the log it transformation of the dependent variable and the explanatory variables has a linear relationship, therefore we checked the correlations and the linearity of the coefficients. Table II presents the correlations between the explanatory variables and shows



**Figure 1.**  
The testing model



Variable	Item in the questionnaire	Scale
Supply strategy	Does your organization have a purchasing strategy?	Dichotomous Yes (1) no (2)
Turnover share of purchases	What is the share (%) of purchasing costs in the organization's turnover?	Likert 1-5 20 40 60 80 100 (1 2 3 4 5)
Purchasing centralization	What is the share (%) of total purchases conducted through the purchasing department?	Likert 1-5 20 40 60 80 100 (1 2 3 4 5)
Purchasing internationality	What percentage of total purchases comes from abroad?	Likert 1-5 20 40 60 80 100 (1 2 3 4 5)
Supply management capability (composite variable of four items)	1. The skills of the purchasing staff are measured and evaluated systematically during their employment 2. The organizational purchasing capabilities are plotted and documented 3. The organizational purchasing capabilities influence the financial performance of the organization 4. Other organizations' best purchasing practices are monitored, benchmarked and exploited	Likert 1-5 1 – fully disagree 5 – fully agree (1 2 3 4 5)

**Table I.**  
Study variables

Coefficients	<i>n</i>	Mean	SD	1	2	3	4
1. Turnover share of purchases	91	2.62	1.04	1			
2. Purchasing centralization	97	3.69	0.99	0.038	1		
3. Purchasing internationality	88	1.82	1.00	0.089	0.307**	1	
4. Supply management capability	95	3.50	0.71	0.253*	-0.009	-0.137	1

**Note:** Significant at: \* $p < 0.05$  and \*\* $p < 0.01$

**Table II.**  
Correlations between the coefficients

the descriptives. In order to minimize the measurement error caused by the different structure of the scales the variables were standardized before the logistic regression analysis was conducted.

The binary logistic regression (SPSS 18.0) was performed using the Enterprocedure. The omnibus tests of model coefficients showed a significance level of 0.024 ( $\chi^2$  11.194,  $p < 0.05$ ). The Nagelkerke  $R^2$  was 0.30, suggesting a moderate explanatory power of the coefficients. According to the Hosmer and Lemeshow test of model fit ( $H_0$ : model fits with data), the values were categorized correctly ( $\chi^2$  4.664, sig. 0.701). The overall percentage correct in the classification table was 93.3, thus it can be assumed that the analysis was performed successfully.

According to  $H_1$ , the turnover share of purchases has an impact on the decision to formulate a supply strategy. It turned out that, despite the high Wald value (1.306), the coefficient was not significant (sig. 0.253,  $p < 0.05$ ).  $H_2$  posits that purchasing centralization has an impact, but according to the analysis, high purchasing centralization does not significantly predict (Wald value 0.052) the existence of a supply strategy.  $H_3$  predicts that purchasing internationality has an impact on strategy formulation.

There was a clear relationship between internationality and the supply strategy (Wald value 2.497), but the coefficient was not statistically significant (sig. 0.114,  $p < 0.05$ ). Finally, according to *H4*, supply management capability has an impact on the decision to formulate a supply strategy, and this was clearly the main explanatory antecedent for its existence (Wald value 5.142, sig. 0.023,  $p < 0.05$ ). It thus seems that the more knowledge and capability the firm possesses in the area of supply management, the more likely it is to have established a formal supply strategy. Consequently, knowledge of supply networks and customer responsiveness (Bernardes and Zsidisin, 2008) is essential. Table III summarizes the results of the analysis.

### Discussion and conclusions

The importance of supply strategy and its alignment with company's overall strategy is strongly stressed by several academics (Ellram and Carr, 1994; Yeung, 2008; Ahnatonen and Virolainen, 2009), however, for several reasons the role and strategic status of supply management varies considerably in firms. Depending on the industry, the nature of the business, the market, the competition, and the scarcity of the supply base, for example, its role can range from engaging in supportive activities to being a source of competitive advantage. Moreover, also the existence of supply strategies vary and three types of firms concerning the issue can be identified:

- (1) firms that have a written supply strategy;
- (2) firms that have made strategic principles concerning supply situations but do not have supply strategy in written form; and
- (3) firms that do not have any kind of supply strategy or strategic principles.

Therefore, the aim in this paper was to discuss the existence of a supply strategy in a firm and to analyze the determinants that may affect the process of its building and development. Consequently, the antecedents of a supply strategy were identified. On the basis of earlier literature it was suggested that the turnover share of purchases, purchasing centralization, purchasing internationality, and supply management capability influenced the formulation of such a strategy. It appeared from the logistic regression analysis that supply management capability is the main antecedent. Purchasing internationality, the turnover share of purchases, and purchasing centralization all had minor effects.

Based on the previous studies, it was proposed that the turnover share of purchases has an impact on the decision to formulate a supply strategy. It was assumed that the bigger the share of purchases from the firm's turnover, the higher is the need to have a strategy that sets the rules and guides the configuration of the firm's purchasing actions. Surprisingly, only minor impact was found. The result indicates that despite the importance of supply management in companies measured with its monetary value,

Coefficients	<i>B</i>	SE	Wald	Sig. < 0.05	Exp. ( <i>B</i> )
1. Turnover share of purchases	-0.645	0.564	1.306	0.253	0.525
2. Purchasing centralization	-0.104	0.456	0.052	0.820	0.901
3. Purchasing internationality	-0.681	0.431	2.497	0.114	0.506
4. Supply management capability	1.071	0.473	5.142	0.023	2.920
5. Supply strategy (constant)	2.842	0.586	23.557	0.000	17.158

**Table III.**  
Results of the binary logistic regression analysis

it seems that this is not a strong reason to formulate a supply strategy as previously suggested in the literature (Ellram and Carr, 1994; Kocabasoglu and Suresh, 2006).

The results of the study also showed that high purchasing centralization level does not significantly predict the existence of a supply strategy. In the research of Narasimhan and Das (2001) centralization has been linked with strategic purchasing practices and the firm's goals. These are closely connected to the implementation of supply strategies, therefore, it seems that centralization of a purchasing function is not a cause to formulate supply strategy but an implication of a supply strategy.

It was also found that purchasing internationality is connected to strategy formulation although not significantly in statistical analysis. This result is in line with earlier work by Mol *et al.* (2004) who found that global sourcing and purchase internationality shape supply management strategies. In many cases, the supply situation may be more complex and difficult to handle when items are purchased from foreign markets and the relationships are formed with foreign suppliers. For example, cultural differences and different negotiation styles may create challenges and problems. Also relationship forming and the development of collaborative relationships require specific recommendations. As previous literature (Ahtonen and Virolainen, 2009; Harland *et al.*, 1999) has shown, all these are important elements in firms' supply strategies and thus, it is evident that purchasing internationality and strategy formulation are connected.

The results showed that supply management capability has an impact on the decision to formulate a supply strategy, and this was clearly the main explanatory antecedent for its existence. The results found support also from previous studies as, for example, Carr and Smeltzer (2000) and Das and Narasimhan (2000) have stated that discrete practices of supply management are observable and transferable from one organizational context to another and may be easily duplicated, thus they may not generate sustainable competitive advantage for the firm and thus, it is not just the practices but their unique combination as well as other firm-specific resources and capabilities that can sustain competitive advantage. It is in line with the argument that researchers and practitioners tend to emphasize capability, rather than individual skills, as an influencing factor of performance and competitiveness (Kale *et al.*, 2002; Helfat and Peteraf, 2003; Kayakutlu and Büyüközkan, 2010).

The results of this study support the findings reported in previous research in providing empirical evidence that enhanced supply management capability and knowledge strongly affect understanding of the strategic role of supply management. The managers of the respondent firms were well aware of the monetary value and the financial worth of their respective purchases, but did not necessarily see the establishment of a supply strategy and its alignment with the company's overall strategy as a logical subsequent step. It would therefore be important to enhance capability and knowledge in terms of making supply management more effective and thereby improving the value-creation activities of the firm. The supply strategy should be incorporated into the firm's overall strategy. Moreover, the strategy should be formalized, implemented, and actively utilized by the supply management professionals in the firm.

#### **Limitations and further research**

The first limitation of this study is that the group sizes for the dependent variable were not equal, which may bias the results. Furthermore, the small sample size in the statistical analysis could affect the generalization of the findings. It would be interesting

in future studies to examine the possible interactions of the coefficients, especially between purchasing internationality and supply management capability, as they seemed to be highly correlated.

The second limitation concerns the quality of empirical data. Single respondents were used in the survey, which may have led to common respondent bias. Moreover, the survey respondents and the focus group were from Finnish companies, albeit large and with global activities. The national context may mean that generalizing the results to different countries and cultures is not definitive. Third, the study was limited to a firm-internal perspective. It is acknowledged that external and environmental factors play a considerable role in global business in terms of creating strategies and organizational policies. Factors such as competition, market specificity, labour availability and costs, and the scarcity of raw materials and other resources were not taken into account. Finally, the cross-sectional design of the study means that conclusions regarding the causal relationships must be drawn with caution.

Some propositions for future research emerged during this research. Future studies should be directed towards other possible antecedents of supply strategies. It would be interesting to find out what are other key factors that influence on supply strategy formulation and push companies towards the formulation and development of supply strategy. It would also be interesting to investigate the characteristics of companies and their supply situations in the cases when the supply strategies exist and in the cases when there are no supply strategies. Further research should also be directed towards the significance and role of strategic supply management in the value creation of a firm. Even if the changing and expanding role of purchasing and supply management is widely recognized by many academic researchers, the role of strategic supply management has not been widely discussed in the context of value creation. Therefore, value creation from the perspective of strategic supply management and value creation in supply networks should be studied more closely.

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