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SUPPLY CHAIN STRATEGY SELECTION: DEVELOPING A HOLISTIC EVALUATION FRAMEWORK

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Abstract

Supply chain managers face substantial challenges in efficiently managing their supply chains, necessitating strategic decision-making and the development of competitive supply chain strategies that deliver customer value. Fisher's (1997) model, which helps managers determine appropriate supply chain strategies based on the nature of products (functional vs. innovative), has been foundational in this regard. However, subsequent research has highlighted that factors beyond the nature of the product also significantly influence the choice of supply chain strategies. These factors include increased market competition, demand variability, product variety, customer-specific products, and shorter product life cycles. This paper explores these additional factors and provides a comprehensive framework for evaluating and selecting supply chain strategies. By integrating insights from existing models and recent market developments, this framework aims to guide supply chain managers in making informed, strategic decisions that enhance supply chain performance and customer satisfaction.

INTRODUCTION

Supply chain managers are confronted by significant challenges in managing their supply chains (Lo and Power, 2010). This makes it necessary to take strategic decisions and to develop competitive supply chain strategies with capabilities that add value in the eyes of the customers (Lee, 2002; Ismail and Sharifi, 2006). Fisher (1997) developed a model that helps managers determine their supply chain based on the nature of the product (functional and innovative products). Scholars have contributed extensively to Fisher's model and have suggested that in addition to the „product", there are additional factors that might influence the choice of a supply chain strategy (Lo and Power, 2010). These are due to several developments in the market, such as increased competition, increased demand variability, increased product variety, increased amounts of customer-specific products, and product life cycles getting shorter (Christopher et al., 2004).

According to Sun et al. (2009), choosing and implementing the right supply chain strategy is believed

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to enable the improvement of supply chain management (SCM) performance. The ability to design an effective supply chain strategy is an important core capability of SCM (Nel and Badenhorst-Weiss, 2010). Supply chain management (SCM) can be defined as a set of approaches utilized to efficiently integrate and coordinate the materials, information and financial flows across the supply chain, so that merchandise is supplied, produced and distributed at the right quantities, to the right locations, and at the right time, in the most cost-efficient way, while satisfying customer requirements (Hilletofth, 2009).

In South Africa, the automotive industry is the leading industry in supply chain practices (Supply chain foresight, 2007). The industry is often referred to as the barometer of the health of the economy of the country. Yet, many companies within the sector have little knowledge of the costs involved in maintaining their supply chains, nor of the impact of supply chain on their operations (Data scope Consulting, 2008). Manufacturers and suppliers are challenged to react flexibly to changes in customer demand (Supply chain foresight, 2010), thus forcing second-tier manufacturers to hold larger inventory levels (Data scope Consulting, 2008). Therefore, the challenges in the South African automotive industry can be attributed to poor

supply chain strategies that are not matched to the business strategies (Lee, 2002).

According to Fisher (1997), mismatch is the root cause of the problems plaguing many supply chains and therefore supply chain strategies that are based on a one-size-fits-all strategy will fail (Lee, 2002; Sun et al., 2009). A good supply chain strategy must be aligned to a company's business strategy (Chaudhary, 2008) since a mismatch generally leads to significant problems in business operation (Lo and Power, 2010). It is therefore imperative for supply chain managers to understand their customers‟ needs, and to choose and implement the right strategy for the supply chain to satisfy customer demands.

Given the importance of choosing the right supply chain strategies for organizational performance, the purpose of this article is therefore to firstly examine supply chain management challenges with specific reference to the South African automotive industry and secondly to suggest a comprehensive framework that will help managers chose their supply chain strategies. The article, which is based on a theoretical analytical review of related literature on supply chain strategies, contributes to the ongoing debate on supply chain strategies. The body of the article presents SCM in the South African automotive industry; supply chain strategies, related review of supply chain strategies and a framework for implementing supply chain strategies.

DEFINITION AND BACKGROUND OF SUPPLY CHAIN MANAGEMENT IN THE AUTOMOTIVE INDUSTRY

The definition and background of SCM in the automotive industry and the challenges of SCM in the South African automotive industry is presented here.

Definition of supply chain management

Supply chain management (SCM) can be defined as the systems approach to managing the entire flow of information, materials and services from the raw materials suppliers through factories and warehouses to the end customer (Leenders and Fearon, 2004; Ambe, 2010). SCM involves the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole (Christopher, 2005). SCM exists in all types of business organizations and can be classified into three categories: a management philosophy, implementation of a management philosophy and a set of management processes (Klemencic, 2006; Lambert, 2006). It contributes to value creation in the business through optimization and alignment of the structures, policies and processes (Deloitte, 2011). Methodologies that align the supply chain to customers‟ products comprise the biggest opportunity for profit and cash improvement (Deloitte, Ambe and Badenhorst-2011). However, managing a supply chain involves considerable levels of complications (Lo and Power, 2010).

Background of supply chain management in the automotive industry

Globally, SCM has undergone an evolution over the last two decades in the automotive industry (Cooney and Yacobucci, 2005; Zhu et al., 2006). Historically, the industry operated according to a „push" model. In this model, marketing and sales take a best guess at market demand and then supply these forecasts to the design, engineering, financial and manufacturing teams to determine make and/or model production volumes
(Howard et al., 2006).

Mass production was the standard production strategy adopted (Zhang and Chen, 2006). Mass production relies heavily on a company's ability to forecast demand accurately, which in turn guides the company's decisions regarding operations and production. Characterized as a push system, forecast-driven production is a highly efficient but rather rigid system that utilizes historical data and projections to create a production plan and makes use of existing configurations to produce products for stock (Zhang and Chen, 2006). Due to changing demands in the business environment, the focus shifted to mass customization. In this situation, a company's operations are initiated by the customers" orders rather than by a forecast, hence the employment of a customer order strategy (Holweg et al., 2005). A customer-order driven production approach is characterized as a pull system that produces the products for specific customer orders in a timely manner, thus, avoiding stockpiles (Zhang and Chen, 2006).

Challenges of supply chain management in the South African automotive industry

The automotive industry is an important contributor to the
South African economy. The industry was South Africa's most heavily protected industry before trade liberalization was launched in the 1990s (Flatters and Netshitomboni, 2006). The industry, which has attracted much government attention and a wide range of public support (Ambe and Badenhorst-Weiss, 2011), has managed to achieve operations among all role players and is now fully integrated into the global framework of parent companies and multi-nationals (Fernandes and Erasmus, 2005). All of the major vehicle manufacturers are represented in South Africa. Many of them use South Africa to source components and assemble vehicles for both the local and the overseas markets (Muller, 2009; Van der Merwe, 2009).

A growth catalyst of the South African automotive industry has been the government's Motor Industry Development Programme (MIDP). Compliance with the World Trade Organization (WTO) led the South African government to review the MIDP and replace it with the Automotive Production Development Programme (APDP) (Ambe and Badenhorst-Weiss, 2011). This involved a shift from export support to production support, while phased-down tariff reductions (albeit at a slower pace) are transitionally maintained as the MIDP gives way to APDP (Mohubetswane, 2010).

The South African automotive supply chain is segmented and comprises eight major OEMs who are supplied by approximately 275 first-tier suppliers, 100 second-tier suppliers and more than 200 third- and fourth-tier suppliers (Khayundi, 2010). Critical issues for consideration in the industry's supply chain are cost containment, development know-how and resources, product quality and logistics (Khayundi, 2010).

Muller (2009), Supply chain foresight (2010) and Ambe and Badenhorst-Weiss (2011) have pointed out that the South African automotive industry faces great supply chain challenges. These include the establishment of cost reduction measures and service improvement (Supply chain foresight, 2007). Moreover, the majority of companies within the industry do not only operate with low levels of collaboration, but are also not market sensitive or reactive to the changing market (Supply Chain Intelligence Report (CSIR), 2009). The supply chain foresight report (2010) also highlighted the fact that the industry supply chain is more vulnerable than ever as a result of vast swings in demand and volumes because of the global recession.

Adding to the disarray faced by the South African automotive industry was pressure by OEMs to reduce prices, excessive inventory, the unreliability of rail transport and rail capacity problems, the high cost of South African ports, the cost of replacing outdated technology, and broad-based black economic empowerment; and a lack of skills and labour problems, both of which are time-consuming to resolve (Naude and Badenhorst-Weiss, 2011). Therefore, there is a need for the South African automotive industry manufacturers to produce at a competitive cost and to have the ability to respond quickly and reliably to first-world market demands (Ambe and Badenhorst-Weiss, 2011).

Based on the review provided, this article articulates that supply chain challenges in the South African automotive industry stem from the external environment, the customers, competition and the automotive industry. Table 1 summarizes the supply chain challenges in the South African automotive industry and their main sources.

These challenges affecting the South African automotive industry have led manufacturers and suppliers to build up buffer inventory and limit their ability to react flexibly to changes in customer demand (Supply chain fore sight, 2010). Data scope Consulting (2008) point out that, manufacturers forced their second-tier manufacturers to hold larger inventory levels to avoid bringing a large manufacturing line to a halt. These challenges can be attributed to mismatch in the supply chain (Fisher, 1997; Lee, 2002; Hines, 2006). Fisher (1997) attributes the root cause of the problems plaguing many supply chains to a mismatch between types of environmental uncertainty and supply chain strategy (Lee, 2002; Hines, 2006). Therefore, choosing and implementing the right strategy for the supply chain to satisfy customer demands is vital for automotive manufacturers, their suppliers, and the economy as a whole. According to Sun et al. (2009), it is believed that the right supply chain strategy can improve SCM performance (Christopher et al., 2004).

Review of supply chain strategies

Following the definition and background discussion, the focus of the article now moves to a review of supply chain strategies.

What is a supply chain strategy?

Due to an awareness of the need to align processes with trading partners to achieve business outcomes, business competition has shifted from a traditional firm basis to a supply chain-wide basis (Hugo et al., 2004; Lo and Power, 2010). A supply chain strategy is part of the overall business strategy, designed around a well-defined basis of competition (innovation, low cost, service, quality) (Cohen and Rousell, 2005). Supply chain strategy utilizes interfirm coordination as the capability that facilitates achievement of objectives focused on revenue growth, operating cost reduction, working capital and fixed capital efficiency to maximize shareholder value (Deffee and Stank, 2005). It is integrated with marketing strategy and with customers' needs, product strategy and power position. In a rapidly evolving global economy, no firm exists in a vacuum (Hugo et al., 2004; Ambe and Badenhorst-Weiss, 2010).

It is now increasingly accepted that „one size does not fit all" when it comes to designing supply chain strategies to support a wide range of products with different characteristics (Christopher et al., 2006). Supply chain strategy differs from traditionally accepted company strategies, in that it requires the coordination and commitment of many different firms to implement company strategic objectives (Deffee and Stank, 2005). The questions remain: how do supply chains function and how deeply are supply chain concepts ingrained in manufacturing organizations (Vonderembse et al., 2006)? Christopher et al. (2006) says that in the ideal world, supply chains would be designed from the „customer backwards" rather than according to the conventional approach which tends to be from the „factory outwards". There is a temptation t o create supply chains that are more focused upon „efficiency" goals than „effectiveness" goals. Thus, the typical supply chain strategy is likely to be aimed at achieving a smooth flow at minimum cost. What might look like a cost saving to one firm could mean increased

costs to the supply chain as a whole. Therefore, there is a great need for research establishing how, and to what extent, supply chain strategies directly or indirect shape a company's performance (Sun et al., 2009).

Table 1. Supply chain challenges in the South African automotive industry.

Sources of challenge	Description of supply chain challenge
External	Rising fuel cost; dealing with oil price volatility; vulnerability of the supply chain; restructuring of operations as a result of global recession
Competition	Delicate balance in servicing customers and dealing with suppliers; effect of globalization on the supply chain; planning and forecasting issues; increased road flight volume; globalization and market convergence; individualization; accelerated modification and diversification of product portfolio; increased pressure of innovation and stiff competition among manufacturers resulting in more mergers or acquisitions
Customer	Cost reduction and service improvement; growing severity of the economic slowdown; making the supply chain lean; efficient planning and forecasting; producing at a competitive cost and pressure on OEMs to reduce costs
Industry	Inadequate infrastructure; operating with low levels of collaboration and not reacting to market changes

Differentiating supply chain strategies

Supply chain scholars have agreed that a supply chain strategy should be chosen based on the nature of the product and by matching the strategy to the unique characteristics of different products or markets (Christopher and Towill, 2002; Fisher, 1997; Lee, 2002; Sebastiao and Golicic, 2008). The Fisher (1997) model has helped managers to understand the nature of their product and to devise a supply chain strategy that can best satisfy the specific demand (Jacobs et al., 2009). According to Fisher's model, supply chain strategy is established based on the product type (functional or innovative products) (Fisher, 1997). Functional products are predictable and stable over time and therefore have a supply chain strategy oriented toward efficiency (Jacobs et al., 2009). Innovative products have a shorter product lifecycle and their demand is unpredictable and oriented towards a responsive supply chain strategy reducing lead times (Jacobs et al., 2009).

Lee (2002) introduced a framework for establishing a strategy based on supply and demand uncertainties. Lee (2002) elaborates upon the match between strategy and product characteristics by considering stable versus evolving supply characteristics in addition to demand. According to Lee (2002), efficient and responsive supply chain strategies are associated with stable supply processes while risk-hedging and agile supply chain are associated with conditions of evolving supply processes (Sebastiao and Golicic, 2008).

Chopra and Meindl (2010) consider two main strategies for the supply chain (efficiency and responsiveness) and introduce a three-step procedure for achieving strategic fit. In the first step, the competitive strategy of the supply chain is established, and as a result, the uncertainty level a supply chain must face is measured. In the second step, the supply chain strategy is recognized, and in the last step, the competitive strategies and supply chain strategies are matched to the strategic fit zone. These authors have shown that there is a direct relation between the competitive strategy and the supply chain strategy in achieving strategic fit (Chopra and Meindl, 2010).

Furthermore, Christopher and Towill (2002) contend that there are different pipelines to satisfy customer demands, but these pipelines must be selected to match the business strategy of the supply chain. Christopher et al. (2006) proposes a three-dimensional classification appropriate for global supply chains. These dimensions and their binary gradations are: products (standard or special), demand (stable or volatile) and replenishment lead-times (short or long).

Christopher and Towill (2002) also note that the element to influence the choice of supply chain strategy is the specific „market winner" criterion. Where cost is the primary market winner, the emphasis must be upon efficiency, which will imply lean strategies. However, the reality is that lean strategies will only be viable where demand is stable and the products are standard. Where availability is the market winner, the emphasis will inevitably veer towards agile strategies.

Fawcett et al. (2007) also note that a supply chain strategy can be determined from the product life cycle (PLC). The PLC summarizes all the steps from product design and development phases to the decision to remove it from the market. The product goes through an introduction, growth, maturity and a declining phase (Aitken et al., 2003; Astrom and Ohgren, 2010). Different types of products, that is, innovative, hybrid or functional, can be classified into different phases of the PLC. Chibba (2007) explains that the PLC describes in return which type of supply chain should be preferred: agile, hybrid, lean or efficient. The number of different supply chains can be narrowed down to the generic supply chain strategies (lean and agile supply chain).

Simchi-Levi et al. (2003) distinguishes between push and pull supply chains (Diaz, 2005). A push-oriented supply chain caters to stable demand of homogenized products. In this type of supply chain, production and distribution decisions are based on long-term forecasts, as demand is stable. In the pull supply chain, the entire supply chain is driven by actual demand; the time to market becomes long, depending on the type of supply chain and the number of players involved in it. Also, in a pull strategy, it is not possible to get advantage of economies of scale, since batch production or truckloads are hard to achieve (Simchi-Levi et al., 2003; Diaz, 2005).

There are therefore, several factors that could be used to determine supply chain strategies. Some of the aspects include the demand and supply characteristics of a product; the market winners and market qualifiers; the product life cycle; pull and push strategy; and manufacturing strategies. The paper further suggests a framework to help managers choose their supply chain strategies.

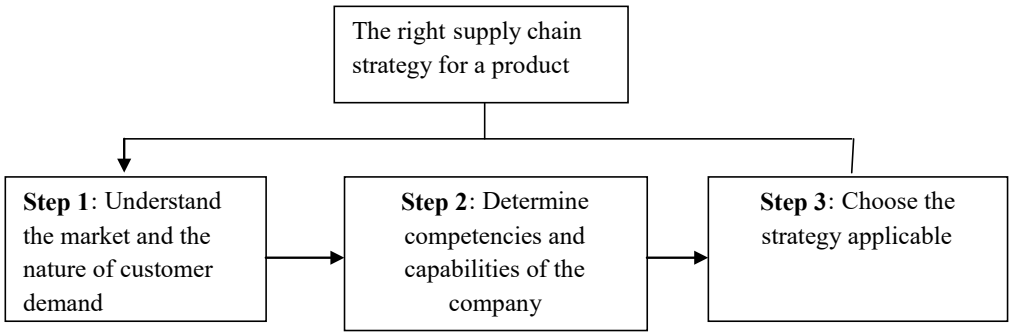

Figure 1. Steps for choosing supply chain strategies.

FRAMEWORK FOR SUPPLY CHAIN STRATEGIES

A framework for choosing and implementing supply chain strategies is presented here. According to Ismail and Sharifi (2006), Sharifi et al. (2006), Hines (2006), Fawcett et al. (2007) and Chopra and Meindl (2010), important and critical processes for choosing a supply chain strategy include the following: understanding of market requirements and the current situation of the supply chain; determining supply chain performance attributes based on an analysis of customer requirement and the current situation of the supply chain; determining supply chain performance dimensions that stand for the areas where the supply chain attributes can be deconstructed to more concrete performance dimensions; translating supply chain dimensions into supply chain functions converting the conceptual supply chain to an actual supply chain; and designing and examining all the components and aspects of the desired supply chain against the market requirement and current situation. However, a supply chain strategy

can be chosen using three basic steps that will be aligned with the business strategy. The first step is to understand the markets and the nature of customer demand. The second step is to define the strengths or core competencies and capabilities of the company. The third step is to choose the strategy applicable to the product. Figure 1 illustrates the steps for choosing supply chain strategies.

Step 1: Understand the market and the nature of customer demand

Customers today are more demanding, not just of quality, but also of service (Sahav et al., 2006: 16). Therefore, for an organization to make the right decision on the type of supply chain strategy, it must understand the customer and the supply chain uncertainty (Hines, 2006; Chopra and Meindl, 2010). There are six key market variables that determine the attributes of a supply chain structure: volume, time, variety, service level required, price and rate of change, innovation and new product development (Hines, 2006). It is also important to identify customer segments to determine similarities between groups of customers so that their needs can be satisfied efficiently (Hines, 2006). Customers in different segments may have similar needs to other segments but in most cases the difference will be greater than the similarities observed. As noted by Sun et al. (2009), as well as Waller (2004), the faster the response to the market for a product, the more uncertainty will be experienced in the supply chain. Supply chain uncertainty is strongly affected by product life cycle (Fawcett el al., 2007). New products being introduced have higher supply uncertainty because design and production processes are still evolving. Mature products have less supply uncertainty (Hines, 2006; Chopra and Meindl, 2010). Jacobs et al. (2009) point out that Fisher developed a framework to help managers understand the nature of their product and devised the supply chain that can best satisfy that demand. According to Lee (2002), Selldin and Olhager (2007), and Jacobs et al. (2009) based on Fisher‟s (1997) model, products can be categorised as either primarily functional or primarily innovative. Each of the supply chain categories requires distinctive kinds of supply chains. Choosing the wrong strategy for a product may lead to mismatch in the supply chain (Lee, 2002). Mismatch is the root cause of the supply chain problems (Fisher, 1997; Hines, 2006). Table 2 shows the difference between functional and innovative products based on the demand and supply characteristics.

Table 2. Characteristics of the dimensions of demand and supply.

Demand characteristics	**Supply characteristics**		
Functional	**Innovative**	**Stable**	**Evolving**
Low demand uncertainties	Higher demand uncertainties	Fewer breakdowns	Vulnerable to breakdowns
More predictable demand	Difficult to forecast	Stable and higher yields	Variable and lower yields
Stable demand	Variable demand	Fewer quality problems	Potential quality problems
Long product life	Short selling season	More supply sources	Limited supply sources
Low inventory cost	High inventory cost	Reliable suppliers	Unreliable suppliers
Low profit margins	High profit margins	Fewer process changes	More process changes
Low product variety	High product variety	Fewer capacity constraints	Potential capacity constrained
Low stockout cost	High stockout cost	Flexible	Inflexible
Low obsolescence	High obsolescence	Dependable lead time	Variable lead time

Source: Adapted from Fisher (1997), Lee (2002) and Verdouw and Verwaart (2008).

Step 2: Define core competencies and capabilities of the company

Supply chains have different characteristics but all supply chains have two important attributes: cost and service (Taylor, 2004: 280). Hines (2006: 61) and Chopra and Meindl (2010: 44) explain that supply chain capabilities include the ability to respond to wide range of quantities demanded, meet short lead times, handle a large variety of products, build highly innovative products, meet a high service level and handle supply uncertainty. To be able to determine the capabilities of the supply chain, a trade-off between responsiveness and cost is required (Taylor, 2004; Hines, 2006). Responsiveness comes at a cost (Chopra and Meindl, 2010). Increase in cost leads to the concept of „supply chain efficiency" (Hines, 2006). The trade-off philosophy of cost and responsiveness led to the term „efficient frontier" (Taylor, 2004; Hines, 2006; Chopra and Meindl, 2010). Taylor (2004) refers to the „efficient frontier" as an intermediary „win-win" situation that allows two qualities to be combined to some degree with an upper bound (the constraint of the total of the two). The efficient frontier shows the lowest possible cost for a given responsiveness (Chopra and Meindl, 2010).

The efficient frontier therefore represents the cost responsiveness performance of the best supply chains. A key strategic choice for a supply chain is the level of responsiveness an organization seeks to provide (Chopra and Meindl, 2010). The most important consideration in deciding where to place a company along the trade-off curve is the choice of the corporate positioning strategy (Taylor, 2004).

Step 3: Choose the strategy applicable

From the afore analysis, it is clear that putting responsiveness and efficiency as a trade-off, recognizes that different levels of responsiveness are associated with cost implications (Taylor, 2004; Hines, 2006). The level of responsiveness in the supply chain depends upon increasing cost. Increase in cost lowers efficiency but increases responsiveness. In deciding upon the type(s) of supply chain strategy to choose, it is necessary to understand what the customer needs (Hull, 2005; Hines, 2006; Jonsson, 2008; Chopra and Meindl, 2010). Designing a supply chain strategy that can meet the customer's needs is what customer focus is all about. Therefore, the customer needs should be the main focus. This point of focus helps an organization to achieve strategic fit. To achieve complete strategic fit, an organization must ensure that all its functions maintain consistent strategies that support the competitive strategy. All sub-strategies within the supply chain, such as manufacturing, inventory and purchasing, need to be consistent with the supply chain level of responsiveness. Firms with different locations along the spectrum must have different supply chain design and different functional strategies that support the spectrum (Chopra and Meindl, 2010). Table 3 shows a comparison between efficient and responsive supply chains.

An efficient supply chain focuses on delivering products at lowest possible costs to customers (functional), while in a responsive supply chain, speed and flexibility are required from suppliers, manufacturers and product design solutions (innovative products) (Kaipia and Holmstrom, 2007: 4). Supply chain strategies vary according to the discipline from which they originate. However, their intent is consistent; to reduce uncertainties and cost while satisfying the end customers" needs (Hines, 2006). Supply chain strategies may be designed to be more efficient and/or more effective. Within these parameters, supply chains can be grouped into two broad categories that summaries their core competencies and capabilities in meeting the end customers" needs. According to Christopher and Towill (2002), an efficient supply chain is also known as a „lean" supply chain while a responsive supply chain is known as an „agile" supply chain (Nel and Badenhorst-Weiss, 2010). Table 4 presents some of the distinguishing attributes of a lean and an agile supply chain.

There are two main strategies in the supply chain (Mason-Jones et al., 2000; Christopher and Towill, 2001; Christopher, 2005; Hull, 2005; Simons and Zokaei, 2005; Hallgren and Olhager, 2009; Vinodh et al., 2009; Pandey and Garg, 2009). These strategies are termed „generic" supply chain strategies and include „lean" and „agile". A lean supply chain strategy works best in high volume, low variety and predictable environments, whereas an agile

supply chain strategy is needed in a less predictable environment where the demand for variety is high (Christopher, 2005). Identifying the types of supply chain strategies might be appropriate in different circumstances to position the products in an organization's portfolio according to their supply and demand characteristics (Ambe and Badenhorst-Weiss, 2010).

Lean and agile supply chain strategies can be integrated in a variety of ways (Faisal et al., 2006; Krishnamurthy and Yauch, 2007: 591; Hilletofth, 2009) because they are common to each other. They can be linked to evolve a new manufacturing paradigm under the name „legible" (Vinodh et al., 2009). Krishnamurthy and Yauch (2007) define a system as one in which the advantages of leanness and agility are combined. A legible supply chain aims to infuse competitiveness in an organization in a cost-effective manner (Faisal et al., 2006). Legality refers to the combination of lean and agile paradigms within a total supply chain strategy. This occurs when the decoupling point is positioned so as to best suit the need for responding to a volatile demand downstream, while still providing level schedule upstream from the decoupling point (Hull, 2005; Vinodh et al., 2009; Rahiminia and Moghadasian, 2010).

Therefore, a supply chain can either be lean, agile or a combination of lean and agile (legible). An organization can achieve a competitive advantage by strategically employing a legible supply chain model through combining a lean and an agile supply chain strategy, as shown in Figure 2. customer demand (Hull, 2005). This will lead to com-

By employing a legible supply chain strategy, an petitive advantage through innovation, cost, service and organization can ensure that it will minimize cost and quality (Mistry, 2005). Figure 3 presents a comprehensive maintain stability while being flexible and responsive to framework for chosen supply chain strategies.

Table 3. Comparison of efficient and responsive supply chains.

Characteristics	**Efficient supply chain**	**Responsive supply chain**
Demand	Constant, based on forecasting	Fluctuates, based on customer orders
Product life cycle	Long	Short
Contribution margin	Low	High
Order fulfil lead time	Allowed longer fulfilment lead time	Short or based on quoted due date
Supplier	Long-term	According to product life cycle
Production	Make-to-stock	Make-to-order; Assemble-to-order; Build-to-order
Capacity	Low	High
Inventory	Finished goods inventory	Parts, components, subassembly
Supply selection	Low cost, consistent quality, and on-time delivery	Flexibility, fast delivery, high-performance design quality

Source: Jonsson (2008: 384).

Table 4. Distinguishing attributes of a lean and an agile supply chain.

Distinguishing attribute	**Lean supply**	**Agile supply**
Typical products	Commodities	Fashion goods
Marketplace demand	Predictable	Volatile
Product variety	Low	High
Product life cycle	Long	Short
Customer drivers	Cost	Availability
Profit margin	Low	High
Order winner	Cost	Time, availability

Source: Christopher and Towill (2001: 208).

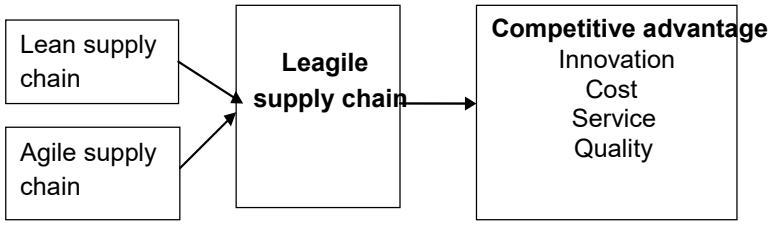

Figure 2. Achieving competitive advantage through a leagile supply chain.

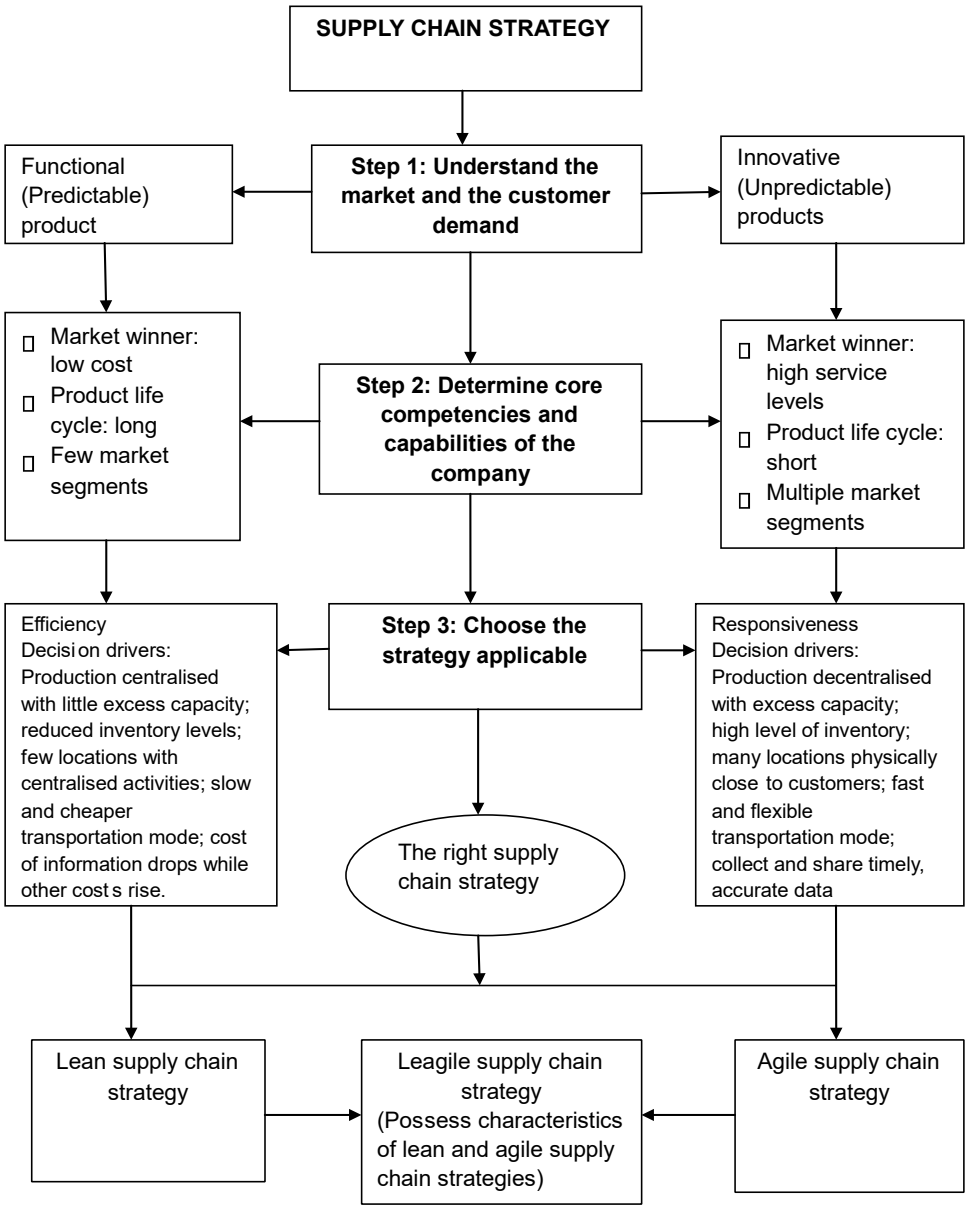

Figure 3. Framework for supply chain strategies.

CONCLUSION

In view of increased competition and complexities that constitute critical issues for automotive companies, supply chain management (SCM) is paramount to the success of the South African automotive industry. The purpose of this article was firstly to examine SCM challenges with specific reference to the South African automotive industry and secondly to suggest a comprehensive framework to help supply chain managers choose their supply chain strategies. The article, which is based on a theoretical analytical review of related literature,

reviews SCM in the South African automotive industry, supply chain strategies, and different approaches for differentiating supply chain strategies.

The literature review reveals that the South African automotive industry faces great supply chain challenges. Adding to the disarray faced by the South African automotive industry is pressure by OEMs to reduce prices, excessive inventory, the unreliability of rail transport and rail capacity problems and the high cost of South African ports. There is clearly a need for the South African automotive industry manufacturers to produce at a competitive cost and to have the ability to respond quickly and reliably to first-world market demands (Ambe and Badenhorst-Weiss, 2011). The article articulates that supply chain challenges in the South African automotive industry stem from the external environment, the customers, competition and the automotive industry.

Challenges in the supply chain can occur as a result of a mismatch in the application of supply chain strategies. As indicated by Fisher (1997), the root cause of the problems plaguing many supply chains is a mismatch between types of environmental uncertainty and supply chain strategy (Lee, 2002; Hines, 2006). Therefore, it is important for supply chain managers to understand how to choose the right strategy for the supply chain to satisfy customer demands. It is believed that by implementing the right supply chain strategy, managers will be able to improve SCM performance (Christopher et al., 2004).

The article concludes by suggesting a framework for chosen supply chain strategies. The framework is made up of three steps: the first step is to understand the markets and the nature of customer demand, the second step is to define the strengths or core competencies and capabilities of the company and the third step is to choose the strategy applicable to the product. The framework will help to ensure that strategies in the supply chain are chosen in a manner that will satisfy customer demand and match to the business strategies. The limitation of the framework suggested in this article is that it is still to be tested for its applicability in the industry.

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