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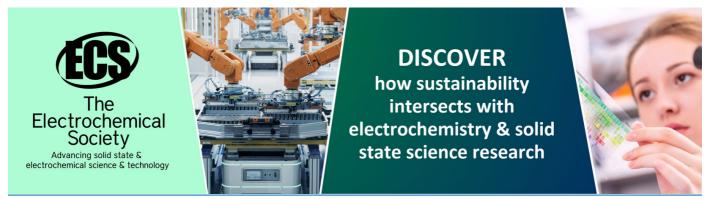
# Understanding Supply Chain Management Practices for Small and Medium-Sized Enterprises

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# **Understanding Supply Chain Management Practices for Small and Medium-Sized Enterprises**

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**Abstract**. Small and medium enterprises (SMEs) are a major source of dynamism, innovation and flexibility for emerging and developing countries, as well as for the economies of the most industrialised nations. However, the survival and growth of SMEs can be difficult in the current competitive business environment and global marketplace. It can be a real challenge to deliver the right product and service at the most opportune time and at the lowest possible cost to the right customer. The challenge stresses the importance of managing cross-boundary relationships between business partners. For gaining a competitive advantage, supply chain management (SCM) is an effective tool to SMEs. Therefore, this paper aims to review the tenet of SCM, its benefits and practices to SMEs.

## 1. Introduction

In the past decades, there has been a massive surge of interest in supply chain management (SCM) (Burgess et al., 2006; Zhou and Benton, 2007; Fawcett et al., 2008) due to its innovative approach to business (Tracey et al., 2004; Fawcett et al., 2008) and competitive advantage (Koh et al., 2007). The popularity of SCM concept can be seen from the remarkable rise in conferences, academic research and publications, professional development programs and courses in university (Burgess et al., 2006) since the 1980s (Stock and Boyer, 2009). Many fields are devoted to the proliferation of SCM literature, including logistics and transportation, supply and purchasing, operations management, organisational theory, strategic management and marketing, hoping to fully understand the tenets of SCM (Chen and Paulraj, 2004). The fundamental concept of SCM revolves around the efficient flow of goods, service, information and money to the business with aim to provide right product to the right customers at the right cost, right time, right quality and right quantity. SCM can deliver a number of benefits to small and medium sized-enterprises (SMEs); therefore, adoption of SCM can help SMEs to achieve competitive advantages.

SMEs are now considered to be a major source of dynamism, innovation and flexibility for emerging and developing countries, as well as for the economics of the most industrialised nations. SMEs contribute substantially to the nation through economic development and employment generation (Koh et al., 2007). In addition, SMEs form the potential economic back-bone of many regions and make a greater contribution to employment than large firms (Peng, 2009).

#### 2. Tenet of Supply Chain

A supply chain results from the efforts of organisations to produce and deliver a finished good from suppliers' supplier to customers' customer. The efforts include all activities involved in these five basic processes – plan, source, make, deliver and return, which encompass matching supply with demand, sourcing components and raw materials, producing final products, delivering to end

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customers and providing post-manufacturing services such as return, repair and warranty (Supply-Chain Council, 2016).

As defined by Mentzer et al. (2001), supply chain is a network consists of all parties involved (e.g. manufacturer, supplier, retailer, customer, etc.), directly or indirectly, in manufacturing and delivering products or services to ultimate consumers – both in upstream and downstream sides through physical distribution, flow of information and finances. As stated by Chopra and Meindl (2010), a typical supply chain includes the following five stages: component/raw material suppliers, manufacturers, retailers, wholesalers/distributors and customers. These five stages are connected through flows of products, information and money. As pointed out by Chandra and Kumar (2000), managing a supply chain network is complex and difficult, since it involves various sub-systems, activities, relationships and operations. Therefore, an integrated supply chain framework is needed to tie a whole network together with the goal of reducing perennial supply chain challenges.

SCM is about managing the supply chain (Mentzer et al., 2001). SCM is a watchword in business (Li, 2002), Wall Street, and in the news media (Stephens, 2001). As defined by the Council of Supply Chain Management Professionals (CSCMP), SCM is the management and planning process that involve all activities from sourcing and procurement, transformation of raw materials to finished goods, as well as logistics activities. The supply chain incorporates all the collaboration and coordination within and outside an organisation with its channel partners (e.g. suppliers, intermediaries, customers, and third party service providers) with the hope of integrating supply and demand management.

As proposed by Mentzer et al. (2001), there are three categories of SCM definitions: a philosophy of management, a set of activities to implement a philosophy of management and series of management practices. These definitions are under the category of management philosophy, which views SCM as a whole system including cooperative efforts for managing and distributing a finished product from supplier to end customer (Monczka et al., 2005), as well as information and funds coordination (Handfield and Nichols, 1999); SCM philosophy aims to integrate supply chain partners to create customer value and satisfaction.

To embrace a successful SCM philosophy, various activities are needed, such as development of long-term relationships (Min and Mentzer, 2004; Chen and Paulraj, 2004), mutually sharing information, integrated behaviour (Tan, 2002), cooperation, risks and rewards, integration of processes, agreed goals, a focus on serving customers, (Min and Mentzer, 2004) and partnership with supply chain members. In addition, SCM is about the process of managing materials flow, information and relationships between companies in fulfilling customer requests. This category emphasises the importance of all supply chain functions as key business processes (Ho et al., 2002), such as customer service management, order fulfilment, customer relationship management, product development, procurement and commercialisation.

By the same token, Li (2002) developed three SCM categories, including purchasing and supply management, integrated logistics management, and integrated SCM. Purchasing and supply management involve partnering and integrating with suppliers to better management of the supply and purchasing functions. Integrated logistics management deals with physical distribution and logistics activities within and beyond organisations, including suppliers and customers. Definitions under an integrated SCM focus on strategic nature of coordination between trading partners within a supply chain network, with hopes to enhance performance of supply chains and organisations.

There have been an enormous number of definitions of SCM when the tenet has gained tremendous popularity since 1980s – approximately 173 definitions of SCM have been proposed in total (Stock and Boyer, 2009). As SCM covers a wide range of disciplines, the researchers have continued to suggest the SCM definitions as according to their own research directions. The lack of an overarching SCM definition (Mentzer et al., 2001; Burgess et al., 2006) may affect the development and adoption of SCM theory. Without a single consensus SCM definition, researchers are unable to further develop the theory and practice (Stock and Boyer, 2009). Therefore, an encompassing and inclusive definition of SCM is of paramount importance to help scholars and practitioners, such as supply chain executives to develop sound SCM strategies (Mentzer et al., 2001; Burgess et al., 2006).

The definition given by Stock and Boyer (2009) provides an all-encompassing and complete definition of SCM. The researcher concurs with this definition, which posits that SCM involves network

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relationships management within and across companies. These entities include marketing, logistics, production facilities, purchasing, material suppliers and related systems are connected through forwards and reverse flows of information, materials, services and finances for the purpose of delivering the final products from original producer to end customer, thus enhancing customer satisfaction, bringing value-enhancing and maximising profitability through efficiencies.

## 3. Supply Chain Management Practices

SCM is one of the competitive priorities that have evolved from a one-dimensional subject with a rather narrow focus on logistics and physical aspects of material flow, into a multifaceted theory encompassing a broad range of subjects. For example, Bidgoli (2010) contended that modern SCM simultaneously incorporates strategic differentiation and value enhancement as well as operational efficiency improvements and cost reduction. According to Sweeney (2007), SCM has become the business model of the 21st century. This view was echoed by Ketchen et al. (2008), who supported the idea of a contemporary SCM approach – the best value supply chains are designed to deliver superior total value to the customer in terms of speed, cost, quality and flexibility and becomes a key competitive weapon for the 21st century.

The concept of SCM begins to gain popularity in the past thirty years (Fredendall and Hill, 2001), with an emphasis on supplier collaborative relationship or partnership (Lummus and Vokurka, 1999; Tan, 2001). The SCM practices play a critical role in sustainable organisational performance enhancement. SCM practices include a set of approaches and activities utilised by an organisation to effectively integrate supply and demand for improving the management of its supply chain (Li et al., 2005; Wong et al., 2005; Koh et al., 2007). SCM practice is a multi-dimensional concept which can be measured from different perspectives such as stated in Sundram et al. (2011). Different dimensions of SCM practice have been highlighted in past literature (Koh et al., 2007).

Alvarado and Kotzab (2001) emphasised the importance of inter-organisational system such as electronic data interchange (EDI), concentration on core competencies and elimination of excess inventory levels in SCM practices. Tan (2002) also suggested that a seamless supply chain includes shared IT and information sharing, managing materials and supply issues, customer service, extending all the way to internal operations. Therefore the author affirmed that SCM practices need to cover information sharing, customer service management, SCI, supply chain characteristics, just-in-time (JIT) capability and strategic location. Sahay and Mohan (2003) used aligned supply chain and business strategies, information technologies, partnerships in inventory management and SCI to measure SCM practices. Chen and Paulraj (2004) defined SCM practices to include long-term relationships, communication, supplier involvement, supply base reduction, and cross-functional teams. Min and Mentzer (2004) noted that SCM practices are composed of information sharing, agreed customer focus and vision, cooperation, sharing of risk and rewards, accepted supply chain leadership, process integration and long-term relationships. This model is grounded on strategic partnerships, with the purpose of achieving mutual benefits. Similarly, Tracey et al. (2004) proposed a construct of SCM assimilation consisting of technology utilisation (internal and supply chain technology usage), internal relationships (participative leadership, manufacturing and logistics participation in strategy), external relationships (supplier selection, evaluation and management), transportation, product development and inventory management (inventory control, warehousing and packaging).

The literature largely addresses only downstream customers, upstream suppliers of the supply chain or internal functions. Hence, Li et al. (2005) developed and validated a measurement instrument for six SCM practices constructs which cover supply chain information flows (quality and sharing of information), downstream (relationship with customer), upstream (strategic supplier partnership) and internal supply chain processes (postponement and internal lean practices). Even though the proposed SCM practices framework portrays the major perspectives of SCM practices, however, it does reveal a number of limitations. These limitations include the use of a single manufacturing sector in the study – the constructs like postponement and waste reduction practices are not suitable for retailers and distributors.

Wong et al. (2005) defined SCM practices to include supply chain performance, SCM initiatives, product uniqueness, inventory-cost and lead-time management, postponement and customisation,

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information sharing and coordination, supplier and customer relationships, retail strategy, coordination and sharing of information, distribution and logistics. Burgess et al. (2006) proposed a SCM construct with seven practices including the relationships of inter- and intra- organisational, leadership, information system, process improvement orientation, logistics, business outcomes and results. Koh et al. (2007) explored the relationships between SCM practices, operational performance and SCM-related organisational performance in Turkish SMEs. A list of twelve SCM practices was identified in the study. The SCM practices involve building dense relationships with suppliers and customers, implementing inventory management including JIT and safety stock approaches, using inter-organisational systems such as e-procurement, engaging third-party services through 3PL (third-party logistics), outsourcing and subcontracting, and managing internal side of the supply chain via strategic planning, supply chain benchmarking and managing the numbers of suppliers (with just a few or many suppliers). Through factor analysis, such SCM practices are classified on the following two dimensions: outsourcing and multi-suppliers (OMS), and strategic collaboration and lean practices (SCLP).

Zhou and Benton (2007) used JIT, supply chain planning, delivery practices, and production to represent SCM practices. Also, Chow et al. (2008) compared supply chain practices between Taiwan and the US. The framework of supply chain practices for US comprises supply chain features, supplier and customer management, information sharing, speed and communication. On the other hand, SCM practices for Taiwan consist of customer service management and SCI and features. Robb et al. (2008) developed a supply chain practice to focus on customer and supplier relationships, ecommerce and enterprise software. Hsu et al. (2009) studied SCM practice as a mediator between operations capability and firm performance. The SCM practices include increased suppliers' JIT capabilities, participating in sourcing decisions, geographical proximity of suppliers and formal information-sharing agreements. Similarly, Singh et al. (2010) identified five factors such as use of technology, customer satisfaction, inventory management, SCI and supply chain speed as SCM practices in relationship of competitive advantage and organisational performance.

Chong et al. (2011), basing their surveys from Malaysian manufacturers and service firms, suggested that SCM practices should cover the following six dimensions: strategic supplier partnership, customer relationship, information technology, information sharing, internal operation and training. Cook et al. (2011) used the following practices to represent SCM: RELATION – long-term relationships with supply chain members; SHARE – information sharing among supply chain members; SOURCE – supplier network design; INTERNET – internet-based technology leverage; PLAN – usage of advanced planning systems; and DISTRIBUTION – distribution network design. Miguel and Brito (2011) conceptualised SCM practices as including information sharing, long term relationships, cooperation, and process integration.

Kushwaha (2012) proposed that SCM practices include information and communication technology practices, strategic sourcing and supplier relationship practices, supply chain manufacturing practices, inventory and warehousing management system, transportation and distribution management system, and customer relationship management. Sukati et al. (2012) targeted three impacts of SCM practices (strategic supplier partnership, customer relationship and information sharing) on supply chain performance. Toyin (2012) used five dimensions to measure SCM practices including strategic supplier partnership, customer relationship, postponement, level of information sharing and quality of information sharing. Besides, Sukati et al. (2013) suggested three relationships from perspectives of internal-firm, firm-supplier and firm-customer to implement SCM practices.

While many efforts proposing a model of SCM constructs have been made, there has been no clear convergence on a single unifying construct to incorporate all facets of SCM. Despite lacking common set of constructs, these features do possess some similarities.

#### 4. Why SCM is important to SMEs

The main focus of SCM is to provide right product to the right customers at the right cost, right time, right quality and right quantity. Meanwhile, the short-term strategic goal of SCM is to reduce cycle time and inventory and thus increasing productivity, whereas the long-term goal is to enhance profits through market share and customer satisfaction (Tan, 2002). According to Mohanty and Deshmukh (2005), the quantifiable benefits of SCM include lower supply chain costs, overall productivity,

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inventory reduction, forecast accuracy, delivery performance, as well as fulfilment cycle time and fill rates. SCM delivers improvement up to 60%, with ranges between 10% and 60%. Fulfilment cycle time records the highest improvement, jumping from 30% to 60%.

A review of extent literature reveals that adoption of SCM may deliver a number of potential benefits to the organisations. Different criterion have been used to measure organisation performance such as financial, non-financial, innovation performance, market share and customer satisfaction (Talib et al., 2010). For example, the benefits include operation costs reduction, customer satisfaction, order fulfilment lead times (Chin et al., 2004; Tumala et al., 2006; Fawcett et al., 2008), inventory improvement (Chin et al., 2004; Tumala et al., 2006; Talib et al., 2010), responsiveness to customer requests (Fawcett et al., 2008; Talib et al., 2010), remain competitive (Chin et al., 2004; Tumala et al., 2006); on-time delivery (Fawcett et al., 2008), increased flexibility (Tumala et al., 2006), increased sales, increased internal coordination between departments, increased supplier and customer coordination, improved supply chain communication, a reduction in risk and a reduction in the duplication of inter-organisational processes (Talib et al., 2010).

In the context of SMEs, cost-effective SCM is critical for survival and growth, as purchasing cost makes up the largest share in terms of sales revenue – approximately 80% (Quayle, 2003). Meehan and Muir (2008) conducted a study in SMEs in Merseyside, UK to reveal the perceived benefits of SCM to SMEs. The potential benefits include increases in customer service and responsiveness, improved supply chain communication, risk reduction, a reduction in product development cycle time processes, a reduction in duplication of inter-organisational processes, inventory reductions, and improvement in electronic trading. Another study by Koh et al. (2007) involving SMEs manufacturing companies in Turkey found that the execution of SCM practices could deliver benefits to SMEs in terms of reduced inventory level, reduced lead time in production, increased flexibility, forecasting accuracy, cost saving and accurate resource planning.

While there is voluminous research literature available on SCM potential benefits but till now there is limited study to reveal the actual benefits of SCM (Lambert et al., 2005; Stock et al., 2010). Explicit SCM does not seem to occur often enough in practice. This is mainly because respective functional managers view the focus of SCM differently; this disagreement in terms of SCM goal provides difficulty to supply chain managers (Fawcett et al., 2008). This dilemma often happens in big companies. However, in comparison to large enterprises, SMEs usually have a small management team and the owner as the top manager (Jaidee and Beaumont, 2003; Schatz, 2006; Woolderink, 2010). An owner-manager can develop SCM roadmap more easily in order to drive for superior supply chain performance (Thakkar et al., 2008). As the review has indicated, there is a lack of empirical research confirming these significant benefits of SCM. Therefore, it is important to explore the benefits of SCM to SMEs.

#### 5. Conclusion

The survival and growth of SMEs can be difficult in the current competitive business environment and global marketplace; customers are more demanding of better and cheaper products, higher service levels, more product varieties and faster delivery (Tachizawa and Thomsen, 2007; Chow et al., 2008; Ketchen et al., 2008). It can be a real challenge to deliver the right product and service at the most opportune time and at the lowest possible cost to the right customer (Chin et al., 2004; Li et al., 2005).

SMEs have financial constraints, so a high priority is placed on inventory management and control, because capital tied up in inventory can be huge (Meehan and Muir, 2008). Therefore, SMEs must strike a balance between responsiveness and efficiency. A higher level of inventory may increase supply chain responsiveness; however, it increases inventory holding costs (Chopra and Meindl, 2010). There are a variety of partnering initiatives and inventory solutions are being employed to encourage collaborative inventory management that involves inter-dependent trading partners, such as vendor-managed inventory (VMI), JIT and collaborative planning, forecasting and replenishment (CPFR) (Sari, 2007) with the hopes of mitigating bullwhip effect, minimising demand uncertainty, reducing costs and in the end improving profitability.

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