Some Common and Fundamental Characteristics of Four Supply Chain Strategies – Customization, Leagility, Postponement and Segmentation

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Abstract

Balancing efficiency and responsiveness has been identified as an overall challenge for decision makers in supply chain management. The literature offers several strategies for managing this balance challenge. From a decision-making perspective this is a significant contribution but in combination the strategies also result in complexity related to the different alternatives offered. This study does, however, show that the strategies share a common foundation in terms of content related to decoupling thinking, which is based on flow discontinuities. Using the strategies' individual strengths, a process is outlined that takes advantage of these strengths through a four-phase ongoing process.

Keywords: Supply chain strategy, decoupling point, strategic lead-time

Introduction

A business strategy is a *'plan for choosing how to compete'* (APICS, 2016, p. 22), or in other words, it provides a baseline for a company's competitive strategy. The competitive strategy is crucial as it represents the essentials of how a company intends to create a competitive advantage in terms of the set of customer needs that it seeks to satisfy through its products (Blackstone Jr., 2013; Chopra and Meindl, 2013). To realize the competitive strategy it is crucial that the company's supply chain strategy is aligned with the business strategy, and designed around aforementioned customer needs (Chopra and Meindl, 2013; Christopher et al., 2006; Hines, 2004; Hull, 2005) to support the *market-winner* or *order-winner* criterion for the product or product family (Christopher and Towill, 2001, 2002; Hill and Hill, 2009; Hill, 2000). For instance, if cost is the primary order-winner, the emphasis should be on efficiency (i.e. doing things right), reducing cost (Ambe and Badenhorst-Weiss, 2011). As an alternative, to the supply aspect of cost efficiency, the competitive advantage may also be established by focusing on the revenue side by being responsive to customer requirements in terms of e.g. short delivery lead-time (Chopra and Meindl, 2013) or the ability to offer customized products (Da Silveira et al., 2001; McCarthy, 2004), sometimes also referred to as being effective (i.e. doing the right things) (Drucker, 1999). In practice the cost and revenue sides must be balanced, and a supply chain strategy should therefore target how to establish a competitive balance between efficiency (i.e. cost based) and responsiveness (i.e. revenue based). The balance between efficiency and responsiveness is significant at company level but to be operational the

concept must be applied on an entity in a context that is homogenous with well-defined preconditions. Each such entity is based on specific market requirements on the balance. To disintegrate the business in such entities is referred to as *segmentation,* since it is based on segmentation of the market as well as the actual supply. The segmentation strategy provides a platform for flow analysis and may be used for segmenting the market based on type of product (e.g. standard vs. customized), customer demand (i.e. order-winner and order-qualifiers) or the process (e.g. efficient vs. responsive) (Fuller et al., 1993).

As a result of segmentation, a set of different flows is identified where each flow has specific flow characteristics (Ghosh et al., 2018). The characteristics involve the type of activities in the flow but even more fundamental is the actual trigger, or driver, of activities since without driver an activity would remain passive. From a flow system perspective, the driver may be endogenous to the flow meaning that for example expectations drives the flow. During such conditions levelling and standardization are more prevalent, in line with a lean approach. On the contrary, exogenous drivers are related to e.g. customer requirements which require a more agile approach. The *leagility* strategy is a combination of such approaches, combining lean and agile flows. This strategy was developed explicitly to handle the aforementioned challenge of balancing efficiency and responsiveness (Naylor et al., 1999). This strategy also concerns the need for customizations, indicating that the point of product differentiation should be performed in the responsive part of the supply chain (Naylor et al., 1999). However, the leagility strategy is focused on where the customization can be performed rather than the details of how the actual customization is performed. This property is more specifically targeted by the *customization* strategy. Through this strategy both customized and individualized solutions are emphasized (McCarthy, 2004). The core theme is how to target individual customers with unique offerings as reflected in the product. Traditionally customization has focused on the physical product and how it can be adapted to customer requirements. Neither one of the strategies above do, however, reflect the physical transformations taking place in terms of manufacturing or distribution. This is also referred to as transformations of either form type or place type being performed. Here *postponement* also adds a dynamic aspect of supply chain design as it emphasizes that the supply chain as such must adapt to changes in the preconditions. Postponement is frequently discussed in relation to the balancing capability due to its ability to reduce the risk and uncertainty costs associated with the differentiation of goods (Moradlou and Backhouse, 2016; Van Hoek, 2001; Yang and Yang, 2010, and others). The logic behind postponement is to delay form, place and time transforming activities in the supply chain until customer orders information is received (Van Hoek, 2001; Wang et al., 2003; Yang et al., 2005), thus improving the quality of decision making (Yang et al., 2005) and reducing the need for reversibility.

From the discussion above it can be concluded that the four supply chain strategies presented have different strengths and weaknesses. It could also be argued that it is of importance for managers to understand when different supply chain strategies are appropriate to use, and how they can be combined to fulfil the business strategy. Above we have outlined how these four strategies complement each other but more details are required to actually understand the potential benefits of a more holistic view of these strategies, and potentially also suggest how they can be integrated. The purpose is therefore to identify a common foundation that highlights how the four supply chain strategies support the strive to balance efficiency and responsiveness. In this regard, two research questions (RQ) are stated:

RQ1: What are the content and key components of the foundation?

RQ2: How can the foundation be operationalized into a process?

Research design

In this study, a combination of a traditional structured literature review and analytical conceptual research (see e.g. Wacker, 1998) have been used. Even though the analytical work to some extent was performed in parallel with the literature searches, the study can be divided into two main phases. In the first phase, a literature reviews on the four supply chain strategies was performed. Literature reviews presents good insights to, and summaries of, specific subjects. Searching for literature reviews on the different supply chain strategies was therefore seen as a good way for acquiring the content and key components needed for the foundation. The databases *Thomson Reuters Web of Science* and *Elsevier Scopus* were queried, where e.g. the search string for customization was ((customization OR customisation) AND (review)). The search strings used for the other supply chain strategies were structured using the same logic, i.e. ((<the name of the supply chain strategy> OR <alternative spellings>) AND (review)). The reason for using "review" instead of "literature review", was that some literature reviews did not include the word "literature" in combination with "review", which would result in them beeing excluded. The searches were also limited to articles using the English language. For each supply chain strategy, 4-10 literature reviews were selected by reading the abstracts of the articles found during the queries. These literature reviews have also been used for reference snowballing back and forth, to see which literature have been cited and who have cited them. This approach gave both the novel sources as well as more recent papers. The snowballing back and forth ended when saturation was reached.

In the second phase, the theoretical framework was used to describe the content and key component as well as the relation to decoupling thinking (i.e. the foundation). Then, using the theoretical framework, a process to operationalise the foundation was developed by means of analytical conceptual research.

Theoretical framework

The theoretical framework covers both the four targeted supply chain strategies and an outline of decoupling thinking, as it constitutes a foundation for the strategies.

Segmentation

Segmentation is based on the logic on differentiation of companies. Companies that deliver a wide range of products to a wide range of customers with different requirements cannot fulfil all customers' requirements with one standard market offer and one supply chain (i.e. flow) (Hilletofth, 2009; Van der Veeken and Rutten, 1998). Customers demanding customized or even individualized products may be underserved, while customers demanding standardized products may be overcharged, or that some customers are given a higher logistics service compared to the turnover they generate (Thomas, 2012). The goal is to organize the business to compete across the span of the company's markets without having to overcharge some customers or underserve others (Fuller et al., 1993). Here Shaikh et al. (2017) and Ghosh et al. (2018) offers a segmentation classification, stating that the segmentation should be based on channel (i.e. process), customer and/or product profiles. The defined market segments and product ranges can then be used to differentiate the offers based on the market requirements (Perez, 2013; Towill and Christopher, 2002), i.e. order-winners and order-qualifiers (Hill and Hill, 2009).

Leagility

The lean and agile strategies have been combined in different ways and one of the most referenced combinations is the leagile strategy (Banerjee et al., 2012). Leagility was introduced by Naylor et al. (1999) and is a combination of the lean and agile within a total supply chain, where the customer order decoupling point (CODP) is to be positioned to best suit the need for responding to a volatile demand downstream yet providing level scheduling upstream (Mason-Jones et al., 2000a; Naylor et al., 1999). The general idea with the leagility strategy, from a material flow perspective, is to use a lean strategy up to the CODP and an agile strategy beyond (Christopher and Towill, 2000; Mason-Jones et al., 2000a, 2000b), where the CODP acts as a buffer (Naylor et al., 1999). Lead-time minimization is important for both lean and agile, but for two different reasons (Mason-Jones et al., 2000a). Within an agile supply chain, in particularly the delivery lead-time (D) must be minimized for companies to quickly respond to highly volatile market demands, both in terms of volume and variety (i.e. mix) (Christopher and Towill, 2000, 2001; Mason-Jones et al., 2000a; Naylor et al., 1999). In lean, however, the total supply lead-time (S) is minimized since excess time per definition is waste (i.e. not value adding) and leanness calls for elimination of all waste to ensure levelled production (Christopher and Towill, 2000, 2002). As the demand is stable and predictable upstream of the CODP and volatile and variable downstream, this would indicate that the point of product differentiation is made downstream of the CODP (Naylor et al., 1999).

Customization

The meaning of the word *customize* is, according to Merriam-Webster (2018), *"to build, fit, or alter according to individual specifications".* Consequently, a customization could vary from a simple modification of a standard product, all the way to a complete individualized and bespoke (i.e. one of a kind) product. The point in which the customizations are made have been referred to as the *point of differentiation* (e.g. Garg and Tang, 1997; Tang, 2006) or the *point of product differentiation* (e.g. Childerhouse and Towill, 2000; García-Dastugue and Lambert, 2007; Mason-Jones and Towill, 1999; Naylor et al., 1999; Nieuwenhuis and Katsifou, 2015). Deciding on the point of customer involvement is crucial because of the constraints it has on the ability to make customizations (Squire et al., 2006). The further downstream the product flows the production process, the more constrained the customization options become. For example, at the design and fabrication stage a product can be highly customized, but at the time the product reaches the assemble stage the customization ability is constrained by for instance the products component sizes and interfaces (Squire et al., 2006). Using e.g. Lampel and Mintzbergs' (1996) typology, pure standardization leaves no room for customizations to be made, whereas pure customization means that customer unique requirements can be meet. Pure customization involves significant competitive benefits through highly individualized products, but to a high operational cost. On the contrary, pure standardization allows for shorter D and large economics of scale, but offers customers no scope for customization (Coronado et al., 2004; Da Silveira et al., 2001; Squire et al., 2006).

Postponement/preponement

Postponement was initially introduced in the marketing literature by Alderson (1950) as an approach to reducing the risk and uncertainty costs associated with the differentiation of goods (Ferreira et al., 2015; Moradlou and Backhouse, 2016; Pagh and Cooper, 1998; Van Hoek, 2001; Yang and Yang, 2010, and others). The concept is based on substitutability (Bucklin, 1965; Christopher, 2000; Yang et al., 2005; Yang et al., 2007), where the logic is to delay activities in the supply chain until customer order information

is received (Van Hoek, 2001; Yang et al., 2005), thus improving the quality of decision making (Yang et al., 2005) and reducing the need for reversibility. Postponement can therefore be seen as a strategic instrument to manage risk associated with product variety and uncertainty (Aviv and Federgruen, 2001). In analogy with the concept of postponement, decisions may also be made earlier in the flow and this has been referred to as preponement (Blackburn et al., 2004), but is not as common in the literature. For many kinds of products, the individual customer's demand is unique, especially when taking into consideration for instance; basic use, special features, colours, size and place of purchase (Alderson, 1950, 2006). However, products belonging to the same product family usually share common components and/or processes, meaning that these products, in their initial stages of production, are in a common (i.e. generic) form and place. It is not until specialized components are inserted and/or special processes are performed, that the product progressively are differentiated/customized into specific end-products (Garg and Tang, 1997). Hence, each step that is taken to differentiate the product based on speculation involves a certain marketing risk (Alderson, 1950), i.e. risk and uncertainty costs tied to the differentiation of the good (Bucklin, 1965; Yang et al., 2005). The closer to the point of consumer purchase, the more differentiated the product/offering becomes, meaning that every differentiation which makes it more suitable for a specific market-segment/customer makes it less suitable for other segments/customers, thereby reducing potential customers (Alderson, 1950, 2006).

Decoupling thinking

The concept of *decoupling thinking*, as used in this paper, concerns the positioning of decoupling points and is made up of *strategic lead-times (SLT)* and *strategic decoupling points (SDP)*.

A lead-time commonly represents *"a span of time required to perform a process"* (Blackstone Jr., 2013, p. 90) and is a general concept. The subset of the lead-times that are of particular interest from a demand or a supply perspective, with significant implications for financial performance, is here referred to as a SLT. A key characteristic is that a SLT is based on the boundary of the system and related to the positioning of a SDP (Wikner, 2014). Four types of SLTs are in focus here, grouped into risk-based and variant-based categories (Wikner, 2015).

The two risk-based SLTs are related to demand-based risk, and the amount of speculation that is required (Wikner, 2015; Wikner, 2018). The *delivery lead-time* (D) corresponds to the customer's requested delivery lead-time, whereas the *supply lead-time* (S) is the cumulative lead-time of the supply system. The ratio between these two lead-times is termed the D:S ratio (Wikner, 2014) and can be seen as the D:P ratio introduced by Shingo (see Shingo and Dillon, 1989, originally published in 1981).

The two variant-based SLTs are then related to when demand or supply provides a basis for variants (Wikner, 2015). *Adapt lead-time – supply-based* (A_S) corresponds to the lead-time downstream from where it is possible to make variants. There could, therefore, be multiple A_S in a bill-of-materials (Wikner, 2014). When comparing these A_S with the D, it is possible to identify the subset that can be used for customer-order-unique offerings. The point of customization finally selected is then related to the *adapt lead-time – demand-based* (A_D), which is the subset of A_Ss that can be used for customer-order-unique offerings (i.e. within D).

When the definition of SLTs was presented above, it was stated that a SLT is related to the positioning of a SDP. A SDP is a point where materials are given a unique identifier (e.g. item number or part number), as well as a point that play a role of critical importance to the interface of the supply system and its context (Wikner and Johansson, 2015). Two

of these SDPs are the customer order decoupling point (CODP) and the customer adaptation decoupling point (CADP). The CODP is defined as the point that *"separates decisions about initiating flow based on speculation [(i.e. forecast-driven)] for future customer orders from commitment from actual customer orders [(i.e. customer-order-driven)]"* (Wikner, 2014, p. 194). However, in reality a product usually consists of many parts and components (Hoekstra and Romme, 1992; Sun et al., 2008). When looking into the bill-of-materials for a product the CODP may penetrate the physical material flow at different places but based on D, resulting in what Sun et al. (2008) terms multiple CODPs, and are e.g. when each individual product or product/market combination generates multiple CODPs (see e.g. Shidpour et al., 2014; Verdouw et al., 2008).

The CODP does not, however, take into consideration when or where an adaptation is made to the product. Wikner (2011, 2014), therefore, introduced the CADP, which is defined as the point that *"separates decisions about differentiating flow based on standardisation for a market of different customers from adaptation against actual customer orders"* (Wikner, 2014, p. 196). Since customizations are made according to customer requirements, the CADP has to coincide with, or be located downstream of the CODP in order for the provider to know what the customer's requirements are (Bäckstrand, 2012; Olhager and Östlund, 1990).

Content of the decoupling thinking framework

The strategies have many different characteristics, but the focus here is on the common foundation of decoupling thinking rather than other aspects that may differ between the strategies. More details of these relations are outlined below.

Segmentation and decoupling thinking

The segmentation categories presented by Shaikh et al. (2017) and Ghosh et al. (2018), are similar to the ones given by Hoekstra and Romme (1992) and Olhager (2003) in the decoupling point literature. They argue that depending on the market (i.e. customer), product, and production/process (i.e. channel) characteristics, a company needs to determine where the CODP should be positioned for each product-market combination or product group. Hence, by segmenting the market, differentiating and customizing the offerings to customers, the positioning of the optimum CODP may differ between different product-market combinations (Hilletofth, 2009; Hoekstra and Romme, 1992; Thomas, 2012) and/or products (Hoekstra and Romme, 1992; Shidpour et al., 2014). This established phenomenon can be seen as what is known as multiple CODPs (see e.g. Shidpour et al., 2014; Verdouw et al., 2008). The CODP (i.e. the flow driver) is hence directly related to segmentation, where the positioning of the CODP/-s have impact on the D that may be offered to the customers (Olhager, 2003). It will also have indirect implications on the D:S ratio (Wikner, 2014) (which in a way is stating the proportion of the flow emphasizing efficiency in relation to the proportion of the flow with focus on being responsive), as well as the constraint the CODP has on the ability of offering customizations (Olhager and Östlund, 1990; Squire et al., 2006), i.e. the positioning of the CADP. Segmentation therefore concerns the positioning of the SDPs but the actual organization based on the SDPs are more thoroughly covered by the leagility and customization strategies.

Leagility and decoupling thinking

Legality is about combining the lean and agile strategies into a hybrid supply chain strategy, where the CODP should be positioned to best suit the need for efficiency and/or responsiveness (Mason-Jones et al., 2000a). Hence, the CODP is a pivotal point in

leagility, where it is used to divide the total flow in an efficient and a responsive part. The CODP is even used by many scholars to define or describe the leagility strategy (e.g. Christopher and Towill, 2000; Mason-Jones et al., 2000a, 2000b; Naylor et al., 1999), further emphasizing its importance for the strategy. Additionally, lead-time is important in both an efficient flow and a responsive flow, but for two different reasons (Mason-Jones et al., 2000a). An efficient flow should be used when; the demand is; stable in both volume and variety, volume is high, variety is low, and/or there is a requirement for cost efficiency (Mason-Jones et al., 2000a; Naylor et al., 1999). Here the S should be minimised in order to reduce waste and excessive time (Naylor et al., 1999), which in turn often leads to better productivity and reduced manufacturing costs (Towill, 1996). A responsive flow should instead be used when; the demand is volatile in both volume and variety, volume is low, variety is high and/or there is a requirement for flexibility and availability (Christopher and Towill, 2002; Naylor et al., 1999). Here, in particularly, the D must be minimized to enable quick response and exploit market demands (Christopher and Towill, 2000, 2001, 2002; Mason-Jones et al., 2000a; Olhager, 2003).

Customization and decoupling thinking

The point where a customization is made have been termed the point of product differentiation by many scholars (e.g. Childerhouse and Towill, 2000; Mason-Jones and Towill, 1999; Naylor et al., 1999; Nieuwenhuis and Katsifou, 2015) and can be conceptualized as the CADP (Wikner and Bäckstrand, 2018). Deciding on the positioning of the customer involvement (i.e. the CODP) in the supply chain is crucial because of the constraints it has on what type of customizations that can be made and where (i.e. the CADP). The further downstream the supply chain the CADP is positioned, the more constrained the customization options become, due to for instance component sizes and interfaces (Squire et al., 2006). Full customization, for instance, means significant competitive benefits due to that customers' unique requirements can be meet. However, this assumes that customers are insensitive to cost and longer D. Standard product on the other hand leave no room for customizations, but allows for shorter D (Coronado et al., 2004; Da Silveira et al., 2001; Squire et al., 2006).

Postponement/preponement and decoupling thinking

The logic behind postponement is to improve decision making and reduce the need for reversibility, by delaying activities and the CADP in the supply chain until customer order information is received (Van Hoek, 2001; Wang et al., 2003; Yang et al., 2005), thereby reducing risk and uncertainty costs tied to the differentiation of goods (Alderson, 1950; Bucklin, 1965; Yang et al., 2005). From this perspective the CADP should be postponed as far downstream as possible (Yang et al., 2004). This allows for also repositioning the CODP downstream, which would result in a greater flexibility and responsiveness (i.e. a reduced A_D and D) by keeping products generic for a longer time period and only customizing products when customer order information is available (Yang et al., 2004). Contrarily, preponement (Blackburn et al., 2004) would instead lead the repositioning of the CODP upstream, resulting in a longer D, which also allows for a longer A_D and the opportunity to offer more customer-order-unique offerings (i.e. more A_s might end up within D) (Olhager and Östlund, 1990; Squire et al., 2006).

Summary of the four supply chain strategies and decoupling thinking

The four supply chain strategies all support the overall goal of balancing efficiency with responsiveness where decoupling thinking is identified as a common foundation. The supply chain strategies do however focus on different aspects of this balancing and can basically be categorized in four groups with different emphasis. Segmentation is

especially targeting the identification of flows with homogenous characteristics. Leagility have focus on the driver of the flow. Customization emphasises how the customer offering is made unique. Postponement/Preponement finally is, as the name indicates, a strategy of particular interest for making innovative changes to the flow.

Process of the decoupling thinking framework

The content of the relation to decoupling thinking merely outlines the building blocks but without any information on how they should be used. The process outlined below complements the content and is intended to provide a holistic perspective on how to employ the four supply chain strategies. The point of departure is the identification of the flows followed by flow design and the consequent enactment of the flows which may over time require innovation to be applied. Figure 1 illustrates the four phases of the process that are based on this logical relation between the strategies. From a literature perspective each strategy would to some extent cover all four phases. But, here each strategy is identified with the phase where the literature on the strategy provides the major contribution. The sequencing of the phases is based on that a segmentation from a decoupling perspective initially does not exist, at least not explicitly articulated. At first sight the process might seem as a linear process of four phases, but it should be managed as an ongoing process, somewhat similar to a Deming cycle or PDCA-cycle (i.e. a Plan, Do, Check, Act -cycle). Depending on the initial situation the starting point might be either phase 1, in case an initial segmentation is required, or phase 3, in case a decoupling-based segmentation is already in place. When required, the fourth phase is involved where the repositioning of decoupling points may lead to an updated design (i.e. phase 2a and/or 2b) or, if necessary, a new segmentation (i.e. phase 1), indicated by the two down-arrows on the right in Figure 1.

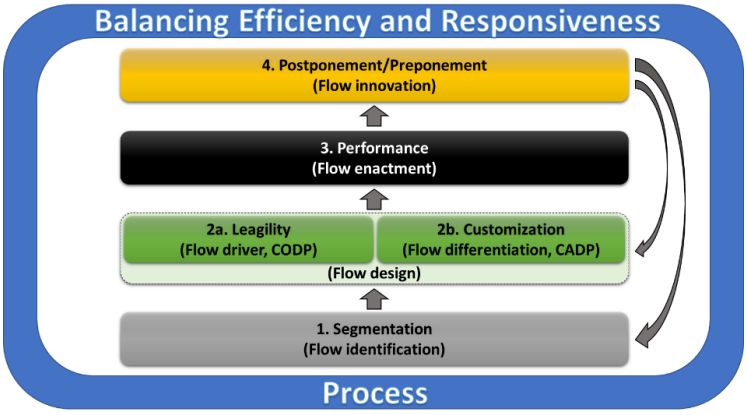

Figure 1 – The process of decoupling thinking in terms of the four supply chain strategies supporting the balancing of efficiency and responsiveness

Phase 1 – Identify the flows based on customers, products and/or processes

Before designing or redesigning a supply chain, companies need to understand their customer, product and process characteristics, in order to develop market segments (Ghosh et al., 2018; Shaikh et al., 2017). Here the segmentation strategy can be used to create segments in order to organise the business to compete across the span of the company´s markets without having to overcharge some customers or underserve others (Fuller et al., 1993; Sharma and Lambert, 1994). This is deciding on the positions of SDPs for the different flows. Practical examples of these are e.g. differentiated inventory policies, differentiated allocation and order promising, and differentiated supplier bases

(Thomas, 2012). In short, it provides the necessary preconditions for a flow-based approach originating in flows with homogenous characteristics.

Phase 2a and 2b – Design the flows, balancing efficiency and responsiveness
Once the homogenous flows are identified the focus can shift to how the appropriate balance between efficiency and responsiveness is implemented. This is the objective of the second phase, which is divided into the two sub-phases 2a and 2b. In phase 2a, based on the market demand and need for volume-flexibility, the strategy of legality can assist in helping to balance this need for cost efficiency and/or responsiveness (Naylor et al., 1999). In phase 2b, the question of mix-flexibility and offering customizations, is covered by the strategy customization. Note, phases 2a and 2b are here described as conducted in sequence, however, in reality an iteration between these two sub-phases might be necessary.

Phase 3 – Enact the flows for financial return
Once the flow is designed and ready the next phase, phase 3 in the process, represents how the implementation is used when operating the system. The positioning of the SDPs (phase 1) and the design of the flow in relation to the SDPs (phase 2) represent the foundation for operating the flows. The new design is enacted to provide financial returns (phase 3). When the preconditions change it might be necessary to also introduce some changes in the actual design and the first step is to revaluate the positioning of the SDPs (phase 4) and in that sense, innovate the flows in response to these new preconditions.

Phase 4 – Innovate the flows to prepare for a new balance
During enactment some misalignments may be identified which will require a realignment between supply and demand. Changes in e.g. demand may have altered the competitive priorities or the supply system may have changed for other reasons which may not have changed the balance as such. However, since the business conditions are constantly changing, it is important to note that segmentation analysis needs to be updated over time, and not treated as a "one-off" exercise (Ghosh et al., 2018). The fourth and final phase therefore uses a dynamic perspective as it provides the change of the flow that may have origin in changes in the market or in new opportunities on the supply side.

Conclusions and further research

Supply chain strategies provide frameworks for decision making, and at the same time they are inherently based on the value-adding flow through the supply chain. This flow is the generator of profits for all partners in the supply chain, either directly as for manufacturers or distributors, or indirectly for e.g. service providers supporting these direct actors. A flow is however rarely swift and even. Despite the intentions of creating continuous flow, it is rarely possible due to changing preconditions along the flow, where there are discontinuities related to SDPs. These discontinuities are challenging for managers to handle, deciding on how to balance the strive for cost efficiency with being responsive to the customers. It is therefore logical that the supply chain strategies share a common foundation in decoupling thinking where the supply chain strategies represent a physical perspective and decoupling thinking a foundation in terms of a logical perspective (Wikner, 2014). Decoupling thinking therefore represents a common content of the supply chain strategies. To make the content operational an integrated supply chain strategy process is suggested, where the strengths of each of the four supply chain strategies are leveraged.

Theoretical implications

Identifying decoupling thinking as an intersection between the four supply chain strategies represents a theoretical development in that a common foundation for the four supply chain strategies is identified. The theoretical implications are therefore mainly related to two contributions in line with the two initial RQs raised. First it is shown that decoupling thinking represents a common foundation, in terms of content, for the four supply chain strategies. They are all based on key aspects of decoupling thinking, even if the terminology used differs between the strategies. Second, it is shown how the strengths of each supply chain strategy can be exploited to create a common process for creating and maintaining a balance between efficiency and responsiveness. In short, the suggested process is emphasizing the significance of careful positioning and repositioning of SDPs for maintained competitiveness, and as a consequence also long-term profitability.

Managerial implications

The contribution in terms of managerial implications are mainly twofold. First the core in terms of decoupling thinking highlights the cause-effect relation for different decisions suggested by the four supply chain strategies making them more comprehensible. Second the application of the supply chain strategies is supported by the suggested process that highlights which supply chain strategies provide most support in each of the different phases. Applying all four strategies simultaneously would be overwhelming, but the four-phased process enables true synergy between the four supply chain strategies by emphasising the strategy that is particularly suited for each phase.

Further research or directions for further research

The framework for a generic process provides a multitude of opportunities for further research. From a theoretical perspective the approach can both be extended in terms of aspects to include, such as transparency, servitization and outsourcing, but also on providing more detailed knowledge on the implications of the different supply chain strategies and their intersection in terms of decoupling thinking. From a managerial perspective, the process is a good starting point, but requires further details to make it easier to apply. It would therefore be valuable to investigate the application in practice of the process through e.g. case studies, that can provide more information on how such an integrative approach can improve competitiveness, and as a consequence also increase profitability.

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