Key dimensions of value creation ability of supply management

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Key dimensions of supply management’s value creation ability

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Abstract

Purpose This study examines the dimensions of supply management that may contribute to its ability to create value. Based on previous literature, this study proposes that key supplier management, the strategic level of supply management and supplier relationship management capabilities can be supply management factors that significantly influence its ability to create value.

Design/methodology/approach The issue is examined using survey data collected in Finland, and the concepts are tested using regression analysis.

Findings The results show that key supplier management, the strategic level of supply management and supplier relationship management capabilities are significant dimensions of value creation in supply management. The findings support the contemporary understanding of value in which firms endeavour to create value for the company, its customers and its suppliers.

Originality/value Previously, value creation has received minor attention in supply chain management research. Although previous research clearly shows that strategic supply management plays a significant role in firms’ competitiveness and performance, its role and potential in value creation have been less studied. Thus, this study contributes by empirically examining the factors affecting the ability of a firm’s supply management to create value.

Keywords: Supply management, Value creation, Strategy, Key supplier, Capability, Supply chain management.

Article Classification: Research paper
Introduction

Value creation as a basic premise of business has been discussed in strategic management literature from different perspectives and theoretical viewpoints. It has been argued that value creation, competitive advantage and firm performance are the primary pursuits of business (Porter, 1985; Barney, 1991). Recently, studies have departed from this traditional, firm-centric view of value creation to emphasise the increasing role of customers (Prahalad and Ramaswamy, 2004; Zhang and Chen, 2008), suppliers (Walter et al., 2001; Möller and Törönen, 2003), networks (Bovet and Martha, 2000; Kähkönen, 2012) and business ecosystems (Adner and Kapoor, 2010) in value creation. Because firms do not operate in an isolation but rather in the business environment forming around different relationships and networks, also the role of supply management as a function that contributes value to a firm has been acknowledged (Hartmann et al., 2012; Kähkönen and Lintukangas, 2012a; 2012b). To date, research on purchasing and supply management has focused mainly on how the purchasing function itself generates added value; the question of how firms can create value by using their supplier networks has received far less attention (van Weele and van Raaij, 2014).

The traditional (and potentially outdated) perspective argues that the value added to a business by a purchasing department results mainly from the savings achieved (van Weele, 2005). In contrast, a modern and strategic understanding emphasises the role of suppliers and supplier development as a significant dimension of supply management that produces value (Hartmann et al., 2012; van Weele and van Raaij, 2014). This modern view of value creation builds on the collaboration between buyers and suppliers and explores the value-creation logic in the extended context of networks (Stabell and Fjeldstad, 1998). Suppliers and the level of collaboration with them form the foundation of the supply management’s value creation potential (Kähkönen and Lintukangas, 2012a). Suppliers make significant contributions to a firm’s value creation (Arnold, 1998) and working with suppliers to create value may lead to new sources of competitive advantage (Zhang and Chen, 2008). Thus, a company’s capability to manage supplier relationships and develop suppliers and key supplier programmes may contribute to its value creation. A firm’s core supply base also affects its value creation strategy and sourcing preferences (Skilton, 2014). Harland et al. (2004) and Marr et al. (2004) further emphasise the significance of supply strategies and their implementation in value creation which reflects not only the strategic management of purchasing and supply but also its role in firm’s value creation.

This study examines the dimensions of supply management that may contribute to its ability to create value. As value creation does not happen in isolation and previous research has found that collaboration is its key enabler (e.g., Borys and Jemison, 1989; Lindgreen and Wynstra, 2005; Möller and Törönen, 2003), the focus of this study is on the value creation where supply management utilises suppliers and their resources and capabilities in creating value. Based on previous literature, it is suggested that key supplier management (KSM), firm’s capability to manage its supplier relationships and the level of strategic supply are the dimensions which demonstrate the value creation ability and the significance of supply management in firms. This proposal is examined by using a survey data collected in Finland and testing the concepts by using regression analysis. Thus, this study contributes to the existing research on supply management and value creation by empirically examining supply management’s ability to create value and highlighting suppliers’ importance in it.
The paper is structured as follows. First, the theoretical background of the study is discussed and the hypotheses are formed based on previous literature. Next, the methodology adopted is explained and the results from the quantitative analysis of the survey data are presented. The final section presents the discussion of the observations along with the theoretical and managerial implications. Limitations and future research opportunities conclude the paper.

The ability of supply management to create value

Defining value and value creation

The concept of ‘value’ is an abstract, dynamic concept that is dependent on the context and parties involved. The definition depends also on the research stream and viewpoint. For instance, Lindgreen and Wynstra (2005) state that value can be regarded as value of goods and services or as value of the relationship, and Forström (2005) further divides between the value of an offering, value of a relationship, and the value created in a relationship. Drawing upon the definitions of de Chernatony et al. (2000) and Walter et al. (2001), this study defines ‘value’ as a trade-off between benefits and sacrifices, meaning that value can be regarded as the surplus between total benefits obtained and total sacrifices incurred. This follows also the definition of Ulaga (2001) who defined value as a ratio of benefits received versus burdens endured. Value is defined not only in monetary terms; rather, a broader interpretation of sacrifice in which non-monetary factors such as time and effort are included (de Chernatony et al., 2000) is applied. These definitions greatly differ from Porter’s (1985) traditional definition as Porter defined value as what buyers are willing to pay. Porter’s definition represents the viewpoint where individual companies are the focus of analysis but as previous research (e.g., Stabell and Fjeldstad, 1998; Kothandaraman and Wilson, 2001; Kähkönen, 2012) has largely criticised the value chain model mainly for its activity structure and single-company focus, the definition of value where other companies and relationships are considered as well fits better to the studies of purchasing and supply management.

Value is composed of the exchange value and perceived use value, meaning the price the buyer pays and the value of specific qualities of the product perceived by customers (Bowman and Ambrosini, 2000). Ramsay (2005, p. 560) further notes that, prior to an exchange between a buyer and a supplier, value is actually “potential value”, which is a “purely metaphysical or mental phenomenon arising for the stimulus of the nexus of technical, personal, organisational and market elements of resources offered by buyers and suppliers”. Ramsay (2005) continues that, after resources have been exchanged, the ontology of value changes radically, and value takes a more concrete form. Value is realised when resources are used by the recipient organisation or combined with the recipient organisation’s internal resources in some manner that transforms their potential into actual benefits (Ramsay, 2005). Smals and Smits (2012) differentiate between direct and indirect value: direct value refers to the total volume of orders and the profitability of the order volume within a relationship, whereas indirect value refers to the obtained benefits outside the present relationship and orders (e.g., a situation where a buyer helps a supplier become more innovative).

Sirmon et al. (2007) show that a firm’s value creation begins by providing value to customers. When a firm produces a greater utility for its customers than its competitors, it enjoys a competitive advantage. According to Sirmon et al. (2007, p. 273), “value creation thus occurs when a firm exceeds its competitors’ ability to provide solutions to customers’ needs while maintaining or improving its profit margins”. Similarly, Borys and Jemison (1989, p. 241) define value creation as “the process by which the capabilities of the partners are combined so
that the competitive advantage of either the hybrid or one or more of the parties is improved”.

These definitions apply to this study but here, all actors are considered as value creators and value receivers, meaning that the value creation process includes not only the firm itself but also all suppliers and customers belonging to the value-creating system (e.g., Parolini, 1999) of the product or service in question. In addition, Barney (1991) states that competitive advantage occurs when a firm implements a value creating strategy that is not simultaneously implemented by any current or potential competitors. Stalk et al. (1992, p. 62) continue that “competitive success depends on transforming a company’s key processes into strategic capabilities that consistently provide superior value”. However, ultimately, created value is captured and shared by the economic actors within a supply chain (Bowman and Ambrosini, 2000). Consequently, intangible assets (such as capabilities, relationships, knowledge and innovations) can add value that cannot be specified in monetary terms. Hence, supply management’s value creation ability refers to its capability to utilise suppliers’ resources and capabilities to achieve unique outcomes for customers, suppliers and the firm itself.

In fact, companies should aim for triple value creation—for the company, its customers and its suppliers (Kähkönen and Lintukangas, 2012a). This goal requires a collaborative approach in which value is created with and for all participants. This kind of value creation logic and process is based on interconnected relationships and networks where value is created simultaneously by using value-creating activities to combine resources and capabilities in order to create value (Stabell and Fjeldstad, 1998). Several previous studies (e.g., Arnold, 1998; Zhang and Chen, 2008) have shown that suppliers play key roles in creating value. For example, suppliers’ environmental innovations can add nonmonetary value for end customers. Thus, value lies not only in direct monetary savings but also in nonmonetary and intangible issues that satisfy customer demand. Moreover, buyer companies may utilise supplier resources in product development. Relying on the external knowledge and technologies of suppliers enables a firm to improve its product development processes (Mazzola et al., 2015); thus, collaboration results in created value. Here, suppliers conduct the development actions that add value, and the buying company uses the developed raw materials to produce the end product for the final customer. Collaboration in research and development is widely used to illustrate where buyers utilise suppliers as resources to produce value (e.g., Mazzola et al., 2015; Möller and Törrönen, 2003; Smals and Smits, 2012).

**Theoretical justification for the proposed dimensions**

In supply management and supply chain management literature, several theories have been used to demonstrate how value can be achieved. Van Weele and van Raaij (2014) found that the resource-based view (RBV) (Penrose, 1959; Barney, 1991; Amit and Schoemaker, 1993), resource dependence theory (RDT) (Pfeffer and Salancik, 1978) and stakeholder theory (e.g., Freeman, 1984) each emphasise a different element of how firms can create value through supply chain orchestration. While RBV focuses on the management of a firm’s internal resources, RDT concerns the management of external resources. Stakeholder theory, on the other hand, focuses on diverse stakeholder perspectives.

According to RDT (Pfeffer and Salancik, 1978), organisations seeking to acquire resources must interact with those who control these resources, and the survival of an organisation can be explained partially by its ability to ensure the continuity of necessary resources. Thus, RDT focuses on managing external resources and offers theoretical support for KSM. KSM reflects a purchasing firm’s willingness to form and commit to collaborative relationships, thus forming a connection to supply management’s value creation ability. As van Weele and van Raaij (2014)
have suggested, RDT can be used as a theoretical lens when studying value creation through supply management. Thus, the connection between KSM and value creation should be studied more closely.

The management practices and principles related to supplier relationships and the treatment of suppliers are reflected in the firm’s supplier relationship management (SRM) capabilities. Firms’ internal capabilities and resources can be studied through the theoretical perspective of the RBV, which van Weele and van Raaij (2014) also suggest as one perspective of value creation through supply chain orchestration. According to Medcof (2001), the basic premise of the RBV is that competitive advantage comes from having resources that create value and are unique. Moreover, Penrose (1959) states that value comes from productive use when combined with other resources. Thus, a firm’s internal resources and the capability to benefit from its external resources can be seen as factors that create value. These factors mean that if significant developments and investments are made regarding the knowledge and capabilities of how to manage supplier relationships (i.e., developing SRM capability), the RBV’s underlying assumptions can be achieved, and value can be created through these high maturity capabilities.

Value creation builds on the assumptions of resource combinations and constellations as the value can be created when companies combine their competences and capabilities (e.g., Borys and Jemison, 1989; Bovet and Martha, 2000; Amit and Zott, 2001). Resource combinations are facilitated by collaboration between firms and thus, firm’s need internal capabilities on how to find, use and combine suppliers’ resources. According to the RBV, a firm’s internal resources and unique and high maturity capabilities can be sources of competitive advantage; by utilising these effectively, a firm can respond successfully to the competition in the market (Barney, 1991). Thus, there is clearly a connection between SRM capability and value creation.

Previous research has shown that strategic supply management plays a significant role in firms’ competitiveness and performance, and it is considered as important as other strategic functions of a firm (Carr and Smeltzer, 1997; Paulraj et al., 2006; Hartmann et al., 2012). Value creation should start with the strategic objectives, and strategy should define the exploitation of external resources in pursuit of value creation (Marr et al., 2004). Again, a connection to supply management’s value creation ability can be justified. The following sections explain the proposed dimensions of supply management’s ability to create value in greater detail and develop the resulting hypotheses accordingly.

**Key supplier management**

Carefully selected and strategic suppliers who meet extremely high standards for management of core skills, markets and technological leadership can be seen as a firm’s key suppliers (Wagner and Johnson, 2004). Holmen et al. (2013) define key suppliers as the most strategically important suppliers. Ivens et al. (2009) define KSM as the management of relationships with those suppliers that the buying firm has identified as having strategic importance. These definitions are applied in this study as well. These kinds of relationships are characterised by interdependence, a collaborative spirit and a long-term orientation (Holmen et al., 2013). Firms are willing to collaborate with suppliers who possess strategic importance to their business. With these key suppliers, collaboration exists at a high level, and the buyer is committed to the relationship. Ambrose et al. (2010) highlight the importance of relationship-specific investments, and Hammervoll and Toften (2010) further argue that relationship-specific investments signal commitment and serve as a foundation for future collaboration. Relationship-specific investments, the development of problem-solving skills, knowledge
sharing, and the willingness to combine complementary resources are the value creation initiatives of collaborative relationships (Hammervoll and Toften, 2010).

Skilton (2014) argues that some buyers’ value creation strategies depend on key supplier capabilities. This perspective echoes previous studies (e.g., Borys and Jemison, 1989; Bovet and Martha, 2000; Möller and Törrönen, 2003; Harrison and Håkansson, 2006) that found that collaboration between buyers and suppliers is key to value creation. Moreover, Borys and Jemison (1989) suggest that a willingness to combine resources is a precondition, not an initiative, for value creation. Thus, key suppliers and their resources and capabilities can be vital factors in value creation. Harland et al. (2004) found that value emanates from the supplier network, and Lamming (1993) states that value can be achieved by collaborating. Also, Lindgreen and Wynstra (2005) state that value is created through interactions, relationships and networks, and Hammervoll and Toften (2010) argue that value creation is more efficient in collaborative relationships than in transaction-based relationships. Pardo et al. (2011, p. 854) state that “the whole objective of key supplier management is to enable a company to generate an increased relational value compared with the one that could be forecast with a traditional management of suppliers”. By “traditional management of suppliers”, Pardo et al. (2011) refer to the approach of “how to exploit the firm’s purchasing power vis-à-vis suppliers” put forth by Dubois and Pedersen (2002). Pardo et al. (2011) argue that a limited understanding of the value co-creation levers with suppliers is a barrier to the implementation of KSM. Thus, long-term relationships in which the objectives and benefits are shared and the relationship is managed and treated on a collaborative basis are more likely to be significant to the ability of supply management to create value than transaction-based, arm’s-length relationships. Hence, the following hypothesis is proposed:

H1: Key supplier management positively influences supply management’s value creation ability.

The strategic level of supply management

Strategic supply management is “the strategic management of external and internal resources and relational competencies in the fulfilment of commitments to customers” (Cox and Lamming, 1997, p. 62). Given its access to information regarding the firm’s strategy and its involvement in key decision-making issues, this function can be a major contributor to a firm’s overall success (Ellram and Pearson, 1993). The role of supply management in firms can vary from operational tasks to strategic management. In this study, the strategic level of supply management refers to the importance of the supply management function relative to the firm’s business and competitiveness.

The level of supply management in a firm can be measured in terms of supply strategy and its existence (Carr and Smeltzer, 1997) and strategic involvement and the strategic nature of the function (Kähkönen and Lintukangas, 2012a; Paulraj et al., 2006). Thus, involvement in a firm’s strategic planning and the strategic planning of the actions of the function are significant. The level of supply management is reflected by the visibility and status of the purchasing function; for example, using top management’s recognition (Carr and Smeltzer, 1997; Paulraj et al., 2006). Kähkönen and Lintukangas (2012a) also include the maturity of the purchasing and supply function when referring to the level of supply management. In this paper, the definition of and content for the strategic level of supply management is drawn from Paulraj et al. (2006) and Kähkönen and Lintukangas (2012a). Thus, it refers to comprehensive recognition
of the significance of a company’s supply management and highlights its strategic role and acknowledgement as such by the firm. It also shows how purchasing and supply management is viewed and treated by top management compared to other functions of the firm.

Marr et al. (2004) highlight the significance strategy plays in creating value. Value creation should start with the objectives, mission and vision of the organisation, and strategy should define the exploitation of internal and external resources in pursuit of value creation (Marr et al., 2004). According to Harland et al. (2004), managing the implementation of strategies to capture value from networks of suppliers is a key task for those responsible for a firm’s supply relationships. Building the relationships with suppliers and the strategic role of supply management are essential in terms of value creation for customers (Miocevic and Crnjak-Karanovic, 2012). When supply management is an important component of firm strategy it is able to provide both direct and indirect value (Smals and Smits, 2012) regarding the profitability of the business and relational benefits. Consequently, the strategic role of supply management contributes to the exchange value and perceived use value which are the value components suggested by Bowman and Ambrosini (2000). Thus, the existence of supply strategies and acknowledgement of supply management’s strategic nature are important elements of value creation.

Kähkönen and Lintukangas (2012a) assume that, if a firm and its management have acknowledged the importance of the purchasing function and the opportunities that strategic supply management can create, the ability to create value is probably higher than in situations involving only operative and low-maturity purchasing. This study further posits that, if a firm has acknowledged the strategic role and significance of supply management in its success that firm will likely be more capable of creating value through its supplier relationships and supply management. Thus, the following hypothesis is proposed:

H2: The strategic level of supply management positively influences supply management’s value creation ability.

Supplier relationship management capability

Capabilities are defined as “information-based, tangible or intangible processes, which are firm specific and developed over time through complex interactions among the firm’s resources” (Amit and Schoemaker, 1993, p. 35). Thus, capability refers to a firm’s ability to utilise its resources to achieve its goals (Helfat and Peteraf, 2003), and it develops from the experience, knowledge and skills of individuals (Eisenhardt and Martin, 2000). Capability is, therefore, the result of recombining and integrating the knowledge and experience of management’s actions within an organisation. Capabilities are developed by accumulating learning and innovations (Kale et al., 2002). Capabilities are key in adding and creating value (Oh and Rhee, 2008).

Buyer–supplier relationships involve communication, commitment, practices, ethical behaviour and trust (Dwyer et al., 1987; Mohr and Spekman, 1994). According to Nyaga et al. (2010), factors promoting a successful relationship from the perspectives of both buyer and supplier include information sharing, joint relationship efforts and dedicated investments. These factors serve as elements of the supplier relationship management (SRM) capability that comprise the firm’s internal ability to manage its suppliers. SRM means that companies conduct their internal tasks and responsibilities related to supplier relations in order to achieve their overall goals. According to Croxton et al. (2001), SRM is a mirror image of customer
relationship management (CRM) and it is a process and policy of how the company interacts with its suppliers. The purpose of SRM is to leverage supplier information inside a firm and to put into practice the principles of CRM from the perspective of the buying company.

SRM capability can be categorised into practices to maintain and manage buyer–supplier relationships, a firm’s commitment to such relationships, aims for deepening mutual trust, and active communication and ethical behaviour towards its suppliers (Lintukangas, 2011). The company can create value by utilising these practices and its relational capability of SRM. By minimising transaction costs, reducing risks of dependency and ensuring availability in supply chains both exchange value and perceived use value (Bowman and Ambrosini, 2000) can be generated. Hence, SRM capability can be a firm’s internal capability that fosters “accurate expectations about the future value of the resources and capabilities a firm acquires compared to other firms” (Barney, 2012, p. 4).

The complex settings and performance of the purchasing function require that supply managers are able to link a firm’s direct and indirect capabilities and value the capabilities of other functions (Spring and Araujo, 2014). By building on knowledge-based capabilities and moving from arm’s-length relationships to trustful relationships firms can achieve cost savings and innovations, and hence, value is transformed to tangible benefits (Ramsay, 2005; Revilla and Knoppen, 2015). Therefore, supply managers need a deep understanding of the entire supply network’s behaviour. The ability to manage supplier relationships is necessary to control and assess the economic consequences of collaborative actions within a supplier network. The visibility of SRM capability stems from a firm’s actions; that is, the skills, competencies and knowledge of individuals working in a company. Therefore, the capability is structured on multiple individual work tasks and management’s practices and principles related to supplier relationships. These aspects are tangible outputs of how a company creates value through its supply management function. Hence, the following hypothesis is proposed:

H3: A supplier relationship management capability positively influences supply management’s value creation ability.

Figure 1 shows the study’s overall research model.
Methodology

This paper examines if KSM, the strategic level of supply management and a firm’s SRM capability influence the ability of supply management to create value. Quantitative methods are the appropriate choice in empirical studies which require identifying the factors that influence an outcome or examining the relationships between concepts (Creswell, 2014). Therefore, a survey was designed in order to perform a multivariate analysis and increase the generalisability of the results.

The survey was conducted in Finland. In the year 2015, Finland’s GDP was 207.2 billion euros (Statistics Finland) and the main sector was services (over 70%). The main manufacturing industries in Finland are chemical, metal, forest and the electronics and electronic industries. The Finnish manufacturing sector is focused strongly on export and foreign trade. Approximately 38% of Finland’s GDP is derived from exports, and the European Union (EU) is the most important trade area for Finnish companies; half of foreign trade is with the EU.

The survey was targeted at Finnish companies engaging in project business. Project business is characterised as dynamic and complex activities within a set period and is a unique setting with a long-term assignment to achieve an appointed goal. Projects carry inherent risk and uncertainty because of their temporary nature (Baily et al., 2008). Selecting industries that focus on project business was justified because it has been found that managing supply chains and suppliers can have a major impact on the success of project business (e.g., Ahola et al., 2008; Eriksson and Westerberg, 2011) Furthermore, understanding the value of supplier networks and close supplier relationships has not yet been widely adopted in project businesses (Crespin-Mazet and Portier, 2010). Consequently, the context of project business offers a fruitful environment to study supply management’s ability to create value.

Data collection and sample

Finnish manufacturers in the fields of construction, civil engineering, mechanical engineering and shipbuilding with at least 50 employees and a turnover exceeding one million euros were included in the sampling. Based on these criteria, a sample of 347 companies was extracted from the AMADEUS database available from Bureau Van Dijk (including NACE Rev. 2 codes: 28 - Manufacture of machinery and equipment [161 companies], 301 - Building of ships and boats [22 companies], 33 - Repair and installation of machinery and equipment [30 companies], 41 - Construction of buildings [107 companies] and 42 - Civil engineering [27 companies]).

Table 1. Basic information about the respondents

<table>
<thead>
<tr>
<th>Descriptive statistics*</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover (t€)</td>
<td>99</td>
<td>4602</td>
<td>4936870</td>
<td>252232</td>
<td>674394</td>
</tr>
<tr>
<td>Employees</td>
<td>99</td>
<td>40</td>
<td>8180</td>
<td>560</td>
<td>1094</td>
</tr>
<tr>
<td>Age (Year of establishment)</td>
<td>99</td>
<td>3</td>
<td>115</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Profit</td>
<td>98</td>
<td>-16</td>
<td>51</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>ROCE</td>
<td>82</td>
<td>-170</td>
<td>312</td>
<td>20</td>
<td>57</td>
</tr>
<tr>
<td>Net Income</td>
<td>99</td>
<td>-39013</td>
<td>691369</td>
<td>9122</td>
<td>69791</td>
</tr>
</tbody>
</table>

*Latest available year from the AMADEUS database

All 347 companies were first contacted by telephone to identify a suitable key informant and to give potential respondents advance information about the survey (thereby increasing the response rate). Of the companies contacted, 260 agreed to participate, with some companies...
offering multiple respondents (four respondents in the data), covering different business units. In total, 265 web-links to the questionnaire were sent. Of these, 99 responses were received, a response rate of 37% (99/265). Table 1 summarises the descriptive statistics of the respondents, and Table 2 shows the industry distribution of the respondents.

**Table 2. Industry distribution**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Frequency</th>
<th>Percept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery and mechanical engineering</td>
<td>50</td>
<td>50.5</td>
</tr>
<tr>
<td>Ship building</td>
<td>11</td>
<td>11.1</td>
</tr>
<tr>
<td>Construction and civil engineering</td>
<td>38</td>
<td>38.4</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Operationalisation of the constructs and measurement development**

A web-based questionnaire was developed and used to collect the empirical data. The scales reflecting the concepts were based mostly on earlier studies. Furthermore, three purchasing professionals and two academics were asked to comment on and pilot the questionnaire. Minor refinements were made based on their comments before the questionnaire was sent to the respondents.

Following the study of Carr and Smeltzer (1997), the status of supply management was measured by examining if purchasing was viewed as equal to the other firm functions and if top management emphasised purchasing’s strategic role. In the study of Paulraj et al. (2006), the level of supply management was measured by examining if purchasing was included in the company’s strategic planning process and if it was a part of corporate strategy. Hence, the items for evaluating the strategic level of supply management were derived from the studies of Carr and Smeltzer (1997) and Paulraj et al. (2006) and slightly modified. KSM reflects the level of collaboration and the collaborative nature of relationships and was measured on the scale of long-term supplier relationships developed by Paulraj et al. (2006) and Paulraj and Chen (2007). These studies state that the relationship with key suppliers is “evergreen”: it lasts a long time, fair profit is shared and suppliers see the relationship as a long-term alliance. The SRM capability items were developed based on the studies of Das and Narasimhan (2000) and Lintukangas (2011). According to Das and Narasimhan (2000), relationship management of suppliers is characterised by contract, communication, mutual trust and commitment. According to Lintukangas (2011), SRM capability can be measured by examining how well daily routines and operations with suppliers are performed and if a company has the ability to manage its supply chain holistically. Moreover, it can be assumed that suppliers are treated ethically and contracts are legal.

The dependent variable of value creation ability is based on the studies of Kähkönen and Lintukangas (2012a; 2012b). They argue that supply management influences the ability to create added value and is vital in developing value adding supplier networks. Moreover, according to Zhang and Chen (2008), supply management strengthens the competitive advantage of the firm and contributes to the continual improvement process because value co-creation with suppliers positively influences the buying firm’s customisation and service capability.

A principal component analysis (PCA) was performed to check the factors. The Kaiser-Meyer-Olkin (KMO) measure, which returned a value of 0.799, confirmed the suitability of the items for a PCA, and Bartlett’s test of sphericity was also significant (p < 0.001). To assess the
common method bias, a Harman’s single factor test was run. In the PCA, all the items loaded into one factor accounted for only 31.9% of the common variance, and thus, common method bias is not a significant concern (Podsakoff et al., 2003). The Cronbach’s α values were checked in order to ensure the reliability of the measures; all were at acceptable levels. Table 3 shows the items, the factor loadings and the reliabilities.

**Table 3. The results of the PCA analysis and the reliability of the scales**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable</strong></td>
<td></td>
</tr>
<tr>
<td>Value creation ability of supply management α= 0.838</td>
<td></td>
</tr>
<tr>
<td>Supply management has an influence on creating added value</td>
<td>0.864</td>
</tr>
<tr>
<td>Supply management strengthens the competitive advantage of the firm</td>
<td>0.843</td>
</tr>
<tr>
<td>Supply management has a responsibility to the continual improvement process</td>
<td>0.834</td>
</tr>
<tr>
<td>Purchasing has a vital influence on developing the value net</td>
<td>0.733</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic level of supply management α = 0.878</td>
<td></td>
</tr>
<tr>
<td>The planning of the supply management strategy is conducted in collaboration with the firm's management</td>
<td>0.861 0.134 0.196</td>
</tr>
<tr>
<td>The corporate management considers purchasing to be equally as important as other functions</td>
<td>0.852 0.127 0.019</td>
</tr>
<tr>
<td>The corporate management emphasizes the strategic role of supply management</td>
<td>0.845 0.187 -0.046</td>
</tr>
<tr>
<td>The supply management strategy is a component of the business strategy</td>
<td>0.772 0.229 0.127</td>
</tr>
<tr>
<td>Supplier relationship management capability α=0.815</td>
<td></td>
</tr>
<tr>
<td>The building of trust-based relationships is the goal</td>
<td>0.057 0.856 0.141</td>
</tr>
<tr>
<td>The supply chain is managed holistically</td>
<td>0.347 0.760 0.153</td>
</tr>
<tr>
<td>Daily routines and operations with suppliers are well performed</td>
<td>0.195 0.734 0.056</td>
</tr>
<tr>
<td>Suppliers are treated ethically, and all contracts are legal</td>
<td>0.141 0.705 0.181</td>
</tr>
<tr>
<td>Key supplier management α= 0.747</td>
<td></td>
</tr>
<tr>
<td>The relationship we have with key suppliers is essentially evergreen</td>
<td>0.042 -0.077 0.789</td>
</tr>
<tr>
<td>The suppliers see our relationship as a long-term alliance</td>
<td>0.086 0.235 0.787</td>
</tr>
<tr>
<td>We give a fair profit share to key suppliers</td>
<td>0.294 0.157 0.697</td>
</tr>
<tr>
<td>We expect our relationship with key suppliers to last a long time</td>
<td>-0.097 0.252 0.692</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

**Analysis**

The control variables Firm age and Firm size were used to exclude possible firm-specific and external factors that may have affected the study’s results. Because the distribution of these variables did not follow a normal distribution (the majority of the observations were located at the negative end of the curve), a logarithmic transformation was used to normalise the variables and, thereby, satisfy the regression assumptions. In general, variables like size, population, annual income and gross national product are made more tractable by logarithms (Cohen et al., 2003). Firm size was measured using an operating revenue value generated from the commercial AMADEUS database. Firm age was calculated by using the year of establishment. The correlations among the variables are shown in Table 4.
A linear regression analysis was used to test the hypotheses. The values of the variable inflation factor (VIF) scores were examined to test for multicollinearity; all fell within acceptable bounds. The greatest value was 1.326, which is clearly lower than the cut-off level (<10) suggested by Hair et al. (1998). The Condition Index reached a value of 28.977. An examination of the residuals (the lowest value was -1.832, and the highest was 1.412) showed that heteroscedasticity in the regression was not a problem. The normality of the variables was estimated graphically. No violations of the assumptions of the regression analysis were found, and thus, it can be concluded that the test was performed successfully.

Results

Testing of the model revealed significant support for all assumptions. Hypothesis 1 (H1) suggested that KSM positively influences supply management’s value creation ability. The regression analysis clearly showed that KSM influences (β = 0.165; p < 0.05) the ability of supply management to create value, and thus, supports H1. Hypothesis 2 (H2) proposed that the strategic level of supply management positively influences supply management’s value creation ability. H2 was confirmed, and according to the analysis, the strategic level of supply management strongly increases (β = 0.682; p < 0.01) supply management’s ability to create value. Hypothesis 3 (H3) posited that SRM capability positively influences supply management’s value creation ability. Based on the results of regression analysis, H3 was accepted; hence, it can be said that the capability to manage supplier relationships is a dimension (β = 0.147; p < 0.05) of supply management’s value creation ability.

In sum, the results show that KSM, the strategic level of supply management and SRM capability significantly affect the ability of supply management to create value. The included control variables, firm age and size, did not affect the results. The model was significant with an F-value of 31.72 (p < 0.001), and the variables explained 62% (Adj. R-square) of the value creation ability of supply management. A summary of the test results of the regression analyses is presented in Table 5. The next section contains a more detailed discussion of the results.
Table 5. The results of the regression analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Regression analysis coefficients</th>
<th>Std. error</th>
<th>Standardized coefficients</th>
<th>t-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>0.771</td>
<td></td>
<td>6.326</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Firm size (ln)</td>
<td>0.065</td>
<td>0.125</td>
<td>1.202</td>
<td>0.233</td>
</tr>
<tr>
<td></td>
<td>Firm age (ln)</td>
<td>0.124</td>
<td>-0.032</td>
<td>-0.308</td>
<td>0.759</td>
</tr>
<tr>
<td>2</td>
<td>(Constant)</td>
<td>0.618</td>
<td></td>
<td>2.288</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>Firm size (ln)</td>
<td>0.041</td>
<td>-0.049</td>
<td>-0.752</td>
<td>0.454</td>
</tr>
<tr>
<td></td>
<td>Firm age (ln)</td>
<td>0.077</td>
<td>0.080</td>
<td>1.231</td>
<td>0.221</td>
</tr>
<tr>
<td></td>
<td>Strategic level of supply management</td>
<td>0.054</td>
<td>0.682</td>
<td>9.339</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Key supplier management</td>
<td>0.071</td>
<td>0.165</td>
<td>2.412</td>
<td>0.018*</td>
</tr>
<tr>
<td></td>
<td>Supplier relationship management capability</td>
<td>0.077</td>
<td>0.147</td>
<td>2.010</td>
<td>0.048**</td>
</tr>
</tbody>
</table>

Dependent Variable: Value creation ability of supply management

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>Adjusted R-square</th>
<th>Std. error</th>
<th>F-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.127</td>
<td>-0.01</td>
<td>0.94</td>
<td>0.75</td>
<td>0.475</td>
</tr>
<tr>
<td>2</td>
<td>0.802</td>
<td>0.62</td>
<td>0.58</td>
<td>31.72</td>
<td>0.000**</td>
</tr>
</tbody>
</table>

*p<0.05; **p<0.01

Discussion

This study shows that the supply management dimensions of key supplier management, the strategic level of supply management and supplier relationship management capabilities are significant dimensions of value creation. The findings support the contemporary understanding of value creation where firms endeavour to create value for the company, its customers and its suppliers. This builds on the value-creation logic based on networks (Stabell and Fjeldstad, 1998) and thus, the value creation potential of supply management as a function responsible for external resources is seen remarkable (Kähkönen and Lintukangas, 2012a).

The results of the empirical study revealed that KSM has a positive influence on supply management’s value creation ability as suggested in Hypothesis 1. Thus, the key suppliers of a firm have a significant role in creating value which is in line with the findings of Pardo et al. (2011) who found KSM to be an enabler of relational value. In key supplier relationship the value is created also for the supplier which fits to the value-creation logic of networks by Stabell and Fjeldstad (1998). This finding concurs also with the earlier findings of Skilton (2014), who suggests that buyers’ value creation strategies depend on key supplier capabilities. Key suppliers have capabilities that are strategically important to buyer’s products and services. These capabilities are needed in buyer’s value creation and thus, the buyer firm has to create strategies for ensuring the availability of certain key supplier capabilities. Overall, the way how organisational resources and technologies are bundled in a company can improve supply chain performance and the quality of the information and, thus, contribute to value creation (Zhang et al., 2016). KSM can be considered as actions of a company aiming for controlling and ensuring the availability of its external resources. Consequently, this result strengthens the theoretical view of RDT (Pfeffer and Salancik, 1978) that a survival and success of a company is partly dependent of its ability to collaborate with its suppliers.
The regression analysis clearly showed that the strategic level of supply management positively influences supply management’s value creation ability as proposed in Hypothesis 2. This finding is supported by the previous studies of Marr et al. (2004) and Kähkönen and Lintukangas (2012a) who highlight the importance of supply management and its’ strategies in value creation. Recognising the strategic nature and significance of supply management are important factors in the value creation of the entire firm. Supply management is a strategic function of a firm which has a significant influence to competitiveness and performance as Hartmann et al. (2012) have stated. Therefore, it delivers exchange value and perceived use value (Bowman and Ambrosini, 2000) and direct and indirect value (Smals and Smits, 2012) to the firm and to the entire supply chain or network. Moreover, the strategic objectives of supply management should be set in a way that enables to create synergies from the actions of KSM and SRM aligned with the company’s overall strategy.

Hypothesis 3 posited that SRM capability positively influences supply management’s value creation ability. Based on the results of the regression analysis it can be said that the capability to manage supplier relationships is a dimension of supply management’s value creation ability. According to the empirical results, SRM capability influences supply management’s ability to produce value, a finding supported by previous studies showing a positive correlation between relationship management and firm performance (Das and Narasimhan, 2000). As the RBV suggests, a firm’s internal resources and high maturity capabilities can be sources of competitive advantage. Firms who invest highly in the knowledge and development of supplier relationship management have unique and high maturity capabilities. SRM capability’s effect on competitive advantage comes from the transmission of supplier information inside a firm, minimising transaction costs and reducing supply chain risks (Lintukangas, 2011). Hence, the impact of SRM capability on a firm’s value creation is realised by utilising the firm’s relational capabilities to increase knowledge of its supplier networks and develop trustful supplier relationships, as also Revilla and Knoppen (2015) found.

Conclusions

The traditional perspective suggests that the value added by a purchasing department mainly results from the monetary savings generated. The modern view, by contrast, highlights the role of suppliers as significant value co-creators. While previous research concentrated primarily on the ability of a firm to create value, this study focused on the ability of a firm’s supply management to create value. The research of Hartmann et al. (2012) and Kähkönen and Lintukangas (2012a) shows that supply management has a clear connection to value creation; however, the literature shows that the supply management dimensions affecting its value creation ability have been less extensivly studied. Thus, this paper endeavoured to ascertain which dimensions of supply management contribute its ability to create value.

The literature review showed that the willingness to form and commit to collaborative relationships, the recognition by a firm of the significance of supply management, and the management practices and principles related to supplier relationships may affect value creation. Thus, it was proposed that key supplier management, the strategic level of supply management and SRM capabilities positively influence supply management’s ability to create value. The issue was empirically studied by using a survey data collected in Finland and the concepts were tested using regression analysis. The results showed that the dimensions explained 62% (Adj. R-square) of the value creation ability of supply management, thus indicating the significance of these three dimensions. The theoretical support was found from the RBV and the RDT in line with the study of van Weele and van Raaij (2014). It can be summarised, that this study
illustrated that if the strategic importance of supply management is recognised and unique and mature SRM capabilities and strategic and collaborative supplier relationships are developed, supply management has the ability to create value.

Managerial implications

The results of this study have important implications for managers and practitioners. From a managerial perspective, it is important that firm managers understand and acknowledge the significance of the supply management function. Previous studies have shown that supply management affects firm performance, and substantial savings can be achieved by strategic supply management. Thus, acknowledging supply management’s potential in value creation and boosting its role in the firm is important and can lead to a variety of benefits. Supply management can contribute to a firm’s success not only by generating direct cost savings but also by creating value from its supply base. Supply management acts as an interface through which the company can find innovations, boost new product development, reduce supply risks and increase its competitiveness through integrated supply chains and collaboration. Both the concrete benefits and abstract added value should be understood.

After acknowledging supply management’s importance and potential in value creation, managers should recognise which dimensions and actions of supply management may lead to more efficient value creation. Such recognition can help supply managers focus on the most significant activities that can add value to its business. The results of this study show that suppliers play a key role in generating value and KSM is an important dimension of supply management’s potential to create value. Thus, managers should view suppliers as partners with whom value can be created and strive to facilitate fruitful collaboration. This viewpoint should be noted in the practices and principles of handling supplier relationships, thus highlighting the importance of achieving mature SRM capabilities. In some companies, this may require changing the attitude towards suppliers and supplier relationships. A collaborative approach may not be obvious to all companies, and not all supplier relationships should be collaborative and focused on co-creating value. When categorising suppliers and supplier relationships, the significance to the value creation ability should be considered, and nonmonetary benefits and sacrifices should be acknowledged as well. Recognising key suppliers and developing key supplier relationships should be a target of supply managers because it affects the ability to create value. Long-term collaborative relationships with shared goals and benefits are optimal foundations for value co-creation.

Limitations and further research

Like all research, this study has limitations. Only cross-sectional data were used to test hypotheses; therefore, the causality (cause and effect direction) of the examined relationships between the variables is not definitive. Furthermore, the study was based on a national survey and used a relatively small number of respondents in a limited number of industries, which may affect the generalisability of the results to other contexts. In addition, because of the complexity of the concept and the lack of empirical studies with the measurements and scales necessary to conduct quantitative analyses to test theories concerning value creation in supply management, further development of scales and measurement is needed. This study also offers possible opportunities for future research. Specifically, to increase the generalisability of the results, it would be useful to examine the value creation potential of supply management practices in different industries and contexts and link those to the buying of services and outsourcing.
References


