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**CUSTOMIZATION OF SUPPLY CHAIN IN AN ERA OF  
GLOCALIZATION: STRATEGY FOR BORN GLOBAL FIRMS**

**Master's Thesis - July 2017**

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## **ABSTRACT**

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The surge of sovereign nations and the regionalization of global interactions emphasize the need to reconcile local considerations with global ambitions. The 21<sup>st</sup> century has been characterized as a period of turbulence and uncertainty which highlights the necessity for companies to develop flexible business processes when venturing new markets. In addition, the transition of value creation from an individual perspective to a collective point of view disrupts the configuration of organizational relationships. In such an environment, the design of supply chain strategies based on categorical types is not enough. Hence, a deeper level of analysis is required to capture supply interactions in more detail. The purpose of this research is to identify the formulation process of a customized supply chain strategy for born global firms in an era of 'glocalization'. The shift toward collaborative relationships redefines the role of companies in value creation. Mobilizing customers, suppliers and institutions to create value should be at the center of attention at all organizational and geographical levels. Therefore, key resources and core competencies should promote the value proposition of an organization as a value co-creation opportunity to manage external stakeholders at a local, regional and global levels. This is achieved by identifying the right hybrid modes of governance for managing the different types of joint transactions within and beyond a supply chain. Moreover, a dynamic power positioning approach to sourcing practices facilitates the adjustment of relationships over time. The study is organized around a qualitative design and a descriptive holistic single-case study. A conceptual framework derived from academic publications, thematic books and reports from institutional archives provides a guideline for collecting empirical evidence. Data has been collected through online questionnaires and analyzed in accordance with existing models.

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## **List of symbols and abbreviations**

**BG: Born Global**

**CSAR: Conceptual System Assessment and Reformulation**

**FSM: Functional Strategy Map**

**ICT: Information and Communications Technology**

**KM: Knowledge Management**

**ONA: Organizational Network Analysis**

**RBV: Resource Based-View**

**SC: Supply Chain**

**SCM: Supply Chain Management**

**SCN: Supply Chain Network**

**SME: Small and Medium-sized Enterprise**

**TCE: Transaction Cost Economics**

**VC: Value Chain**

**VN: Value Net**



# 1 INTRODUCTION

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“It is certain that nothing has a price among men except pleasure and that only satisfactions are purchased” (Galvani 1751).

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Political changes in the Western world (Brexit referendum and US presidential election), as well as the reconfiguration of the global transport network (One belt and one road initiative), raise the importance of understanding the future of globalization and its impact on supply management. Since 2008 and the financial meltdown, citizens of developed countries feel excluded from the global economy. In June 2016, the United Kingdom’s (UK) voted for withdrawing from the European Union (EU) while in January 2017 President Trump took up office as the 45<sup>th</sup> president of the United States (US). These two major political events marked a turning point in the history of globalization while wealth inequality and migratory movements being of the two most significant characteristics threatening globalism as we know it today (O’Sullivan & Subramanian 2017). The combination of protectionist policies and reconfiguration of global supply chain network (SCN) give to the ‘think global, act local’ view of supply management a strategic importance. The company under study is considered as a born global (BG) firm due to the formulation of clear milestones early on to support cross border transactions of goods and services. This approach is modifying the interactions taking place in global trade and is affecting the structure of value systems at several geographical levels. Identifying the formulation process of SC strategies that match such circumstances are of keen interest in providing managerial contributions in the 21<sup>st</sup> century.

The topic of the thesis was chosen during the internationalization of the case company in North America. At this occasion, the headline “*going global*” of a popular online media was an opportunity to clarify the misunderstandings about the term ‘globalization’. Operating in two Nordic countries and building a subsidiary in North America does not describe the attributes of a global firm. The internationalization of the case company was also an occasion to be more specific about expanding business activities beyond the boundaries of its home market. The study describes the subtleties of internationalization processes through the lens of glocalization and provides insights into supply chain (SC) strategy design for the so-called BG firms.

## 1.1 Research Problem and Objectives

The research focuses on identifying the formulation process required to develop a tailored SC strategy in a context of international trade. Hence, characterizing the interactions between internal and external stakeholders of the commissioner as well as capturing the essence of its SC strategy are crucial to understand the strategic stakes of local and global supply needs in an era of turbulence. The research problem originated during the expansion of the case company outside of its domestic market to North America. This major step, increased interests of managing local needs in a global context. The target of the study is to provide a comprehensive conceptual framework that considers local environments into global scalability. The elements forming such framework are derived from the main research question:

- What is the formulation process of a customized SC strategy for BG firms in an era of glocalization?

The study sheds light on the necessity to adopt a differentiated SC strategy to the various and changing environment that characterizes global trade. The surge of sovereign nations and the regionalization of global interactions emphasize the necessity to reconcile local considerations and global ambitions. A guideline for the investigation is provided with the following sub-questions:

- What are the characteristics of existing SC strategies?

The question identifies lean, agile, leagile, hybrid and articulated strategies as the existing SC solutions in use. Chapter four presents the characteristics of each strategy and provide a guideline towards their implementation. Being able to seize the fundamentals of such approaches facilitates the identification of the right elements that support the differentiation of SC strategies. The notion of SC customization used in this thesis is in line with the notion developed by Perez-Franco (2016) that highlights the opposition between ‘categorization and articulation,’ ‘type-based and specific,’ ‘best practices and tailored practices,’ and ‘external and internal wisdom.’

- What are the characteristics of glocalization?

The 21<sup>st</sup> century is characterized as an era of turbulence and uncertainty (2011) which supports the transition from a global perspective to glocal reality. In such an environment, understanding the concept of customer centricity and the importance to adapt supply chain management (SCM) to the notion of glocalization are crucial. The question highlights the requisite of a SC structure that combines the standardization of processes with responsive and flexible capabilities, in chapter five.

- What are the main elements used in SC strategy design?

The question is answered in chapter six where the core SC is presented as the foundation of its SCN and where the decoupling point is introduced as a solution to manage hybrid SC strategy. The former is related to the active members of the network while the latter is a method of production that relies on the design of generic modules or components. Finally, the steps toward the implementation of a differentiated SC strategy are identified and explained in detail.

## 1.2 Research Strategy

Acquiring knowledge about SC strategy customization is done through a descriptive research method. Exploring future SC opportunities and existing internal processes from a local and a global context provides insights into the nature of a differentiated SC strategy. The first part of the research focuses on the conceptual framework illustrated in figure 3 which is derived from academic publications, thematic books and reports from institutional archives. The second part relies on empirical evidences such as the acquisition of information through observations. Overall the study is structured around a qualitative design and a case study approach which focuses on the members of the core SC under study. The literature review identified SC differentiation as a relatively new line of research in coordinating global strategies with local practices of business organizations. Hence, the study of differentiated SC strategy is done through the lenses of a descriptive holistic single-case study, as can be seen in figure 2.

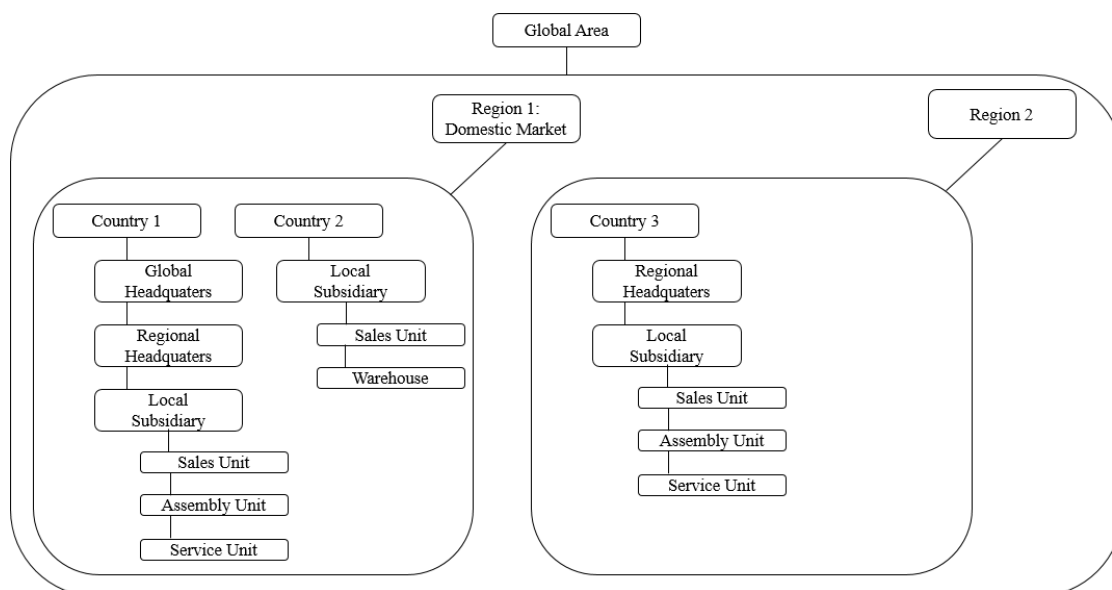


Figure 1. Geographic organization of the case company.

The case company is a Finnish startup specialized in improving indoor air quality at workplaces. The firm runs local operations in three countries located in Europe and North America. Each subsidiary is supported by two regional centers of operations while the global headquarters based in the Nordics acts as a coordinator, as illustrated in figure 1. The focus is put on internationalization and external relationships management as growth relies on new market entries and as the value proposition can only be delivered locally.

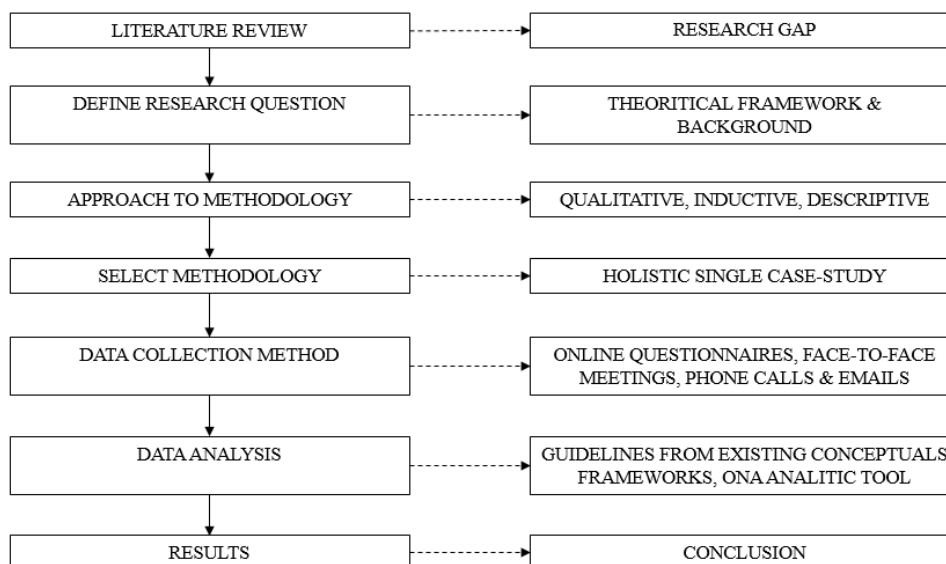


Figure 2. How to conduct a case study in supply management (adapted from Kähkönen 2011).

The case study is the core SC of the SCN which encompasses both internal and external stakeholders of the company. The core SC is identified and analyzed by investigating the

relationships within the firm and the interactions with external stakeholders. The company was identified as an appropriate case study due to its willingness to internationalize its operations quickly and the variety of its stakeholders. The main SC incorporates both local and global actors as well as analyzes the connections between all subsidiaries within the chain. Hence, studying the interactions between the case company, its customers and its suppliers can provide significant insight into the design of a differentiated SC strategy.

### 1.3 Data Collection and Analysis

In a first phase, data were collected during two meetings conducted at the office of the case company. During the first encounter, the needs of the commissioner were identified while the purpose of the second one was to collect complementary information. The study relies on data triangulation and gathers information from a manifold line of evidence as suggested by Yin (2003). Qualitative data are collected with the support of online questionnaires through the research software company Qualtrics. Open and closed ended questions are based on existing research covering the field of SCM. Also, internal documents and further data were shared via emails when the needs arose. In total, two face-to-face meetings, one appointment over the phone and 14 online questionnaires required the participation of 21 people.

The analysis of the data relies on existing conceptual frameworks derived from five articles about SCM and two templates available from online analytic tools, as showed in table 1. First, the research outlines the preliminary core SC by identifying the active members of the networks based on the organizational chart provided during the face-to-face meetings and electronic communications. Secondly, an estimation of the customer satisfaction level indicates that the value proposition of the case company is in line with the client's expectations. Thirdly, the product categorization analysis identifies functional and innovative products that are sold in the three countries. Moreover, an attempt to categorize customers into buying behaviors, countries, products and SC strategy is conducted. The degree of collaboration between the case company and its suppliers is identified through an examination of the portfolio of buyer-supplier relationships. Also, the sources of competitive advantages are examined in a resource and capability study with the aim of highlighting the key resources and the core competencies of the commissioner.

Table 1. Summary of data collection process.

<b>Type of Analysis</b>	<b>Conceptual Frameworks or Templates</b>	<b>Functional Areas</b>	<b>Data Collection</b>
Satisfaction of Customers	Template from Qualtrics	Marketing	Online Questionnaire
Categorization of Products	(Huang, Uppal & Shi 2002)	Operations	Online Questionnaires
Segmentation of Customers	(Hilletoft 2009)	Sales & Marketing	Online Questionnaire
Portfolio of Buyer-Supplier Relationships	(Cox 2015)	Operations	Online Questionnaire & Emails
Resources and Capabilities	(Hafeez, Zhang & Malak 2002)	Business & Organizational Development	Online Questionnaires & Emails
Characterization of the Supply Chain	(Perez-Franco, 2016)	Business & Organizational Development Operations	Online Questionnaires
Organizational Network Analysis	Template from Keynetiq	R&D Marketing & Sales Operations Business & Organizational Development	ONA Tool, Online Questionnaire & Phone Call

For the sake of greater clarity, the current SC strategy of the case company is identified based on its business mission statement and operational practices. Finally, the identification of the core SC is refined from an organizational network analysis (ONA) which distinguishes the active members from the inactive ones.

#### 1.4 Outline of the Thesis

The theoretical part highlights SC categorization and SC articulation as the two-main approaches toward the identification of SC strategies. It also emphasizes the vital importance of supplier relationships, core competencies and customer centricity in the formulation of SCs. This conceptual framework aims at offsetting the downsides of the 21<sup>st</sup> century described as an era of turbulence. The data generated from the empirical part are interpreted through the lens

of SC strategy which acts as the theoretical framework. Additionally, transaction cost economics (TCE), the resource based-view (RBV) and the value net (VN) complement the theoretical foundation, as can be seen in figure 3.

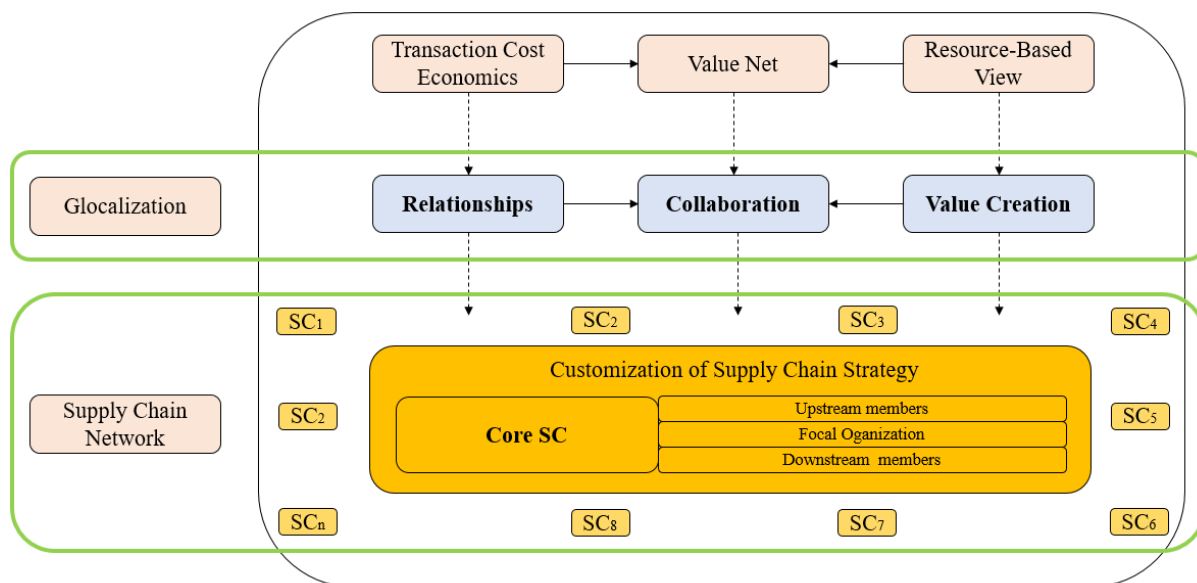


Figure 3. Conceptual framework of the research.

As illustrated in figure 4, the eight chapters of the thesis provides a guideline for BG firm interested in tailoring their SC strategy in a glocalization era. The research problem, objectives, research strategy, data collection, data analysis and the outline of the thesis are presented in the chapter introduction. The literature review and research gap are introduced in the chapter differentiated SC strategy. The third chapter presents the context of analysis by defining the concepts of strategy, BG firms and glocalization while the TCE, the RBV and the VN outline the characteristics of service SCM.

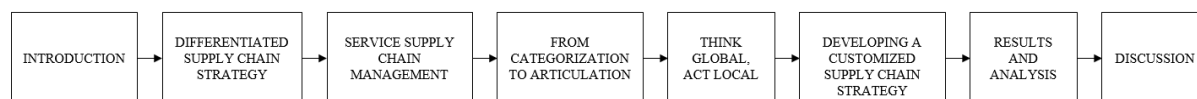


Figure 4. Structure of the thesis.

By describing the existing SC strategies, chapter four highlights the needs to shift from SC categorization to SC articulation. Chapter five identifies the 21<sup>st</sup> century as an era of turbulence and explains the transition from a global to glocal logic. This chapter also unveils the essential role of customers during the glocalization of SCs. Chapter six presents SC customization as a

lever for developing SC agility, adaptability and alignment simultaneously. The results and analysis of the empirical part are revealed in chapter seven. In this section, the evaluation of customer satisfaction, the products categorization and customers segmentation are underpinned. Moreover, the portfolio of buyer-supplier relationships just as the analysis of resources and capabilities are examined. An in-depth study of the roles and responsibilities of the SC members as well as their organizational relationships introduces the results of the ONA and the functional strategy map (FSM). The recommendations, conclusion, limitations of the thesis and suggestions for future research are grouped into the chapter discussion.



## 2 DIFFERENTIATED SUPPLY CHAIN STRATEGY

The shift from value chain (VC) to VN is only made possible by the adoption of a standardized definition of SCM among all SCN actors. This change of paradigm influences the formulation of a SC strategy by placing the needs of customers as the center of interactions. As a result, an organization must identify the unique configuration of SC elements that will optimize the delivery of the value proposition to its customers. Similarly, Perez-Franco (2016) promotes the transition from ‘categorization to articulation,’ ‘type-based to specific,’ ‘best practices to tailored practices,’ and ‘external to internal wisdom.’ Hence, the formulation of a contemporary SC strategy necessitates the adoption of differentiated solutions in SCM.

### 2.1 From Value Chain to Value Net

According to Mentzer, DeWitt, Keebler, Min, Nix, Smith & Zacharia (2001) a SC is “*a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source of customer.*” The role of SCM increased with the transfer of value creation from focal organizations to networks as this shift changed the nature of competition. The traditional source of competitive advantage emerged from the management and coordination of primary and secondary activities of a company (Porter 1985). The concept of value chain add value through a sequential set of activities within a single company. It evolved toward a management of connections between several firms where value creation takes place in business relationships, as showed in figure 5. The reconfiguration of the source of competitive advantage extends the role of stakeholders outside the boundaries of the firm and shed light on the benefit of collaboration. (Dyer 2000) Focusing on relationships between all actors involved in the production and distribution of a product or service to end-users supports the development of value systems (Porter 1985). Thus, organizations moved from arm’s length relationships with partners where competition takes place between individual entities to a management of integrated VCs forming a network. This reorganization of value creation forms a value system in which SCs compete with each other. (Christopher 2016) In such a configuration, coordination mechanisms and information systems are key determinants to plan activities on a joint and long-term perspective (Cooper & Ellram 1993).

SCs in competition focus on appropriating similar resources that are made limited due to the overlapping activities of several actors within a specific industry. Identifying such resources is essential to understand better the whys and wherefores of competition within SCs. Competition dynamics is changing over time and rivalry is likely to be more intense within the same industry. As several SCs share the same resources at some point in time. In other words, frictions can arise at any point of a SC and reemerge later on at a different node. The intensity of the competition depends on the degree of resource scarcity occurring at an overlapping point. As competition between SCs takes place when sharing limited resources, diversifying a supply strategy will reduce such struggle by providing alternatives. (Antai 2013)

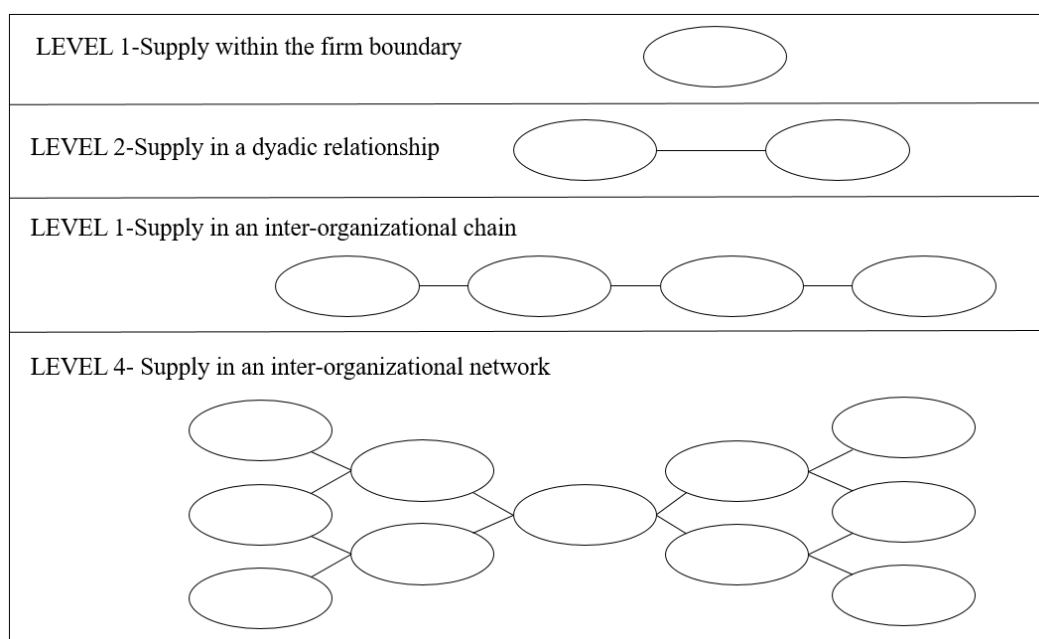


Figure 5. Shift from VC to VN (adapted from Harland 1996).

Over time, changes in the patterns of competition amount to adapting business processes to variation and availability of strategic supply in an industry. Keeping competition at low or at a manageable level in the long term requires deploying flexible mechanisms that are able to match market requirements and changes quickly. As “*a business-wide capability that embraces organizational structures, information systems, logistics processes and in particular, mindsets*” agility is an essential element of supply responsiveness (Christopher & Towill 2001). Whereas, the design of agile SC will offset the uncertainty occurring in the marketplace. An agile SC is market sensitive as it meets customer expectations in real time. Collecting data at the junction of suppliers and buyers is vital and requires the SC to be virtual and integrated. Process integration refers to the efficient use of shared information and relies on collaboration between

the different actors along the SC. Finally, the chain formed by SC members is one competitive entity rivaling for resources with other SCs. (Christopher 2000)

However, the SC as a rigid linear entity functioning in sequential stages faces challenges in responding to environmental changes and in creating added value in more complex configuration (Huemer 2006). Thereby, participants involved in a SC are required to link their supply strategy with each other in order to coordinate external and internal capabilities (Gattorna 1998). Another way to remediate to such limitations is made possible by enabling individual organizations to contribute to several networks. On the one hand, a SC manages simple and stable sequential flows of goods and data between its members. While, on the other hand, a SCN is a complex and unforeseeable web of SCs dealing with the coordination of relationships between organizations. In that sense, the main SC of the network constitutes the heart of the interactions between suppliers and buyers. Managing relationships of inoperative actors among the SCN increases its flexibility. (Braziotis, Bourlakis, Rogers, & Tannock 2013) By arguing that “*glocalization has hardly been made relevant to organization and management research*” Drori, Höllerer & Walgenbach (2014) emphasize the need to understand the relationships between subsidiaries and their headquarters.

This shift in paradigm focuses on “*value creation rather than value distribution, and facilitation and support of a value-creating process rather than simply distributing ready-made value to customers*” (Grönroos 2000). In other words, the SC approach follows the good-dominant logic where producers and consumers are regarded in isolation and where value creation originates in business activities carried out by a firm. In the other hand, the SCN concept adheres to the service-dominant logic where producers and consumers are combined to create value through the integration of resources and capabilities. Hence, co-creation activities involve the internal and external partners of the focal firm. The connection among the members of the SCN is made possible through the acceptance of a common value proposition. This proposition is takes the form of a strategic fit of resources such as people, technology or information. (Vargo, Maglio & Akaka 2008) Moreover, the service-dominant logic sees goods as intermediaries in the delivery of resources (Vargo & Lush 2007). In this configuration, the VN concept as a twofold role and must handle raw materials and the delivery of finished goods as well as deals with support functions and the delivery of services. (Mele & Corte 2013). One cannot function without the other and the goods are perceived as “*service-delivery vehicles*” (Vargo et al. 2008).

## 2.2 Toward a Unified Definition of Supply Chain Management

Sweeney (2011) highlights the need to remediate to inconsistencies and misunderstandings found in the description of SCM. Shifting from a system working in isolation to an integrated web of SCs is recognized to be at the center of SCM. This change of paradigm is necessary to optimize and sustain competitive advantages within SCs. Despite this consensus, there is a necessity to provide a standardized definition of SCM in order for SCN actors to adopt common SC characteristics. As mentioned previously organizations cannot sustain competitiveness if all SC members do not collaborate toward SC continuous improvement. The notion of integrated way of working is admitted to be the common ground of all existing SCM definitions. However, finding a precise and consistent description of SCM accepted by all SC stakeholders is arduous.

To overcome this lack of understanding the ‘four fundamentals’ of SCM aim at laying the foundation of principles on which an accurate definition can be accepted by all participants of a value system. (Sweeney 2011) Comprehending the needs of end customers and controlling the supply costs strengthen the capability of the supply side. Identifying costs limitations and establishing an appropriate customer service level contribute to the fundamental one of SCM. These activities are sources of performance and clear objectives to manage SCs. The SCM philosophy that promotes value creation through collaborative and integrative mechanisms is the fundamental two. Fundamental three is about the efficient management of physical, financial and information flows. Flow management consists of synchronizing the activities that organize and control the SC. Finally, the last fundamental assesses the buyer-supplier interactions continuously in order to identify their most appropriate mode of governance. Combined, the four fundamentals of SCM provide a platform for managerial guidance to reach the full potential of a SC within its market environment. (Sweeney 2011) Soni & Kodali (2013) identified ‘nine pillars’ that match SC and business strategies with the vision, the mission and the strategic fit of an organization. As the vision and mission statements are the main objectives that a company should pursue, they must be established before all other determinants of the overall strategy. The formulation of the business strategy initiates the elaboration of the SC strategy and the SC capabilities. For the authors, a unified definition of SCM should rely on the strategic, manufacturing, integration, information technology, logistics, supplier, demand and collaboration management pillars. (Soni & Kodali 2013)

The work of Felea & Albastroiu (2013) listed several definitions of SCM among which four of them refer to the requirements of the ‘four fundamentals’ and the ‘nine pillars’ of SCM. Simchi-Levi, Kaminsky & Simchi-Levi (2008) emphasize the role SCM as a cost minimizer and service optimizer while Krajewski, Ritzman & Malhotra (2007) focus on the importance of the flow of tangible and intangible resources. Wisner, Tan & Leong (2012) bring into focus the integration of all business processes that take place along the SC from sub-tier suppliers to end-users. In addition, Bozarth & Handfield (2016) concentrate on dealing with activities and relationships along a SC. The proposal of Felea & Albastroiu (2013) has not been selected due to the lack of attention to flow management in their definition of SCM. However, combining the determinants identified in the four definitions listed in their review match the description of the ‘four fundamentals’ and the ‘nine pillars’ of SCM.

Thus, the following definition is used as a consensus that could be accepted among stakeholders active in the SCN of the case company:

Stock & Boyer (2009) define SCM as the “*management of a network of relationships within a firm and between interdependent organizations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer with the benefits of adding value, maximizing profitability through efficiencies, and achieving customer satisfaction*”.

SCM is evolving from creating value in sequential stages to a SCN of organizations that provide added value to end-users. Such networks are dynamic and flexible to adapt to trade reactivity and changes in market trends. This shift has been made possible by the improvement of ICT. Nonetheless, the full accomplishment of SCN can be limited if information systems keep monitoring and controlling customer needs in a forecasting mindset. Instead, such systems should insist on developing capabilities that can satisfy the demand in real time and to support customization practices. A lack of such capacity affects directly the good operation of a SCN as changes of customer values will spread out over its SCs. This evolution has shown signs of stagnation not due to technological advancements but due to trust deficiency between stakeholders and lack in setting up customer responsiveness indicators. (Sherer 2005) Implementing control and improvement practices improve operational performances while the

involvement of top executives in SCM brings members of the network closer. (Truong, Sameiro, Fernandes, Sampaio, Duong, Duong & Vilhenac 2017)

SCM procedures are predominantly implemented on the dyadic level and fail to extend beyond the boundary of the focal organization. Furthermore, ICT systems are not able to fully support SCM integration on their own. (Näslund & Hulthen 2012) Connecting a single company with the first-tier of suppliers or with the first stage of the demand side requires a substantial effort of coordination. This challenge reduces the opportunity to create fully integrated end-to-end SCs. The degree of knowledge able to flow between SC stakeholders, the integration of key performance indicators along the chain and the behavioral practices within the focal organization define the quality of SCM. (Storey, Emberson, Godsell & Harrison 2006) The identification of appropriate SCM practices must take into considerations phenomena that cause supply deficiencies. Waste refers to all non-value added activities while the lack of capacities to predict future outcomes relates to uncertainty. Resource availability causes inventory fluctuation generating bottlenecks and SC congestion. The bullwhip effect is grounded in the failure of coordination mechanisms between the SC members which cause inventory fluctuation along the chain. Diseconomies of scale occurs when the cost per unit increases as the same time as the volume produced grows. Finally, self-interest relates to the dysfunction resulting from the lack of alignment between the interest of a single company and the interest of the whole SC. (Barros, Barbosa-Póvoa & Blanco 2013)

### 2.3 Customized Supply Chain Strategy

SCM is becoming a strategic function for organizations as more complex interactions are arising from the outsourcing, fragmentation and globalization of products and services. (Storey et al. 2006) Globalization has increased trade fragmentation and complexity which lead to narrowing the focus of SC strategy (Hilletoft 2008). Perez-Franco (2016) argues that “*supply chain strategy of an organization can be defined as the collection of general and specific objectives, policies and choices made in a supply chain to align its operations with the overall strategy of the organization.*” A supply strategy should be in line with the needs of customers and the characteristics of the market segmentations. Measuring the right performance of a SC is made possible when key performance indicators and customer expectations are aligned with. (Gattorna 2009).

Global SCM has gained popularity among practitioners as a quite new phenomenon to be studied. Formulating the right strategies that support the design of global SCs is vital. Putting in line strategies with operational practices on a global level is at an early phase of development and requires further investigations. Technology and risk management have a significant role in SC design. Identifying the type of strategy that will differentiate global SCs from each other is a growing focus of research. (Hadiyan-Wijaya, Suhaiza & Keah-Choon 2015) SC strategies have been widely researched as a single concept aiming at optimizing performances of organizations. However, there is less information available on the use of differentiated SC solutions that meet the requirements of customers in specific markets (Hilletoft 2008-2009). Harris, Compton & Farrington (2015) highlighted the potential role of the 'hybrid solution space' as a promising line of research toward the development of SC strategy.

In addition, further information about buyer-supplier interactions is necessary to explain the challenges faced by organizations during the design or reconfiguration of SC strategy (Arora, Arora & Sivakumar 2016). Hence, analyzing the sourcing portfolio of organizations is a key area of research that is undervalued. There is a lack of alignment between strategic and tactical levels inside organizations which can cause either supplier or buyer dominance. (Koufteros, Vickery & Dröge 2012) Moreover, performances of buyers, capable of building collaborative relationships with suppliers, increase when SC strategies and SC capabilities are aligned with (Jajja, Kannan, Brah & Hassan 2016). Besides, increasing performances, supplier-buyer relationships are of great interest to maximize coordination mechanisms (Koufteros et al. 2012). Managing and integrating the relationships of suppliers and customers into a multi-level approach supports the design of responsive SC strategy. Coordinating internal business units, customers and suppliers is facilitated through knowledge management (KM) and information exchange. (Roh, Hong & Min 2013) Organizational integration along the SC is also view as a critical dimension of a successful SC strategy and deserve deeper investigation (Jungbae-Roh, Hong & Park 2008).

When entering a new market, or designing a new product, a small and medium-sized enterprise (SME) does not rely on SC strategies due to a lack of visibility or affinity with the SC elements. Therefore, SMEs come across risks related to environmental changes and growth stages. (Ismail, Poolton & Sharifi 2011) As mentioned earlier one SC strategy cannot fit all organizations which emphasizes the need of a personalized approach to SC design. Coordinating business and SC strategies is challenging and companies often fail in linking them

together as well as controlling their interdependencies. (Mckone-Sweet & Lee 2009; Sillanpää & Sillanpää 2014). Perez-Franco (2016) introduces a new conceptual approach to SC which formulates SC strategy based on the operational practices and the mission statement of an organization. Globalization has increased the complexity of SCs by generating new risks that impact the proper functioning of SCN. For this reason, more attention should be given to new ways of managing such intertwined relationships and their degrees of adaptation to complexity (Manuj & Mentzer 2008). Studying the levels of flexibility and agility that a SC can endure while preserving performances is quite new which sheds light on the future potential of differentiating SC strategies (Tipu & Fantasy 2014).

Shifting away from simplistic SC strategic frameworks to conceptual models that integrate the SC determinants of the 21<sup>st</sup> century is vital. Hence, providing solutions that reflect the complexity of today's globalization requires additional inquiries. Companies that lead their business units in the same direction and that consider all markets identical is not equipped to face challenges related to globalization. Therefore, such firms will benefit from developing a differentiated SC strategy which aims at tailoring SC processes. (Hilletofth 2008) Companies that rely on hybrid SC strategies have better results than the ones using a single approach. However, the transaction costs involved in such a combination are higher than the traditional option but lead to a better customer service. (Qi, Boyer & Zhao 2009) In summary, this literature review revealed that the differentiation of SC strategy is a great line of research to fill the gap in the academic literature. As Lee (2002) stated, “*supply chain strategies that are based on a one-size-fits-all or try-everything mentality will fail.*” The notion of personalized SC strategy follows the approach of Perez-Franco (2016) that highlights the opposition between ‘categorization and articulation,’ ‘type-based and specific,’ ‘best practices and tailored practices,’ and ‘external and internal wisdom.’



### 3 SERVICE SUPPLY CHAIN MANAGEMENT

The primary objective of the case company is to deliver a service rather a product in all major cities in the world by 2025. This objective necessitates to establish subsidiaries in all targeted countries and to develop local partnerships. The support functions enabling the delivery of services to customers locally increase customer satisfaction and reduces operational costs. Therefore, the focus of the SC strategy should be put on logistical infrastructures for services so as to respond to the needs of a such customer-centric approach. The shift from VC to VN correlates with the transition between product driven industries and service-driven economy. Hence, the modes of governance between stakeholders, the creation of value and the reconfiguration of network are introduced as the main attributes of services in SCM. The context of analysis is outlined by defining the concepts of strategy, BG firms and glocalization while the TCE, the RBV and the VN form the theoretical background of the thesis.

#### 3.1 Strategy and Strategic Fit

Strategic and operational activities are different in nature and fulfill different missions. Operational efficiency aims at accomplishing activities faster and producing less waste while strategic positioning focuses on competitive differentiation over time. The intertwining of activities occurring within a firm must be unique to gain a strong position against competitors. These interactions between the stakeholders form a strategic fit that generates superior performances to the focal firm. The inimitability of the fit adds strategic value to the company and creates a sustainable competitive advantage. (Porter 1996) Strategy can be classified into the type of intentions and processes that an organization desires. Four perspectives respectively classical, evolutionary, processual and systemic illustrate these distinctions. The first option is intentional and focuses on maximizing profits. It also offers support to long-term objectives and planning through control procedures. The evolutionary approach relies on markets mechanism to grow and it assumes that survival depends on natural selection. Controlling tools are less important as this strategy is subject to external forces. The processual perspective is driven by bounded rationality of managers which reduces long-term planning. This approach is based on learning processes and compromises which makes it unintentional and gradual. The last strategy relies on existing social and economic norms that act as governance mechanisms to drive the system. (Whittington 2000)

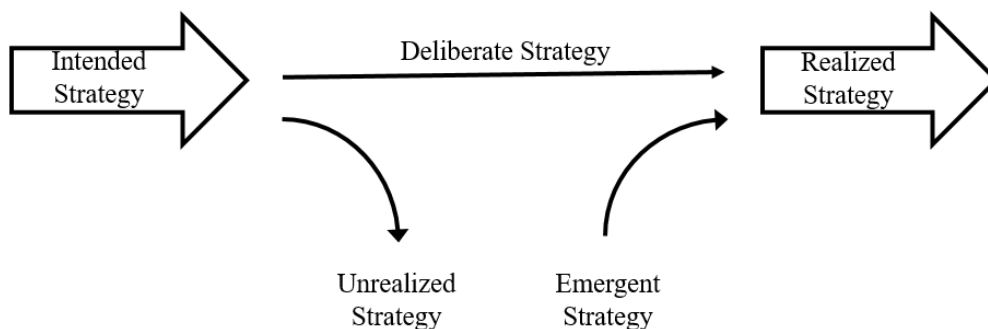


Figure 6. Formation of strategy (adapted from Mintzberg & Waters 1985).

Strategy is defined as *“the direction and scope of an organization over the long term, which achieves advantage in a changing environment, through its configuration of resources and competences with the aim of fulfilling stakeholder expectations”* (Johnson, Scholes & Whittington 2008) The existing patterns defining the diversity of strategy lie within the scope of deliberate and emergent characteristics, as showed in figure 6. In a deliberate strategy, the organization concentrates its effort on formal initiatives governed by control and homogeneity. In emergent strategy, the focus is put on informal and incremental solutions based on trial and error processes. This approach shows that different types of strategies originates from the combination of intentional initiatives and unexpected stream of events such as entrepreneurial, ideological and umbrella strategies. (Mintzberg & Waters 1985)

### 3.2 SMEs and Born Global Firms

BG firms *“undertake international business at or near their founding”* and *“are subset of SMEs”* (Knight 2015). Their rise has been made possible by the development of advanced ICT, the intensification of competition and changes in global trade. These characteristics stimulated the expansion of SMEs at an international level within the first year of operation or soon after. (Andersson 2011) BG firms have limited access to resources and rely on external partners to develop their international network. Competitive differentiation resides in the management of SCN which facilitates the fast expansion into new countries. (Okoroafo, Gammoh, Koh & Williams 2015) BG firms require intensive management of knowledge to support market integration. (Weerawardena, Mort, Liesch, & Knight 2007) Coordinating a network of partnering firms through contractual management enable a smooth transition from incremental to global expansion (Knight & Liesch 2016). Based on the Uppsala model, BG firms could be

categorized as born regional firms as they focus first on local and domestic markets without international connections. (Johanson & Vahlne 2009). BG firms have a strong positioning on international expansion and tend to originate from countries with relatively limited market opportunities. Moreover, such companies perform well in offering high-value propositions and creating networks. (Cavusgil & Knight 2015)

Table 2. Definition of European SMEs (adapted from Europa 2016).

Enterprise Category	Headcount annual work unit	Annual turnover	Or	Annual balance sheet total
Medium-sized	< 250	≤ € 50 million	Or	≤ € 43 million
Small	< 50	≤ € 10 million	Or	≤ € 10 million
Micro	< 10	≤ € 2 million	Or	≤ € 2 million

The European Commission defines an enterprise as “*any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity*”. SMEs are divided into medium, small and micro-enterprises depending on the number of employees, the annual turnover and the annual balance sheet, as can be seen in table 2. (Europa 2016)

### 3.3 Glocalization

According to Svensson (2001) “*the term global strategy tends to be misleading, misused, and sometimes abused. It appears to be a managerial utopia of a global strategy approach*”. Adopting a global strategy can be beneficial to some companies, products or services while a local approach is preferential for others. This distinction introduces the idea of differentiation and requires to balance standard and customized practices. Hence, a hybrid strategy can release the tensions and conflicts occurring at the junction of global and local management practices.

(Douglas & Wind 1987) To offset the strengths and weaknesses of homogenization and differentiation, organizations should be able to make the most of knowledge and sustainability management. Companies will benefit from flexibility at the local level and growth globally at the same time (Ravet 2013). Organizations trying to overcome the contradiction of thinking globally and acting locally can mix inter- and intra-decisions to refine their glocal strategy. The former aims at applying some global and local initiatives separately while the latter globalizes and localizes elements in an integrative framework. Identifying the appropriate combination of the two enable a firm to adjust its business activities to local imperatives and to react to changes at the level of the entire firm. Furthermore, organizations can supervise all subsidiaries thanks to coordination mechanisms while pushing information down to a local premise. (Jain, Khalil, Lee & Cheng 2012)



Figure 7. Glocalization strategy approach (adapted from Svensson 2001).

Glocalization encompasses both strategical and tactical dimensions and emphasizes the degree of adaptability resulting from their interactions. The strategic standardization of product or services is regulated through local adaptation. (Vrontis, Thrassou & Lamprianou 2009) From a market perspective, the adoption of a glocal strategy enables a company to apprehend the variety of customer expectations while identifying changes in market trend. Therefore, promoting a business at a global level while customizing processes that meet the needs of different local environments supports the development of a global identity (Nascente 2015). Glocalization is subtler than globalization as it takes into account the various layers of geography and cultural differences in trade exchanges. As illustrated in figure 7, the distinctions between local, international, multinational and global strategies are important nuances in the elaboration of a customized practices supporting business performances. (Svensson 2001)

### 3.4 Modes of Governance

TCE can be divided into search, contracting, monitoring and enforcement costs. Search costs are related to resources required for evaluating and selecting suppliers while contracting costs are associated with drafting and negotiating the contract. Monitoring costs includes all necessary processes that follow up the fulfillments of the agreement whereas enforcement costs concern the identification of breaches in the contract and the required actions. (Dyer 1997) These transactions costs are the “*costs of running the economic system*” (Arrow 1969). TCE takes its origins in institutional economics which describes a transaction as a regulator of business activities between several participants. In other words, the establishment of rules by the society are the prerequisites of production, consumption or exchange of commodities. The notions of bargaining, managerial and rationing transactions explain the interactions between institutions. (Commons 1931) TCE focuses on price mechanism (market) and the entrepreneur (hierarchy) in the allocation of resources. A market type of organization determines the exchange of transactions outside the firm while a company structured hierarchically relies on internal capabilities. It is argued that the removal of the price mechanism is at the root of the existence of firms. Transferring the responsibilities of organizing operating processes from outside to inside the firm reduces costs. Therefore, by internalizing the allocation of resources, the firm can play its full role. By explaining the emergence of firms, TCE guides companies in selecting either market or hierarchy structure to organize their activities. When the cost of organizing business activities outside the firm is higher than the costs of organizing them inside the firm, operational capabilities should be in-sourced and contrarywise. (Coase 1937)

Organizations are formed by a complex set of relationships and are ruled by technological and non-technological components. TCE emphasizes the role of human and transactional factors in market failure which cause the reorganization of a company internally. The former includes bounded rationality, opportunism and atmosphere while the latter covers uncertainty, small numbers and information impactedness. The capacity of individuals to manage information unmistakably refers to bounded rationality whereas atmosphere deals with the adoption of practices by individuals. Opportunism relates to directing resources in such a sort that an entity gains the advantage of a transaction over a counterpart. Information asymmetry and contract elaboration are the stages where benefits can be achieved. Uncertainty concerns the lack of information available to adapt to changes in turbulent time while small numbers point out the

potential failure of a transaction. Finally, information impactedness involves the disclosure of information based on complex contractual transactions. The cost of managing the transactions in a market type organization can be offset through pre-contract and performance auditing as well as contractual reinforcement and resources pooling. (Williamson 1973)

In TCE activities occurring outside the firm are outsourced while centralized processes inside the company are insourced. In between market and hierarchy, there is a multitude of hybrid possibilities. When these governance structures are dealing with specific transactions in a discerning way then transaction costs are reduced. The costs related to the negotiation, the preparation and the protection of a contract are ex-ante activities. The expenses associated with the execution, the adaptation and the dispute settlement of an agreement refer to ex-post activities. In addition to the determinants described earlier, asset specificity relates to supporting a transaction through investment from one party. This expenditure depreciates quickly as none alternatives can be found from third parties outside of the network. Bounded rationality, opportunism and asset specificity must be taken into consideration while drafting an agreement to create value. Hence, “*organizing transactions so as to economize on bounded rationality while simultaneously safeguarding them against the hazards of opportunism*” is vital in organizational management. (Williamson 1985)

The high level of asset specificity, uncertainty and volatility in a business environment favors the development of hybrids mode of governance. Thus, the degree of cooperation between organizations is greater when the frequency of transaction and the level of mutual interdependence are important as well as when coordinating mechanisms and the risks arising from the partnership are shared. The hybrid solution is a more efficient type of governance as soon as the level of uncertainty is high, the technology required by the buyer is developed only by a small bunch of suppliers and within a volatile business environment. The solution to face such challenges lies in the development of asymmetric partnerships to gain access to specific resources. The development of trust mechanisms within the SC compensates for the turbulences occurring in opportunistic environment and for the informational disequilibrium occurring in buyer-supplier asymmetric relationships. (Blomqvist, Kyläheiko & Virolainen 2002)

From a SCM point of view TCE deals with the make or buy decision, the sourcing strategy and the portfolio of supplier-buyer relationships. Therefore, TCE extends the focus of attention from an individual transaction to an extensive system made of bundle of relationships. In such a

configuration, group of transactions are governed with the aim of reducing transaction costs within SCs. Among the types of governance proposed by TCE, hybrid transactions are relevant in the management of SCs. Aligning the different types of transactions with the right modes of governance creates value. (Schwabe 2013) In this context, the most important elements of TCE are asset specificity, uncertainty and frequency. Frequency is crucial in identifying the type of governance needed in a transaction between a pair or a group of trading partners. Frequency influences the degree of collaboration and level of costs taking place between partners. Transactions can occur on a one-time, occasional or recurrent intervals. In a market configuration, disagreements are resolved in court and the need of keeping the relationship over time is not required while the hierarchical structure is best adapted to manage complex transactions. Intermediate modes of governance rely on the continuity of exchange between partners and requires flexible structures. (Williamson 1979) With the aim of defining the boundary of the firm from a SCM point of view, Williamson (2008) states that “*rather than treat each transaction separately, the systems benefit of organizing clusters of related transactions as supply chains are introduced*”. The make or buy decision supports costs optimization and SC efficiency while hybrid modes of governance enable the personalization of SC activities by enhancing collaborative relationships between stakeholders. Therefore, such forms of governance are based on customer expectations, economic factors, resources and core competencies. (Sillanpää 2015)

### 3.5 Value Creation

Accessing key resources and developing core capabilities are vital to formulate the strategy of an organization toward the creation a sustainable competitive advantage and profit generation. One way to create a system supporting the objectives of a firm is to control resources and capabilities through ownership, arm’s length relationships or partnership. Having a firm grasp over key resources reinforced business performances while absorptive capabilities support the accumulation of new knowledge and skills from external sources. (Bretherton & Chaston 2005) The acquisition of resources from immediate environment reduces supply contingencies such as dependency or uncertainty (Delke 2015). Pfeffer and Salancik (1978) emphasized that “*as a coalition of support, an organization implies that an important factor determining the organization’s behavior is the dependencies on the various coalition participants*”. Hence, accessibility to strategic resources depends on efficient management of dependencies between

actors involved in the SC. From then on, key resources and capabilities available offshore and the style of leadership must be taken into consideration. In such a configuration, decisions are based on consensus of peripheral actors and an inclusive management approach is preferred. (Medcof 2001)

A firm is a strategic mix of resources and capabilities that enable economic growth through the creation of a sustainable competitive advantage (Penrose 1959). According to Amit and Schoemaker (1993) resources are “*stocks of available factors that are owned or controlled by the firm*” while capabilities are “*the capacity of a firm to deploy resources, usually in combination, using organizational processes, to affect a desired end*”. To sustain a competitive advantage, the resources of a company should be valuable, rare, inimitable and non-substitutable (VRIO), as can be seen in figure 8. An organization possesses physical, human and organizational resources to differentiate itself from competitors. The former includes technological elements, raw materials, manufacturing premises within all geographical areas while human resources refer to relationship management, absorptive capabilities and experience developed within the firm. The latter relies on coordination mechanisms, implicit knowledge shared within and beyond the boundaries of the company, controlling processes, reporting systems and communication procedures. (Barney 1991) Facing turbulence can be tackled with dynamic capabilities which “*are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die*” (Eisenhardt & Martin 2000).

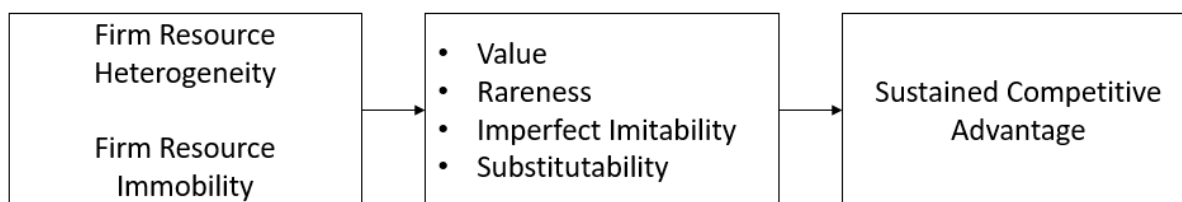


Figure 8. Sources of a sustained competitive advantage (adapted from Barney 1991).

Distinguishing core competencies, core products and end-product from each other is crucial for creating a sustainable competitive advantage. Core competencies are the aggregated knowledge generated within an organization and act as coordination mechanisms and technology integrators in the elaboration of strategic processes. The product is the result of all business interactions delivered to end-users while the core product is the junction between the two. (Pahalad & Hamel 1990) The key resources and capabilities of a company are long-lasting,



hard to comprehend, nontransferable, inimitable and remain in the bosom of the organization. The role of the company is to formulate a strategy around such resources and capabilities. Sustainable competitive advantages of companies rely more on improvement mechanisms than ongoing processes. Challenges lie in the subtle combination of existing and future components of the strategic mix. Hence, capturing the interactions between resources and capabilities enable to identify competitive advantages and enhance profitability. (Grant 1991)

In the same vein, Wernerfelt (1984) highlighted the importance of finding a “*balance between the exploitation of existing resources and the development of new ones*” when considering a growth strategy. A sustainable competitive advantage is refined over time through a mix of circumstances, an accumulation of arrangements and a multiple of small adjustments. Moreover, resources and capabilities emerge from complex interactions between corporate culture, stature and integrity as well as intangible assets. Most importantly, resources must be either heterogeneous or immobile to create a competitive edge. Resource heterogeneity refers to the capacity of a firm to control the key resources and capabilities needed to gain a competitive edge. Resource immobility relates to the difficulty of adapting the resources and capabilities to specific needs by other organizations due to high developing costs. (Mata, Fuerst & Barney 1995) Resources can be tangible or intangible depending on the firm’s assets and activities. Tangible resources are “*financial and physical assets*” appearing on the balance sheet while “*intellectual property, organizational and reputational assets*” are intangible resources. Intangible resources influence the success of a firm in a more significant way than tangible resources. (Galbreath 2005)

### 3.6 Network Reconfiguration

The VN approach is customer-oriented, collaborative, responsive, knowledgeable and digital. The first descriptive organizes sourcing, production and distribution activities according to the preferences of end-users. The personalization of the offering is based on the segmentation of customers. Collaboration initiatives are embedded in the network which connects customers, suppliers and the focal company. Manufacturing, distribution and communication practices are flexible and scalable to respond to demand volatility. Such practices also serve network reconfiguration as well as product and services life-cycle. In a VN approach order-to-delivery processes are designed to enhance operational efficiency and customer satisfaction. ICT are

adapted to SCM in order to coordinate and optimize the flow of information between the stakeholders. (Bovet & Martha 2000) The VN is a model that focuses on value-creating systems and that considers the activities creating value for the customers the focal point of the system, as showed in figure 9.

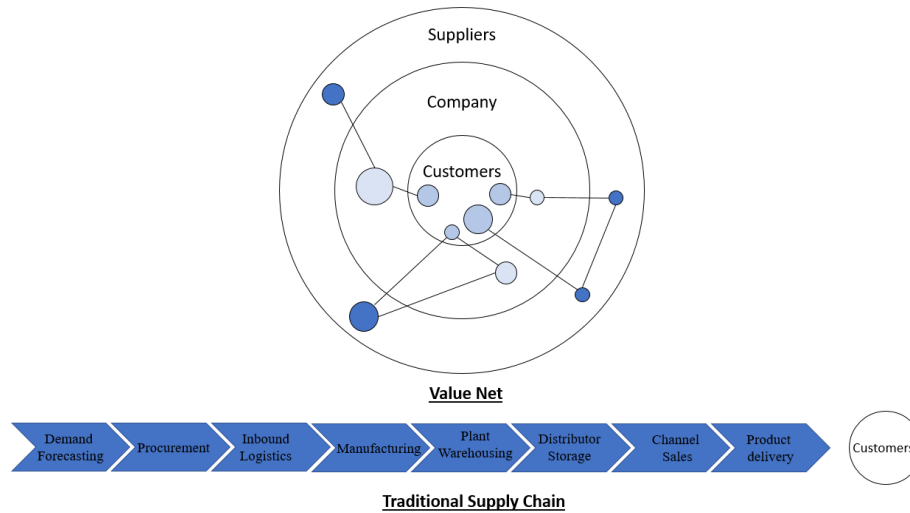


Figure 9. Value net vs traditional supply chain (adapted from Bovet & Martha 2000).

Moreover, Parolini (1999) states that “*Rather than being considered simply as sets of economic players, value-creating systems should be seen as sets of activities that are jointly involved in the creation of value*” which support the transition from SC to VN. Therefore, all activities taking place in the VN should create value for customers. Human, tangible and intangible resources are managed through informational, financial and material flows of information, as can be seen in table 3. Furthermore, customers participate to value creation activities in a consumptive way. Stakeholders of a VN can work on one or more projects while belonging to other value-creating systems. (Parolini 1999)

Table 3. Two types of economic exchange: Tangible and intangible (adapted from Allee 2008).

Type of Exchange	Assets	Transactions
Tangible Exchanges of Goods, Services and Revenue	<ul style="list-style-type: none"> <li>Financial resources and other capital-based resources that are controlled by the firm</li> </ul>	<ul style="list-style-type: none"> <li>Physical goods</li> <li>Services</li> <li>Contracts</li> <li>Invoices</li> <li>Return receipts or orders</li> <li>Request for proposals, Confirmations</li> <li>Payment</li> </ul>
Intangible Exchanges of Knowledge and Benefits	<ul style="list-style-type: none"> <li>Relationships</li> <li>Employee know-how and competency</li> <li>The effectiveness of the organisation’s work groups and structure</li> <li>The efficiency of the organisation’s production and service processes</li> <li>The level of trust between the people or organisations forming the relationships</li> </ul>	<ul style="list-style-type: none"> <li>Exchanges of strategic information Planning knowledge</li> <li>Process knowledge</li> <li>Technical know-how</li> <li>Collaborative design work</li> <li>Joint planning activities</li> <li>Policy development</li> </ul>

Contrarily to the traditional approach of VC, intangible resources are vital in the creation of value (Allee 2003). However, converting intangible resources into added-value is challenging. Understanding the strategic mix of interactions that takes place between the members of a SCN enables an organization to identify the key resources and core competencies. In value conversion, it is essential to distinguish the organizational roles from the value network roles of individuals. This stage enable the identification of organizational duplications and overlaps as well as individuals with several roles and responsibilities. Thus, it is easier to manage the conversion of value and to create a new type of negotiable value when the roles of people involved in a specific activity are clear for all members of the SCN. Finally, it is crucial to analyze tangible and intangible resources through the lenses of internal and external VN. Transactions occurring between single individuals, within a group of people or among groups belong to the internal VN. Whereas, the transactions taking place between the case company and its strategic partners or its customers relate to the external VN. (Allee 2008)

## 4 FROM CATEGORIZATION TO ARTICULATION

The formulation process of SC strategies is evolving from a one-size-fits-all configuration which meets the needs of mass production to a personalized approach that coordinates processes with customer expectations. Emerging SC strategies embrace product customization, modularity in design and service offering. (MacCarthy, Blome, Olhager, Srai & Zhao 2016) Favoring supplier relationships management and removing non-valuable activities increases the satisfaction of shareholders (Christopher & Ryals 1999). Most of existing SC strategies are based on the categorization of processes into groups of products, power positions or buying behaviors. (Perez-Franco 2016) However, such limitations can be reduced by combining two existing SC strategies into one solution or by expressing the SC priorities of a company in an explicit manner. Under certain circumstances, associating lean and agile approaches increases financial results as it generates better operational performances, market outcomes and customer satisfaction. Because SC strategies are one of the last remaining opportunities to enhance the performance of companies, it is important to design the right set of processes that matches the needs of customers. (Qi et al. 2009; Christopher & Gattorna 2005) Organizations should consider products attributes and customer expectations when formulating a SC strategy (Aitken Childerhouse & Towill 2003) Thus, it is important for a company to match the requirements of its internal and external partners with its SC strategy. (Jajja et al. 2016) This chapter presents the characteristics of lean, agile, leagile, hybrid and articulated SC strategies.

### 4.1 Lean Supply Chain Strategy

Leanness is defined as a means of “*developing a value stream to eliminate all waste, including time, and to ensure a level schedule*” (Naylor, Naim & Berry 1999). Lean SC strategy deals principally with functional products (Qi et al. 2009) and with the reduction of waste in a context characterized by low product variety (Christopher 2000). Functional products have low margin and are mass-produced. Such products respond to a predictable and regular high demand. They are designed to evolve in a competitive marketplace and to have a long-life cycle. (Harris, Compton & Farrington 2015) Production planning is possible over an extended period of time as processes are stable. Hence, collaborative supplier relationships are easier to develop and maintain in the long run. (Huang et al. 2002) Functional products meet the daily needs of customers and are subject to strong competition. The demand for such products is stable over

time, based on forecast and with a long lifecycle. (Fisher 1997) A company relying on lean SC should organize its internal and external relationships as well as its resources to support efficient and reliable processes. Being lean supports cost effectiveness and stimulates collaborative relationships with suppliers. (Jajja et al. 2016)

Risks associated with the lean approach arise when the company receives a special demand from end-users (Hilletofth 2008). Adopting a lean approach involves removing non-value added activity. Lean SC enables cost and lead time reduction thanks to sales forecasts and waste management processes. Therefore, sourcing practices focus on building reliable communication channels with the supply side and on developing stable delivery processes. Disruptions caused by the volatility of demand are reduced through level scheduling. In other words, demand predictability is managed on a monthly basis. Coordination between the supply and demand sides is necessary for planning production and delivery activities. The operations department relies on the make-to-stock strategy and focuses on developing activities before customer place an order. (Mason-Jones Naylor & Towill 2000) The lean strategy promotes activities and processes that reduce the production costs. In contrast, the lean approach fails in delivering a customized value proposition to customers. Information systems leverage forecasting capabilities and stabilize production processes. (Christopher & Towill 2001)

## 4.2 Agile Supply Chain Strategy

Naylor et al. (1999) define agility as the capacity of *“using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile marketplace.”* Innovative products are managed with agile SCs (Qi et al. 2009) and have an unpredictable demand. They benefit from a high-profit margin and are characterized by a high degree of personalization. In addition, the demand for special orders and the novelty of the portfolio complicates forecasting capabilities. Recurring changes in product features and functionalities shorten the life-cycle of the products while the newness of the technology increased the margin significantly (Harris et al. 2015). The agile SC adapts to market changes with responsive processes. The offering is tailored in accordance with customer expectations which results in setting up SC processes that can provide an extensive product portfolio (Christopher 2000). Focusing on responsive SC practices improves supply delivery and supports supply flexibility. (Jajja et al. 2016) The main risks involved in an agile configuration are related to the management of short production cycles

and small batches (Hilletofth 2008). Aligning the supply side with the demand side is vital to offset the volatility of changing environments. This is made possible by focusing on the real demand rather than the prediction of demand. The key determinant of an agile SC is the flexibility of the manufacturing capabilities. (Christopher, Peck & Towill 2006) Hence, companies should move away from fast delivery and low costs orientations to focus on flexibility. (Lee 2004)

Developing SC flexibility is achieved by taking customer expectations into consideration and by focusing on the development of new products or services. Additionally, sourcing practices, personalized capabilities, logistics operations and data exchange are necessary activities to support SC responsiveness. It means that the demand and supply sides of a SC should be coordinated as such that launching new products or services is not an obstacle to customer satisfaction. Under an agile SC, responding to changes in market trends and modifying procurement procedures to match the fluctuating demand are possible. Also, offering customizable products or services enables the satisfaction of the local demand whereas developing an integrated logistics platform improve distribution processes. Finally, the fluctuation in customer demand and market trends is compensated by increasing the level of collaboration between the stakeholders through data optimization and ICT. (Fantazy 2007) Reliable logistics systems are the keystone of an agile strategy to face environmental turbulence and volatility. Therefore, being able to deliver products or services all in good time calls for an excellent customer service. Setting up responsive processes enables the assembly of products or to the delivery of services at the customer order point. In that configuration production and logistics activities are only initiated after the company knows the requirements of the customer. (Mason-Jones et al. 2000)

### 4.3 Leagile Supply Chain Strategy

The leagile SC strategy takes the best practices of the lean and agile approaches. It aims at providing both performance and flexibility, as illustrated in table 4. In other words, this solution combines the predictability of standardized products and the demand fluctuation of specific items within a single SC strategy. This option enables companies to produce and sell both functional and innovative products. (Hofmann, Beck & Fuger 2013) Leanness fosters efficiency and the “*do more with less*” attitude while agility supports effectiveness, availability and

flexibility (Christopher & Towill 2000). The degree of agility and leanness within an agile strategy depends on the customer demand. A leagile SC strategy can take various forms such as the pareto angle, the decoupling point perspective and the distinction between base and surge demands. In the first option, 80% of all sold items come from 20% of the entire product range. It is argued that the 20% of predictable product can be managed through lean practices whereas the remaining 80% will gain advantage from agile principles. The Pareto solution best suit companies with a high degree of product variety. The second approach relies on strategic inventory management which consists of keeping a stock of elements under a modular form while postponing the final assembly at the placement of an order by the customer. The product is finalized only at the decoupling point when the customer specifies its requirements. This postponement strategy is articulated around the lean SC strategy up to the decoupling point and around the agile SC strategy passed that stage. The last configuration of leagile strategy manages coordination mechanisms that enable a company to switch between economies of scale and a responsive type of production. Predictable items are managed with lean processes whereby peaks in demand are handled by agile principles. (Christopher & Towill 2000)

Table 4. Leagile SC strategy (adapted from Hilletoft 2009).

Distinguishing Attributes	Lean Supply Chain	Agile Supply Chain	Leagile Supply Chain
Focus	Cost-efficiency	Responsiveness	Both
Typical products	Standard (commodities)	Special (fashion)	Standard, special
Market demand	Predictable	Volatile	Volatile and unpredictable
Product variety	Low	High	Medium
Product life cycle	Long	Short	Medium
Customer drivers	Cost	Lead-time availability	Service Level
Market winner	Cost	Availability	Cost and availability
Market qualifiers	Quality, lead-time, availability	Quality, cost, lead-time	Quality and lead-time
Profit margin	Low	High	Moderate
Dominant costs	Physical costs	Marketability costs	Both
Stock out penalties	Long-term contractual	Immediate and volatile	No place for stock out
Purchasing policy	Buy goods	Assign capacity	Vendor-managed
Information enrichment	Highly desirable	Obligatory	Essential
Forecast mechanism	Algorithmic	Consultative	Both/either
Lead time compression	Essential	Essential	Desirable
Eliminate muda	Essential	Desirable	Arbitrary
Rapid reconfiguration	Desirable	Essential	Essential
Robustness	Arbitrary	Essential	Desirable

Companies can benefit from several advantages in using leagile SC strategies. To begin with, such solution provides more resources to the company when it comes to handle specific requirements. Such system facilitates the personalization of the offering as it allows the

company to put the finishing touches on special products when the customer places an order. Designing some elements of a product or services in a generic form decreases total inventory and reduces the variety of components. The modularity approach of leagile increases production responsiveness as the use of components into a wide range of products supports flexibility. Producing some components generically facilitates the predictability of the demand. Finally, when focusing on a generic approach the company can personalize its offerings for local demand and supply a wider range of goods (Hilletofth 2009)

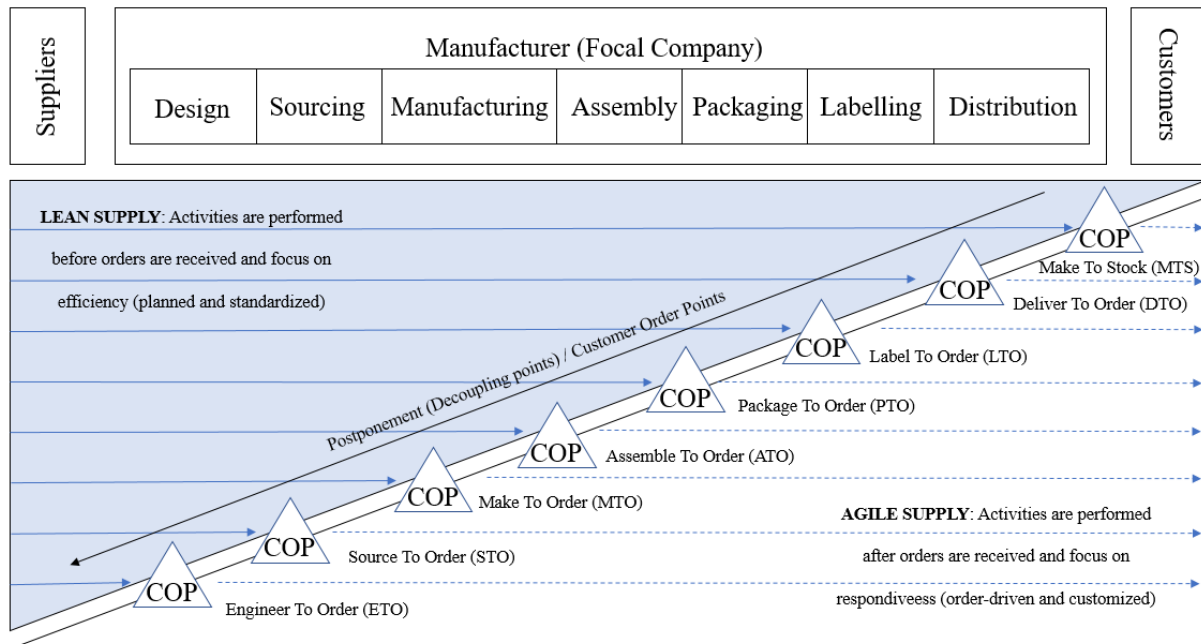


Figure 10. Postponement strategies based on the position of the COP (adapted from Hilletofth 2009).

The leagile approach relies on KM and the identification of the correct postponement configuration. Hence, the importance of ICT systems to optimize information flows and the correct position of the decoupling point is strategic. (Mason-Jones et al. 2000) The position of the decoupling point along the SC determine the inventory holding point, as showed in figure 10. In a nutshell, the leagile SC strategy use “*the decoupling point as a buffer between the variable demand for a wide variety of products and the level production schedule for a smaller variety of components.*” (Naylor et al. 1999)

#### 4.4 Hybrid Supply Chain Strategy

Even if the leagile and hybrid strategies seem to be the two faces of the same coin, further research is conducted to confirm common grounds or to state differences between these two



terms. Hybrid strategies support the creation of a sustainable competitive advantage for companies dealing with the complexity of globalization. (Christopher & Towill 2001) Hence, the needs to combine different SC solutions during the internalization of companies are growing. Flexibility is a necessary attribute of SC strategy in order to respond to changes in market trends, customer demand and costs. An organization that considers adapting to structural and environmental changes can improve business processes, supplier relationships and flow of goods as well as strengthen information flows and decision making. (Jenkins & Wright 1998)

A SC strategy can be formulated according to the characteristics of the products, the type of demand and lead time determinants. The right combination of such attributes determines the most suitable strategy for the company. The dimensions of cost and availability have an influence on the design of a SC strategy. Demand for special or standard products can either fluctuate or be consistent. Hence, developing the reactivity of the replenishment lead-time is essential. Standardization, mass production and regular demand focus on cost efficiency in line with SC leanness. Responding to specific and irregular orders of customers involves dynamic capabilities which are developed in an agile SC. The future of SC strategy lies in the combination of cost efficiency and flexible business processes. The SC of 21<sup>st</sup> century should develop real-time response capabilities in order to process many personalized orders at the same time. At the same time, such SC should implement ICT solutions to optimize the prediction of sales for traditional items. The difficulty of predicting the demand for customizable products is due to the irregularity of orders. One solution to compensate such challenge is the partial implementation of the agile approach. It involves establishing the production and assembly facilities as close as possible from the customers. In contrary, standard orders with stable demand and high inventory can be managed from offshore facilities by relying on some extend on the lean strategy. The hybrid strategy relies on the adoption of a “*mixed onshore and offshore production strategy*” which increases margin and sales. Using a hybrid strategy optimizes the forecasting of generic modules which enable the delivery of customized products to customers in a faster way. (Christopher & Towill 2002)

As Perez (2013) demonstrates, SC strategies has been primarily categorized into productive and responsive solutions which is in line with the lean and agile approaches. However, the lean and agile strategies cannot face the challenges that arise from the 21<sup>st</sup> century when implemented individually. The ideal response to offset the obstacles related to such an era of turbulence is to adopt the best parts of the two solutions. In addition, designing hybrid strategies should be the

aim of all companies as efficient and responsive solutions fail to serve cost efficiency and specific requirement when used separately (Nag, Han & Yao 2014). Consequently, it turns out to be that the hybrid and leagile strategies are two different terms describing the same situation. If a hybrid strategy tends to be aligned with the attributes of the 21<sup>st</sup> century, the presets of its SC determinants limits its capabilities to support the business strategy of an organization to the full extent. Such solution tends to simplify processes for the purpose of generalizing SC solutions. Hence, the formulation process a SC strategy proves to be limited when using a hybrid approach. Overcoming this challenge is made possible through the so-called SC articulation which consists of “*expressing a given supply chain strategy in explicit terms.*” (Perez-Franco 2016)

#### 4.5 Articulated Supply Chain Strategy

Among other key responsibilities, SCM focuses on identifying the right distribution channels to deliver the products to the customers. Hence, category management is a major factor in selecting the right elements of a SC strategy. Putting in line the distribution channels with the type of products that are delivered by a firm aims at improving customer service and decreasing supply costs. Shifting away from a segmentation philosophy to a more detailed approach enables the adaptation of SC processes to customer demand and improves business performances. This subchapter introduces several types of SC categorization (Payne & Peters 2004; Fisher 1997; Lee 2002; Christopher et al. 2006; Perez 2013) before presenting the necessity to adopt SC articulation developed by Perez-Franco (2016).

An ‘efficient SC’ has reliable supply processes to meets the needs of functional products while a ‘responsive SC’ has flexible business processes that are in line with the requirements of innovative products. The former focuses on reducing cost and managing resources in the best efficient way when the latter has the objective to fulfill customer demand despite the unpredictability of orders. (Fisher 1997) Demand volatility relates to the capability of a company to foreseen the needs of customers whereas supply contingency depends on processes and technology reliability. Stable SC practices rely on mature technological systems and advanced producing capacities while adaptive SC processes can adapt to technological and industrial innovations. Four types of SC strategy can be used to deal with supply uncertainty and changes in market trends. The ‘efficient’ and ‘risk-hedging’ SCs are in line with the

requirements of functional products whereas the 'responsive' and 'agile' SCs fit the characteristic of innovative products. 'Efficient SC' is characterized by the stability of its demand, its process and its supply sides. The focus is put on cost reduction and coordination mechanisms. A 'risk-hedging SC' is adopted when processes evolve over time and the demand is stable. The key practices of such strategy are inventory pooling, information coordination and risk sharing. The use of a 'responsive SC' strategy is required when the demand is unpredictable but processes are stable. The implementation of a strategic inventory management is the best option to manage the production of such option. Embracing a generic approach to product design that relies on supply hub near the assembly line is required. An 'agile SC' focuses on innovative products and on reconfiguring its processes over time. This strategy is a combination of risk-edging approach and a responsive SC where the role of ICT and the decoupling point are fundamental. Responding to unpredictable customer expectations and managing supply availability are the focus of an 'agile SC'. (Lee 2002)

To better adapt to globalization replenishment lead times, demand and product are worth considering when designing a SC strategy. As explained in subchapters 4.1 and 4.2, innovative products are manufactured in a low quantity with inconstant orders and a low lifecycle. Such special items are generally significantly tailored made. In the contrary, functional products benefit from regular orders with a low degree of personalization and a longer life cycle. Consequently, a SC strategy can be design around the notion of predictability and replenishment lead times. Four SC strategies are derived from these two dimensions such as 'continuous replenishment', 'postponement', 'plan and execute' and 'quick response'. 'Continuous replenishment' occurs when the demand is foreseeable and when the lead times are short while 'postponement approach' focuses on inventory management to support the demand in real time. In a configuration where demand is anticipated and where the lead times are long, the focus is put on planning production before executing the orders. Finally, in a situation in which orders are unforeseeable and lead-times are short the company use an agile strategy that enables quick responses. (Christopher et al. 2006)

The aim of coordinating the members along the SC member is to form a community that meets the expectations of customers. The 'modularizing', 'appending', 'innovative' and 'following' strategies are four solutions used by companies to take into consideration the needs of their stakeholders. The corporate strategy of an organization arises from the goals of top executives and suppliers as well as their common interests to serve the end-users. Out of the four strategies

the 'modularizing' approach focuses on supplier reduction in order to stabilize the predictability of orders and to reduce prices fluctuation. The strategy optimizes the management of available key resources and core competencies as it refines assembly processes. Reducing the number of supplier relationships improves the communication between SC members as flows of data are easier to generate and control. In other words, SC practices enable the customers to participate in value creation which improves costs, lead times and quality. The 'appending' solution facilitates supply planning in the long run by fostering regular orders and stabilizing the flow of supply. This strategy supports the development of new competencies by upgrading existing products and services with new features. By doing so, it increases the value of the supply community and generates bigger margins. In contrast, the 'innovating' strategy focuses on delivering new products or services to the market with the aim of creating a new sustainable competitive advantage to all participants of the SC. The 'following' option is a passive strategy that consists in copying existing solutions from the market and reducing relationships within the SC. (Katz, Pagell & Bloodgood 2003)

In addition, 'innovative', 'customer-oriented' and 'follower' approaches have been identified as three important SC strategies. The 'innovative' strategy relates to companies that develop new products and creates new market opportunities. The 'customer-oriented' option focuses on delivering quality products or services, providing a reliable customer service and offering attractive prices. This approach embraces the VN concept as it relies on strong interactions between suppliers, the focal company and the customers. The customers are at the center of attention and influence all relationships within the VN. By following the footsteps of competitors, the 'follower' strategy aims at developing a price differentiation approach. Hence, SC practices are based on low cost manufacturing processes and on monitoring production spending. The 'innovative' strategy concentrates on developing dynamic capabilities to support the creation and delivery of new products or services. Concerning the 'customer-oriented' option, the focus on flexibility is put on external supplier management, product development, logistic systems and information sharing. Finally, 'followers' do not focus on flexibility but rather on reducing the product line and limiting the modifications of processes so as to use a make-to-stock type of management. (Fantazy, Kumar & Kumar 2009)

SC strategies has been also categorized into 'productive' and 'responsive' solutions. The 'productive' strategy is divided into three subgroups such as 'efficient', 'fast' and 'continuous-flow' SCs. The 'efficient' category serves companies competing on price and supplies a large

predictable demand. The 'fast' approach describes a SC that adapts its product line to market trends on a regular basis. In such an arrangement, production is planned in batches and the managers fosters the regular renewal of products. The 'continuous-flow' strategy refers to a regular flow of orders which is managed by a stable and mature supply side. The delivery of products using such option is administered through a make-to-stock process. The 'responsive' solution includes 'agile', 'custom-configured' and 'flexible' SCs. The 'agile' concept delivers customized products and engages manufacturing processes after the placement of the orders. 'Custom-configured' SCs enable organizations to personalize products by including a selection of add-ons at customer orders. Producing generic components enables companies to respond to customer demand quickly through the make-to-assembly option. The 'flexible' strategy deals with irregular cycles of high and low level of demand. Uncertainty is alleviating by implementing short replenishment lead times and supporting adjustable flow of goods as well as providing stable availability of crucial resources and developing dynamics capabilities. (Perez 2013)

At first sight, it seems that a multitude of SC strategies exists to support the vision of organizations besides the lean and agile approaches. However, after a closer look at their determinants only two remains. All approaches mentioned in this chapter (Fisher 1997; Lee 2002; Christopher et al. 2006; Katz et al. 2003; Fantazy et al. 2009; Perez 2013) oppose or combine 'functional product and innovative product', 'stable SC and adaptive SC', 'efficiency and flexibility' and 'productive SC and responsive SC'. Hence, SC strategies are categorized into lean and agile SC. Such solutions can be used either separately or in combination. However, when it comes to bridging the gap between the specific needs of an organization and the implementation of processes at the operational level, SC categorization facing challenges.

A SC strategy acts as an intermediary between the business mission statement and the operational activities of an organization, as illustrated in figure 11. A business strategy is the vision of a company that gives direction in the elaboration of standards and code of conducts. The behavioral norms provided by the business strategy are essential to design the procedures supporting the SC activities.



Figure 11. Levels of abstraction of a SC strategy: CSAR (adapted from Perez-Franco 2016).

To overcome the limitations of SC categorization, the conceptual system assessment and reformulation (CSAR) provides a method that “*connects day-to-day supply chain activities with the abstract aspirations of the business strategy*” (Perez-Franco, Phadnis, Caplice & Sheffi 2016). This conceptual model supports the transition from SC categorization to SC articulation. The process of designing a SC strategy proves to be limited when using a preset configuration of SC determinants. Such approach tends to simplify processes for the purpose of generalizing SC solutions. Overcoming this challenge is made possible through the so-called SC articulation which consists of “*expressing a given supply chain strategy in explicit terms.*” The elements constituting a SC strategy are selected according to specific thematic. Hence, this conceptualization enables organizations to design their own SC strategy which reflects the fine details and nuances of the business environment. This approach to SC strategy formulation highlights the opposition between ‘categorization and articulation,’ ‘type-based and specific,’ ‘best practices and tailored practices,’ and ‘external and internal wisdom.’ (Perez-Franco 2016)

## 5 THINK GLOBAL, ACT LOCAL

Global strategies combine processes that promote “*similarities, standardization, homogenization, concentration, and coordination on a worldwide basis*” to “*achieve benefit and advantages*” in “*international or multinational business environments*” which emphasizes the critical “*necessity for local adaptations.*” (Svensson 2001) Thus, managing companies and their subsidiaries to the right organization level is essential. SC processes are put into action at different geographical levels namely local, national, regional and global. SC activities such as binding contracts, supervising supplier relationships, handling sourcing planning and managing make or buy decisions are administered according to such degrees of decentralization. The responsibilities of regional and global departments are often ambiguous when it comes to guide local and national facilities. The lack of clear boundaries between global and local subsidiaries can generate conflicts. Local and regional branches have more capabilities to face challenges that occur close to end-users. However, at an early stage of SC integration organizations are more inclined to focus on operational processes and order deliveries locally. Such activities are managed at the cost of a global logistics platform. Moreover, sourcing activities should not be left only at the local and national levels but rather coordinated by regional divisions. SC processes should be transposable from one location to another through setting up central principles of governance and knowledge transfer capabilities at each geographical level. Preventing peripheral actors to work in isolation from headquarters is offset by fostering the collaborative and network dimensions of sourcing management. (Hughes, Ralf & Michels 1998) Christopher & Holweg (2011) characterize the 21<sup>st</sup> century as an era of turbulence in which uncertainty will prevail which result in regular disturbance of performance indicators. Therefore, it is important to identify the causes behind such changes and to understand the political and economic transformation of global interactions.

### 5.1 Era of Turbulence

The Brexit referendum and the US presidential election are two landmarks in the institutional reorganization of the global equilibrium as we know it today. On the one hand, the Brexit will affect economic outcomes, political vision and institutional stability within and beyond the EU (IMF 2016). On the other hand, the US has planned to change the nature of its cooperation and to reduce the level of its interdependence within the global economy. Hence, a divergence

concerning the advantage of keeping developing free trade practices and removing trade barriers emerged between global players. This new approach to globalization announces a shift in the global economic arena. (IMF 2017) A large part of the world economy is controlled by a handful of rich individuals which contribute to widening social and economic inequalities. The gap between the poor and the very well off has reached its peak, as 1% of the world population hold more wealth than the rest of the humanity. The inequality gap has widened over the last five years since the 62 richest individuals have increased their fortune by half-a-trillion dollars. Over the same period, the poorest half of the global population have seen its wealth dropping by one trillion dollars. (Hardoon, Ayele & Fuentes-Nieva 2016)

The outcome of the Brexit referendum and the US presidential election could be explained by the rise of inequality worldwide. Globalization and technological changes are perceived as the source favoring the accumulation of wealth for the richest individuals and the pauperization of the rest of the population. Thus, the promotion of financial deregulation, the trust put in market self-regulation and the decrease in marginal tax rates for the top earners are held up as examples of institutional changes to explain wealth inequality. Nevertheless, the decline of labor market institutions has been identified as important sources of income inequality. As a regulator of the labor market, their deterioration can explain the disparities in wealth redistribution within developed economies. The origin of the gap in inequality has been recently attributed to the collapse of trade unions and the decrease of the minimum wage. This phenomenon supported the increase in wealth of the most comfortably off fringe of the population. (Jaumotte & Osorio Buitron 2015)

Consequently, the source of the inequality gap cannot be put down to globalization alone. Acknowledging the causes of this rejection is important to understand the next phase of globalization. The Brexit referendum reflects the disaffection and the loss of confidence in EU institutions among EU citizens caused by wealth inequality and migratory movements. Between 2007 and 2015 the percentage of pessimistic opinions about the EU rose from 20% to 40%. In US, the 120 million of people forming the middle class have seen their level of income share dropping from 62% to 43% over the last 45 years. The rejection of the existing political landscape translates into the rise of the right-wing parties both in Europe and US. The number of new political parties in Europe increased from 4 to 14 in the last five years. These newcomers tend to join forces with already established far-right leaders in France or in UK. Accordingly, the opposition to globalization, as we witness it today, is progressively backing Western



countries into a corner and stimulate protectionist policies. By withdrawing from the Trans-Pacific Partnership, the US is a step forward in setting up trade barrier measures and transitioning toward a new form of globalism. (O'Sullivan & Subramanian 2017)

After the success of the US president Trump, political leaders from other democracies are following in his footsteps seeking for the same echo. Adopting a similar strategy and reconsidering existing global trade practices will increase protectionist measures among western countries and will act as an incentive to develop new types of trade barriers. Political changes in the UK and the US provide a preliminary vision of the future of globalization which announces a gradual withdrawal of the most powerful countries from global leadership. This transition signals a step forward into a new era without world leaders where power relations between countries are defined by new levels of collaboration. During this period called the G-Zero era, sources of power are determined by regional influences and protectionist approaches. (Bremmer 2012) China, India, Indonesia, Brazil, Russia, Mexico and Turkey form the E7 economies while US, UK, France, Germany, Japan, Canada and Italy are part of the G7 nations. Whereas the E7 represented half the economic size of the G7 in 1995 they had similar size in 2015. By 2040, the E7 is foreseen to be two times bigger than the G7 and six of these emerging powers could be in the top ten world economies by 2050. (Hawksworth, Clarry & Audino 2017)

This prediction confirms the ongoing changes in the world economic and political order. However, the disruption of power balance cannot yet map the new nature of relationships and level of collaboration within the concert of nations. The center of gravity of the global economy is shifting from west to east and is moving on to a non-polar or multipolar configuration where economic power is shared as part of several major regional actors (O'Sullivan & Subramanian 2017). The complexity of global economic dependencies results in a significant intertwining between E7 and G7 groups. The former consists of countries using state capitalism as the foundation of political control mechanisms which aim at supporting national interests. The latter is composed of free market economies that rely on supply and demand interactions with little interference from the state. State capitalism is "*a system in which the state plays the role of leading economic actor and uses markets primarily for political gain*" (Bremmer 2010). In this configuration, governments politicize national interests and get in the way of foreign companies to protect local actors. The future balance of power between regional economic leaders will rely in a new type of relationships embedded in the guarded globalization where interactions between state capitalist and free-market countries have a different momentum.

## 5.2 From Global to Glocal

The rise of globalization rests on the progressive development of transportation and communication technologies. The first wave of globalization was made possible thanks to the advancement in steam-power technology while mass production made it cost-effective. Separating markets and production sites geographically was beneficial for companies, but it generated high coordination costs. The emergence of ICT combined with income disparities between developed and developing countries are at the roots of the second globalization wave. The dissociation between the location of consumers and manufacturers could be bridgeable thanks to the reduction of the coordination costs and the low wages provided in factory economies. This trade-investment-services-intellectual property nexus relies on physical, financial and data international flows as well as organizational learning. Shifting from local clusters of production to interconnected global SCs moved away added value creation from outsourced assembly lines to internal activities such as marketing and design. Nowadays companies focus on KM where external resources and flow management are coordinating practices. As manufacturing activities produce less value than during the first wave, supply challenges lie in the way companies use flows of information and organize knowledge to create a sustainable competitive advantage. (Baldwin 2012)

Even though state capitalist countries are well ahead in practicing guarded globalization, it seems that more western economies will adopt this growing view on global trade to a certain degree. This type of global trade combines local interests with global access to labor, capital and consumers at a higher level than the previous waves. Firms involved in this new wave of globalization face challenges in reconciling strong local business integration that serves the interest of the nation and efficient management of global ramifications supporting their headquarters. In that sense, the prospect of global trade will depend on appeasing conflicting interests occurring at the junction of local and global interactions. The former CEO of IBM translated this need for coordination into the antagonism of physical and digital worlds. On the one hand, geopolitics and political turmoil accelerated the withdrawal of globalization into itself which has reduced corporate responsiveness to changes. Thus, governments are little inclined to practice free trade as we know it today. For that reason, they are gradually restructuring policies to reinforce the idea of national preferences at the same time as rethinking their participation to global networks to match local priorities. On the other hand, the technological

advancements in ICT improved the reliability of coordination tools thanks to competitive online systems. In this context, the goal is to use innovations so as to improve the efficiency and personalization of relationships between the supply and the demand. The political changes and the rapid development of information systems are reconfiguring the structure of global trade. The role of corporations and governments are vital to pursue global interactions simultaneously with the prioritization of local interests. (Palmisano 2016)

### 5.3 Customer Centricity

Svensson (2001) identifies local, international, multinational and global dimensions as the geographical levels of a glocal strategy. A local strategy is designed to face challenges occurring locally. Business processes are embedded in specific environments and are intended to meet customer expectations in different geographical locations while supporting economic performances of all subsidiaries. An international approach performs local business activities in countries having similarity with the home market. The multinational strategy is applicable with unlike markets and a larger number of countries. Business practices are adapted to local demand in both international and multinational concepts. Finally, a global strategy covers both international and multinational geographical levels. Therefore, fusing the terms global and local together enable organizations to serve complex environments that have different requirements from customers. Nascente (2015) defines glocal strategy as “*the ability to understand all the diversities and changes of its consumers.*” Therefore, understanding the expectations of end-users is vital to benefit from the localization of business practices and efficient design of SC strategies. Marketing activities support the adaptation of procedures at the time as managing existing structures necessary to meet local realities. Taking into consideration, cultural differences, political specificities and economical features of a country enable an organization to distribute its products simultaneously in different markets. In this configuration, products are in line with the social and cultural values of each country while participate at the same time in building a global brand image. This glocal strategy takes the best of global and local dimensions and serves the business strategy of a company. (Tian 2006)

In other words, the standardization of practices refers to a global approach while the adaptation of processes concerns glocal principles. As products, can be categorized by geographical area, segmented by features or classified by buying behaviors, there are many options lying between

standardization and adaptation. Such hybrid approach, consists of mixing standardized and differentiated elements of the marketing strategy with the aim of creating a strategic fit that matches the business requirements. Accordingly, the internationalization of organizations goes hand in hand with hybrid strategies. This phenomenon raise the importance of distinguishing global, regional and national products or brands. (Douglas & Wind 1987) The configuration of SC capabilities that focus on globalization are based on efficient operational processes along the supply side. In contrast, the localization approach, develops responsive operational practices toward the demand side. The efficiency of a distribution networks is measured by comparing the customer expectations with existing SC activities designed to satisfy customers. Also, calculating the cost of satisfying customer's needs is essential. The right combination of localization and globalization is achieved by reconsidering existing processes and implementing sustainable practices. (Ravet 2013)

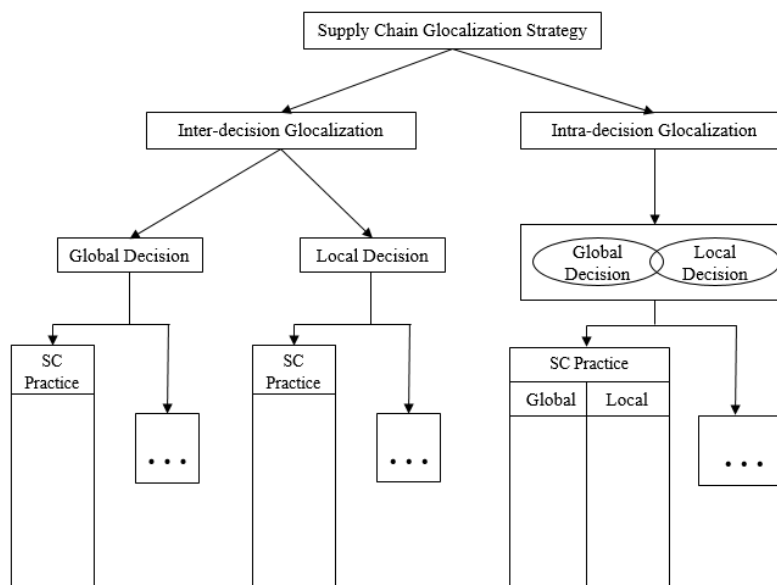
#### 5.4 Glocalization of SCM

The Shift from local clusters of production to interconnected global SCs shed light on the relationships between headquarters and peripheral actors. Drori et al. (2014) states that “*the so-called global is a collage of local practices, behaviors, and tastes while the so-called local is increasingly constructed within the scripts drafted by global forces.*” In other words, headquarters adapt themselves to the imperatives of subsidiaries while local branches are responding to the pressure of headquarters. The globalization as we know it today is characterized by the rationalization of processes. However, global interactions are reshaping organizational structures of local branches into a more complex configuration as organizations must be aligned with the demand side to respond to rapid market changes. (Meyer 2014)

The reconfiguration of globalization into glocalization is driven by the heterogeneousness of operating processes globally. Organizations use a significant degree of localization when designing their global strategy. Local adaptations originate from economic, cultural and political differences between countries. Therefore, the standardization of processes is getting less attention as the existence of a single global identity is exaggerated. (Maynard & Tian 2004) Glocalization compensates for the weaknesses of globalization by connecting the headquarters with local practices. The term interrelates the notion of rationalization and the concept of differentiation. The level of glocalization of a company depends on the degree of correlation

between homogeneous and heterogeneous processes. Hence, there are different options possible to design glocal systems. The attributes of globalization relate to the notion of world order while the features of glocalization capture world environments as they are. Consequently, glocal determinants are the new constituents of contemporary trade modes of governance. (Robertson 1995)

Figure 12. Glocalization of SC strategies (adapted from Jain et al. 2012).



Organizations using a glocal strategy deliver their offering through the design of local distribution channels. Inter-decision and intra-decision are two different approaches to glocalization, as can be seen in figure 12. Inter-decision in glocalization administers each SC practices at a global or a local level while intra-decision in glocalization uses a hybrid strategy that globalizes and localizes each SC practice. These two approaches provide flexibility and customization capabilities in the design of a glocal strategy. The degree of localization depends on cultural diversity, business practices and regulations differences. Peripheral actors adapt to local requirements while headquarters react to global turbulences. (Jain et al. 2012)

Pastuth (2015) summarized that “*globalization is pushing toward a common form in certain ways, to a certain degree, and under certain conditions but in doing so, variety and difference are created, recreated, and reinforced simultaneously.*” In term of SCM, a parallel can be drawn between the concept of standardization and the ‘global area SCN’. In addition, the notion of differentiation refers to the ‘local area SCN’. The integration of local suppliers into the

manufacturing and assembling processes of a company is fundamental. Cost reduction, flexibility and better quality are identified as advantages of such approach even though challenges arise from local sourcing. Complex technical requirements of products combined with limited delivery capabilities are issues that local suppliers face when trying to meet their commitments fully. High-volume manufacturing processes, low-cost products and stable product portfolio match the competencies of the 'global area SCN'. In contrary the 'local area SCN' deals with high-value products, low-volume production and customized offering. Combining 'global area SCN' and 'local area SCN' enables an organization to increase demand responsiveness and reduce the costs of products. Integrating local suppliers into global SCN and developing supplier selection practices are challenging. However, local manufacturers understand better the needs of the stakeholders when they are considered as an active member of the network. Acquiring the right ICT systems and building trustworthy relationships over time contribute to developing long-term collaboration with partners. The glocal strategy is in line with the ongoing political changes as it increases economic benefits through revenue and job creation at the local level. The elaboration of a procedure for selecting suppliers will improve the quality of the product, the delivery capabilities and the logistic system. Thus, dealing with supplier relationships management at a local and global level lower costs, stabilize inventory and enhance flexibility. (Thomas & Barton 2007) Before entering a new marketplace, a company must identify and understand the prerequisites of the business environment. The personalization of SC strategies to geographical attributes or type of products is a vital requirement to maintain the competitive advantage of an organization over time. Such approach involves focusing on supplier relationships, operational processes and distribution channels. (Christopher & Towill 2001)

## 6 DEVELOPING A CUSTOMIZED SUPPLY CHAIN STRATEGY

Understanding the architecture of a SCN goes hand in hand with comprehending the structure of its core SC. The good positioning of the inventory along the chain is essential. This chapter focuses on identifying the SC elements that support the formulation process of a customized SC strategy while taking into consideration both categorization and articulation approaches.

### 6.1 Supply Chain Network

Christopher and Ryals (1999) emphasize that SC strategy strongly supports the creation of value for shareholders. The globalization of business activities and the improvement of ICT has made SCs more dynamics. Consequently, relying only on continuous improvement is not sufficient to meet customer expectations and market trends. Hence, focusing on SC flexibility is indispensable to match the stakes of SCM. (MacCarthy et al. 2016) Data sharing activities and flows of goods occurring within a company define the internal SC. The connections between a firm and an immediate third party deal with interactions at a dyadic level. Inter-firms' relationships following a linear approach describe the SC. Handling a myriad of organizations interlinked with each other within the different tiers of the SC involves the management of a SCN. (Harland 1996) Buyers increase performances by participating in activities beyond the SC. Understanding the configuration of a SCN enables buyers to improve the connections between SCs and to support suppliers of suppliers. (Choi & Kim 2008). Hakansson and Snehota (2000) states that *“Every relationship is not only a bridge between two actors but also a reflector or a projection of other relationships”* which highlights the importance of designing SC strategy with a SCN perspective. Therefore, the elements forming a SC strategy should support the assimilation of supply activities across the four levels of SCM with an emphasis on inter-organizational network (Harland, Lamming & Cousins 1999).

Competition does not occur only at the chain level but between networks. In such circumstances, successful companies create sustainable competitive advantage through SCN management. (Christopher 2011) As Kim (2013) proposes *“a supply chain should be analyzed as a network that comprises multiple tiers of network entities such as raw material suppliers, manufacturers, distributors, wholesalers, retailers and customers.”* A way to conceptualize this approach is to use the main SC as the base of the network. In such system, active members are

part of the core SC while inactive members have indirect interactions or belong to another SCs. The SCN is strategically important for the members of the core SC while necessary for the peripheral members. (Braziotis et al. 2013) Before embarking on the formulation of a SC strategy, a company should know the dynamics of the market and operational processes. Product segmentation and demand fluctuation should be analyzed to identify the position of the inventory decoupling point. Once the required replenishment leading time is known it is easier to serve customers and to select the appropriate SC strategy. (Mason-Jones et al. 2000)

## 6.2 Modular Processes

The bullwhip effect is the consequence of the lack of coordination between members of the SC. It creates inventory fluctuation along the SC at the same time as the customer demand moves upstream. The bullwhip effect takes roots in the lack of forecasting efficiency, unexpected changes in prices, irregular orders and supply deficiencies. Enhancing data exchange between the demand and supply sides as well as supporting coordination mechanisms solve these issues. Reducing costs and lead-times improve SC activities by reducing the bullwhip effect (Lee, Padmanabhan & Whang 1997) The upper and lower parts of a SC have different particularities. Upstream participants set up their resources and capabilities to provide cost efficiency, delivery reliability and high productivity. Members of the downstream part concentrate on providing high service level to end-consumers. To put it another way, the demand side relates to the personalization of the offering and agile characteristics while the supply side encompasses forecasting capabilities and leanness attributes. (Morash 2001)

Strategic inventory management enhance the formulation of SC strategies by identifying the right location of the inventory along the chain. This approach uses the 'push' concept that forecasts and stores standard products as close as possible from customers and the 'pull' system that personalizes and deliver the product at the customer order point. The 'push' approach relies on the predictability of products manufactured in high quantity. The low degree of adaptability of such system and the bullwhip effect are two issues to consider. The fluctuation of orders and long lead-time increase the inventory located upstream. The production of larger batches increases buffer stocks, lower customer service and challenge external resources management. In contrast, the 'pull' concept deals with real-time orders and meet customer expectations. Therefore, this system enables the diminution of the bullwhip effect and the inventory as well



as improving customer satisfaction and reactivity to changes. However, the limitations of the pull approach lie in the difficulties to mass customize products. This hybrid strategy gains more attraction and significance as the 'pull' and 'push' approaches cannot provide an optimal solution on their own. The 'push-pull' SC takes the best of both concepts to provide cost effective processes and product customization at once. The 'push' capabilities are deployed on the supply side while the 'pull' system operates along the demand side. (Ghrayeb, Phojanamongkolkij & Tan 2009)

In other words, the 'push' concept estimates manufacturing needs and delivers the components to the point of assembly following a make-to-stock approach. Making-to-order refers to assembling the final products at the placement of an order using the 'pull' system. The postponement strategy is required when the demand prefers receiving a personalized product or service. This method relies on the production and adaptation of generic modules or components. The decoupling point is positioned at the junction of the 'push' and 'pull' systems. The upper side of the SC uses 'push' approach to predict the demand for generic parts while the lower part relies on the 'pull' strategy to adapt the products to the needs of customers. (Goldsby, Griffis & Roath 2006)

### 6.3 Triple 'A' Supply Chain

Instability and changeability characterize the 21st century. In an era of uncertainty and turbulence, competitive advantages are temporary which rise the interest of companies to integrate responsive capabilities in the formulation of their SC. (Christopher & Holweg 2011) Differentiated SC strategies are reliable solutions in fluctuating environments. In such circumstances, a company that relies only on lean or agile SC should integrate principles from the counterpart. (Strategic Direction 2006) The implementation of a differentiated SC strategy follows a four stages development plan. Identifying the SC characteristics of the focal company as well as segmenting the market into product characteristic, customers' profiles and local environment is the first step. Segmentation is based on the experience of the firm and customer expectations. In a second phase, the focal organization selects the SC solutions that best fit the needs of their customers. Their needs are easier identified with the collaboration of the marketing department. Thereafter, a screening of the production and delivery practices are required to evaluate existing and potential SC capabilities of the firm. The most appropriate SC

practices are selected for each market segment in line with customer and environmental requirements. Adopting a differentiated SC for each category enable the company to increase the variety of its products. Providing a larger portfolio of products is made possible by centralizing production systems and using a modularity approach to product design. The implementation of such strategy implies collaborating with a higher number of stakeholders and managing different product prices. Collaborative relationships are made possible by connecting demand and inventory through the integration of ICT systems. The relationship between marketing and logistic units benefit from a more comprehensive integration as the former defines the strategy and the latter implements it. Looking only at efficient processes to reduce costs is not enough anymore. Added-value creation processes are enhanced through customer services and the involvement of SC unit members in the product design phase. (Hilletofth 2009)

Before selecting a suitable SC strategy, a company needs to identify and comprehend the key constituents driving its business activities. These elements belong to four different groups such as 'industry framework', 'unique value proposal', 'managerial imperatives' and 'internal processes'. The effects of externalities occurring within the marketplace on businesses are important to analyze. The segmentation and fluctuation of the demand influence the productivity of manufacturing premises which ones determine the reliability of the production processes and the costs involved in SC activities. Due to rapid changes in market trends organizations must revive product lines regularly and shorten product-life-cycle. Identifying the strategic fit of resources enable companies to define the right competitive positioning and select the appropriate elements of a SC strategy. The business and SC strategies should be aligned with so as to produce efficient operational activities. Such coordination is made at a strategic and tactical level and allows the distinction of practices that generate efficient processes from the ones contributing to creating a sustainable competitive advantage. Finally, the activities governing SC processes depend primarily on the asset utilization rate and the position of the decoupling point. (Perez 2013)

The triple 'A' SC represents an ideal SC strategy to respond to the challenges related to market volatility and changes. Building SC 'agility' requires to set up and manage reliable information flows systems with suppliers and customers. Developing collaborative supplier relationships and collecting customer feedback support the reformulation of the value proposition and the re-engineering of processes when the needs arise. In this context, assembling the final product

starts with the customer order. 'Agility' relies on the management of generic inventories and buffer stocks as well as on the development of effective logistics practices and contingencies capabilities. Integrating the notion of 'adaptability' to SCs implies the monitoring of market trends and the creation of up-to-date knowledge to identify new suppliers and customers. Exploring the capabilities of third-party logistics providers and suppliers of components provides great opportunities for organizations to face market turbulences. Including a modularity mindset to product design and production processes connects a company with the expectations of its customers. Moreover, identifying the phases of the products lifecycle and assessing technological advancements increase SC flexibility. The coordination between a company, its suppliers and its customers is made possible through KM. Organizational charts detailing the roles of partners clarify the responsibilities and tasks that need to be performed along the SC. Power equilibrium between suppliers and buyers is achieved by sharing risks and costs as well as by developing incentives to improve SC processes. Finally setting up data exchange policies about the past and future sales while defining upcoming objectives increase performances of the SC. (Lee 2004)

As mentioned previously the lean approach fits the needs of the functional product while the agile SC supports innovative products. At the junction of the two worlds lies the hybrid strategy better known as the leagile SC. Hence, hybrid products are a combination of innovative and functional products that combine generic and standard components. In other terms, such strategy can optimize costs of mass customized product while being able to adapt to changes. Therefore, the categorization of products is the first step to take toward a differentiated SC strategy. (Huang et al. 2002) The implementation of SC strategy tends to be successful when in line with the right organizational culture (Mello & Stank 2005). 'Group culture', 'developmental culture', 'hierarchical culture' and 'rational culture' are four management styles to consider when formulating a SC strategy, as showed in figure 13. The level of flexibility and control as well as the degree of internal and external focus within a company distinguish these four groups. The flexibility dimension relates to change and adaptability while control to stability and regularity. The internal attributes deal with the activities sustaining and improving existing processes. On the other hand, external determinants concentrate on evaluating business environments to adapt processes taking place outside the boundaries of the firm in periods of instability. 'Group' culture fosters organizational independence to improve internal processes. Employees have a high degree of autonomy to respond to changes. 'Hierarchical' culture promotes internal procedures and rules to keep a high level of stability

within the firm. ‘Developmental’ culture stresses external relationships and adaptation capabilities to embrace innovation and growth. Finally, ‘rational’ culture focuses on productivity through strong control mechanisms such as guidelines and KPIs. (McDermott & Stock 1999)

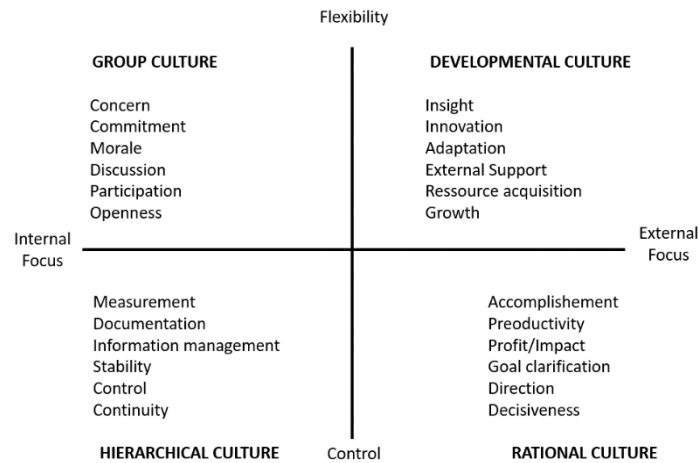


Figure 13. Competing values of organizational cultures (adapted from McDermott & Stock 1999).

External relationships management deals with suppliers and customers. Adopting the right corporate culture to manage these interactions is crucial to assemble the elements of a SC strategy. Cost, quality, flexibility and innovation are the main competitive determinants to take on board to elaborating a competitive SC. Cost relates to mass production, standardization of product and stability of processes while quality involves knowledge and team work management. The flexibility dimension is materialized by connecting internal and external processes to ICT. Innovation releases the resources required to produce a creative working environment that emphasizes knowledge absorption and discovery. These four priorities reveal the traits of organizational culture introduced by McDermott & Stock (1999). An ‘efficient’ SC is managed by a ‘hierarchical’ culture that fosters stability in environments characterized by a low level of supply and demand uncertainty. The ‘group’ culture assists ‘risk-hedging’ SCs with managing a high supply volatility and a predictable demand. A ‘responsive’ SC is supervised by a ‘rational’ culture which is adapted to handle low supply uncertainty and high demand volatility. The ‘developmental’ culture enables ‘agile’ SCs to deal with uncertainty for the supply and the demand sides. Furthermore, implementing the right information system is vital to optimize the relationship between the organizational culture and the SC strategy of a firm. (Jungbae-Roh et al. 2008). The four organizational cultures developed by McDermott and Stock (1999) are put in perspective with the four SC strategies introduced by Lee (2002) in the uncertainty matrix elaborated by Jungbae-Roh et al. (2008), as illustrated in figure 14.

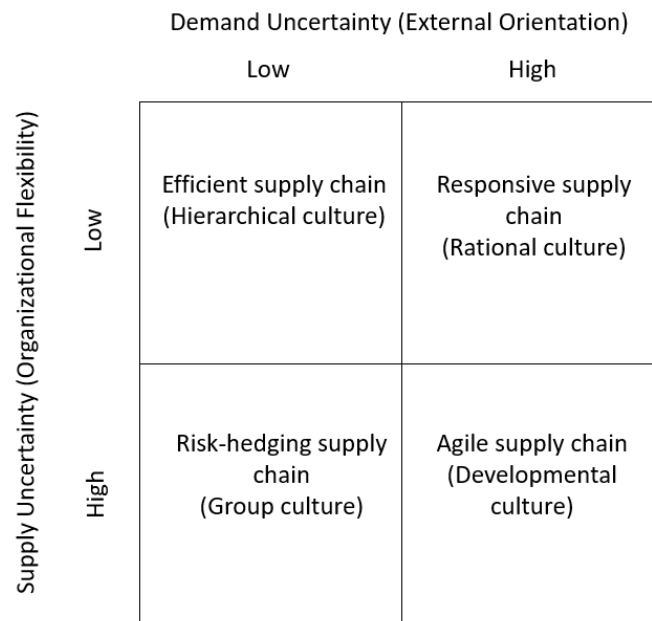


Figure 14. Organizational cultures & SCs (adapted from Jungbae-Roh et al. 2008).

The relationships defining the core SC of a network are reconfigured over time at the pace of technological and market changes. These reorganizations of interactions along the core SC lead to performance fluctuations. The transformative capability of an organization is a fundamental element of a SC strategy. Collaborative relationships are the keystone of knowledge diffusion and organizational learning which are necessary in SC integration. (Arora et al. 2016) Organizations developing trustworthy relationships with suppliers generate higher performances than companies with arm's length relationships. Thus, allocating the right amount of resources to the right business units is vital to align the interests of the focal company with the processes of suppliers. (Jajja et al. 2016) Measuring the level of customer satisfaction and anticipating the problems of customers are the key activities of companies with high level of performances (Morash 2001). SMEs generally neglect SC strategy design during the configuration of the growth strategy. This omission hinders the development of organizations when SC challenges arise. SMEs fail to formulate a clear vision of their SC strategy when venturing a new market, broadening existing opportunities or designing a new product. Therefore, a SC strategy should follow the footsteps of established market and integrate the innovation strategy of the company. The failure of SMEs in managing their SCs is related to organizational constraint, resources limitations and short-term orientation. The management of external resources is often taking place at the operational level instead of being included in the strategic fit. (Sharifi, Ismail, Qiu & Tavani 2013)

Perez-Franco (2016) disapproves SC categorization due to the complexity, diversity and subtlety of SC strategies. He argues that the simplicity of existing type of SC strategies developed by Fisher (1997), Lee (2002), (Christopher et al. 2006) or Perez (2013) cannot faithfully capture the SC needs of an organization. As an alternative, the author proposes to characterize SC strategies with the CSAR that expresses SC features in an explicit way. Such conceptual system is defined as a “*group of interrelated ideas working together to achieve common goals*”. Thereafter, the articulation of the SC strategy is illustrated by the FSM which is a “*depiction of interrelated ideas*”. (Perez-Franco 2016) To provide clarity and practical guidance the thesis does not exclude any of the two approaches. Both categorization and articulation are used to characterize the formulation process of a customized SC strategy in the best way possible.

## 7 RESULTS AND ANALYSES

Perez-Franco (2016) highlights the opposition between ‘best practices and tailored practices,’ and ‘external and internal wisdom’ in SC strategy design. These characteristics are the building blocks of the empirical part as the case company is analyzed through the lenses of SC categorization and SC articulation. Customer satisfaction, product categorization, customer segmentation, portfolio of buyer-supplier relationships, resources availability and capabilities identification are type-based methods. In contrast, the determination of the SC strategy and the organizational relationships of the company rely on specific approaches. The goal of an organization “*is not to create value for customers but to mobilize customers to create their own value from the company’s various offerings*” (Normand & Ramirez 1993) which gives the “*end customers a very important role, as they define the differential and superior value created by the network actors*” (Helander 2004). Therefore, as a bridge to connect operational activities with the overall mission of an organization, a SC strategy must bring together internal and external stakeholders in value co-creation activities.

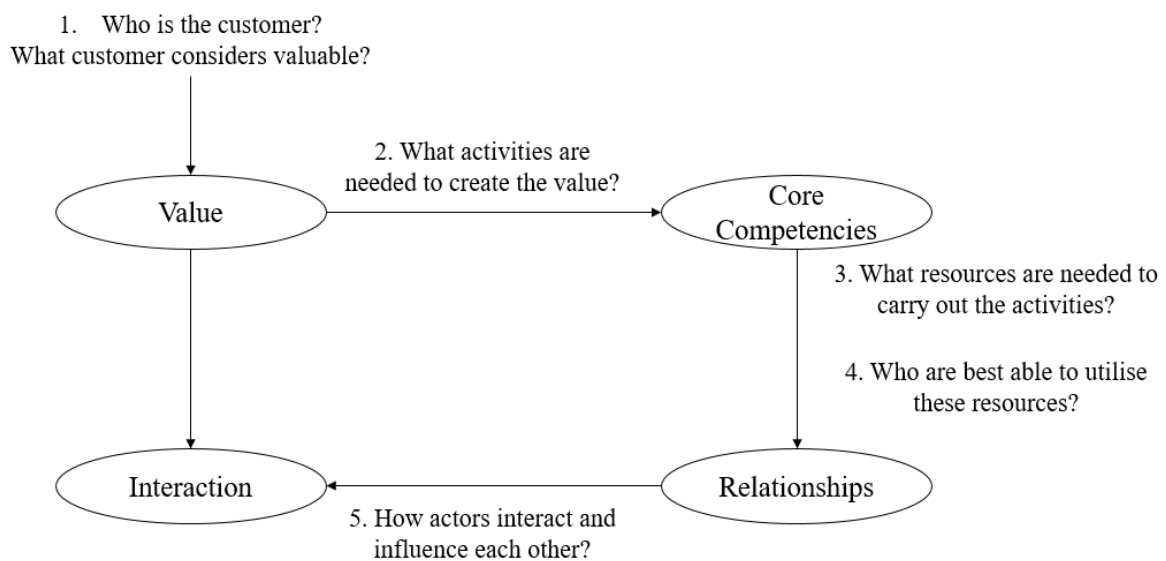


Figure 15. Model of value creation in networks (adapted from Herrala, Pakkala, & Haapasalo 2011).

The model of value creation developed by Herrala et al. (2011) combines all the fundamentals SC blocks in the formulation of a SC strategy, as showed in figure 15. The five stages of the framework depict the core SC of the case company and keep the notion of SCN in the background.

The five stages of value creation in the formulation of a SC strategy:

- 1 The customer satisfaction, customer segmentation and product categorization support the understanding of the market environment and the customer demand.
- 2 The CSAR lists the most important activities creating value for the customers within the case company.
- 3 The resource and capability-based analyses identify available resources and define core competencies.
- 4 The ONA and the portfolio of buyer-supplier relationships capture the key actors capable of using such resources.
- 5 The ONA and the portfolio of buyer-supplier relationships describe the interactions between the members of the core SC.

The following sub-chapters present the results of the seven analyses conducted in accordance with the model of value creation developed by Herrala et al. (2011). Because each element of the model is creating value in networks it is vital to analyze them in practice so as to outline the formulation process of a SC strategy that is aligned with the customer expectations.

## 7.1 Customer Satisfaction

Launching a customer satisfaction campaign and collecting answers from a large sample of customers would have been too time-consuming and resource-demanding. For that reason, the customer satisfaction was evaluated by sending a questionnaire to the brand manager. The answers are based on past meetings with customers and feedback from the field. This estimation does not provide an accurate measure of the customer satisfaction, but it has the merit to highlight the necessity to start collecting the opinion of customers in the future.

The estimation of the customer satisfaction indicates that overall customers are ‘moderately satisfied’ with the case company. Considering that ‘extremely satisfied’ is the highest statement



to describe customer satisfaction it can be said that the value proposition delivered by the case company has been accepted by their customers. Additional comments from the respondent confirmed the compatibility between the value proposition and customer expectations. Identified problems are related to the development of innovative products. The case company is an early-stage business which occasionally generates technical malfunctions and customer dissatisfaction. Customers find 'extremely easy' to do business with the case company and are in contact 'extremely often' with representatives to get answers to specific questions. These considerations are treated on a timely basis and customers are 'extremely satisfied' with the solutions of the customer support team. Overall the customers are 'moderately satisfied' with the customer service provided by the case company. The respondent emphasized that addressing the concerns of customers is a top priority. Questions from customers are sent to the appropriate expert according on the topic of the question. Allocating the inquiries to specific expertise enriches the answers and increases customer satisfaction. In case a problem persists throughout a period longer than expected, customers complain about the reactivity of the customer service.

Overall customers are 'moderately satisfied' with the products and services offered by the case company. The attributes related to the products and services that are the most appreciated are 'value' and 'exclusivity'. Next, come customization, the usefulness, the variety and quality of product and services. Price is 'satisfying slightly' customers making it the less appreciated attribute. Additionally, quality and exclusivity are identified as the two most important determinants in the decision of customers to acquire a product or a service. Finally, customers are 'moderately likely' to keep doing business with the case company and appear to be promoting product and services to friends and colleagues. The final comment of respondent highlights the uniqueness of goods and services as well as the alignment of the value proposition with the customer expectations.

## 7.2 Product Categorization

Categorizing the products of a company is one of the first steps toward designing an appropriate SC strategy (Hilletofth 2009). The product portfolio of the case company consists of four manufactured products and one service-based solution. The questionnaire developed by Huang et al. (2002) enables the identification of the right SC strategy in accordance with the type of

product manufactured by the case company. The questions are divided into three levels of significance on a top-down approach. Level one reflects the features of the products while the two others refine the results.

Face-to-face interviews could not be organized and instead five online questionnaires have been sent to the COO. The results are not drawn from computable systems as suggested by Huang et al. (2002) but rely on the guideline presented in the model of development and the researcher deductive skills. Each product is placed in the right box of the matrix after all answers are analysed, as can be seen in figure 16. The selection of the SC strategies is based primarily on answers from level 1 while level 2 and 3 indicate the degree of orientation of each product. Product [1], product [2], product [3] and product [4] are identified as standard products. However, they all have at some point a slight level of hybridization. The level 2 and 3 of significance show that product [1], [2] and [3] have clear attributes of hybrid and innovative SC strategies while product [4] is not characterized by such feature.

	Innovative Product	Hybrid Product	Standard Product	
Agility Supply Chain	<b>Product 5</b> DESIRED MATCH	LESS DESIRED MATCH	UNDESIRED MATCH	Innovative Product
Hybrid Supply Chain	LESS DESIRED MATCH	DESIRED MATCH	LESS DESIRED MATCH	Standard Product
Lean Supply Chain	UNDESIRED MATCH	LESS DESIRED MATCH	<b>Products 1, 2, 3, 4</b> DESIRED MATCH	Hybrid Product

Figure 16. Alignment of products with SC strategies (adapted from Huang et al. 2002).

In contrast, product [5] has the attributes of an innovative product despite some traits of standardization from the lower levels of significance. The product categorization analysis identifies leanness as the appropriate SC strategy to manufacture products [1], [2], [3], [4] and agility as the distinctive mark of service based product [5]. However, the new design guide reveals a high degree of customization of existing and new products. The reduction of the product portfolio, the addition of accessories and the possibility to tailor some parts of the products foresee a transition toward a hybrid SC strategy. Moreover, the value proposition of

the case company focuses primary on the delivery of a service which is characterized by physical products and human interactions. Hence, the agile SC strategy should be considered to answer the specific needs of customers.

### 7.3 Customer Segmentation

Putting in line SC strategies with the profile of customers is as much important as categorizing the products. In this configuration, supply needs are easier identified with the collaboration of the marketing department. (Hilletoft 2009). The most appropriate way to distinguish markets and local environments is to capture the behavior of customers. Four types of buying behaviors describe the best interactions between a company and its customers regardless the type of products or services. An online questionnaire based on the model developed by Christopher & Gattorna (2005) has been sent to the CRO of the case company. The analysis tries to identify 'collaborative', 'consistent', 'dynamic' and 'innovative' buying behaviors in accordance with countries and products.

Customers belonging to the 'collaborative' buying behavior are less interested in price than by the necessity to develop trust-based relationships and stable delivery processes. The appropriate SC strategy for this behavior is the 'continuous replenishment' type which focuses on customer loyalty and reliability. The 'consistent' buying behavior is characterized by a desire of getting services at the best possible price and developing a low-cost offering that is steady over time. Implementing a 'lean' strategy is in line with the needs to manufacture high volume products, to have a high level of collaboration with external partners and to focus on cost minimization. Customers having a 'dynamic' buying behavior have demanding and irregular expectations. They are driven by price but are often considering premium offers if the value proposition matches their needs. If so, an 'agile' strategy is the right SC solution to use as it supports fluctuation in demand through responsive and flexible processes. Finally, customers associated with 'innovative' buying behavior are not price sensitive. The firm should be responsive and inventive. In this case, a 'fully flexible' SC is needed to build processes able to adapt to mass customization. (Christopher & Gattorna 2005)

The results indicate that buying behaviors cannot be distinguished within a single country or from one country to another. Considering that 'agree' and 'strongly agree' are the answers providing an explicit indication about the buying behaviors of customers, it can be said that

only the implementation of several SC strategies will support the needs of customers. The answers of country [3] are not fully taken into consideration in the analysis as operational activities have just started. The number of customers being limited, it is not possible to draw their profile with exactness. Customers of countries [1] and [2] adopted different attributes from each four buying behaviors.

Table 5. Top five buying behaviors per product (adapted from Hilletoft 2009).

	TOP FIVE BUYING BEHAVIOURS OF CUSTOMERS FROM MOST IMPORTANT TO LESS IMPORTANT				
	1	2	3	4	5
PRODUCT 1	Customer are price sensitive L	Customer require consistent and efficient responses L	High customer loyalty C	Customers require trusting relationships C	Customer have a demanding behaviour A
PRODUCT 2	Customers require creative and innovative solutions F	Customer have a demanding behaviour A	Customer have a low sensitivity to price F	Customers require trusting relationships C	Customer require fast delivery A
PRODUCT 3	Demand is predictable L	Customers require quick responses A	Customer require fast delivery A	High customer loyalty C	Customer require consistent and efficient responses L
PRODUCT 4	Customer require fast delivery A	Customers require low cost service L	High customer loyalty C	Customers require trusting relationships C	Customer are price sensitive L
PRODUCT 5	Customer require low cost service L	High customer loyalty C	Customers require trusting relationships C	Customer require consistent and efficient responses L	Customer are price sensitive L

F: Flexible A: Agile L: Lean C: Continuous Replenishment

When the buying behaviors are analyzed per product, the results are different than anticipated. No clear SC strategy could be connected to products [1], [2], [3] and [4], as showed in table 5. The top five buying behaviors of each product have the characteristics of several SC strategies. In such a configuration, it appears that the type-based approach to identify SC strategies faces some limitations as it cannot formulate a clear solution for each product. Product [1], [2], [3] and [4] are composed of three different SC strategies while product [5] has only two.

- Product [1] is the combination of lean, continuous replenishment and agile strategies.
- Product [2] is a mix of flexible, agile and continuous replenishment approaches.
- Product [3] is an association of lean, agile and continuous replenishment models.
- Product [4] unifies continuous replenishment, lean concepts and agile solutions.
- Product [5] is composed of continuous replenishment and lean principles.

The combination of such strategies supports the process of SC customization where each strategy will form a myriad of buying behavior.

## 7.4 Portfolio of Buyer-Supplier Relationships

Analyzing the type of relationships between the case company and its supplier emphasizes the importance of power in SC strategy. Conducting a sourcing portfolio analysis enable an organization to identify the key members of the sourcing team, to evaluate the degree of collaboration of the participants and to determine the level of resources required for a group of supply. The critically matrix illustrates the four possible configurations that take place between commercial & operational, level of expenditure and organizational resources, as can be seen in table 6. Grouping each component into critically choices supports the identification of the right purchasing option in term of cost, quality and sustainability. In a second phase, the components of the products are placed in the power matrix to identify the type of collaboration that exists between the case company and its suppliers, as illustrated in figure 17. (Cox 2015)

Table 6. Criticality matrix (adapted from Cox 2015).

	COMMERCIAL, OPERATIONAL				LEVEL OF EXPENDITURE				ORGANIZATIONAL RESOURCES			
	Strategic Critical	Strategic	Tactical Critical	Tactical	Strategic Critical	Strategic	Tactical Critical	Tactical	Strategic Critical	Strategic	Tactical Critical	Tactical
Component 1	■							■			■	
Component 2				■				■				■
Component 3			■					■			■	
Component 4				■				■			■	
Component 5		■					■		■			
Component 6	■							■				
Component 7				■			■		■			
Component 8				■				■			■	
Component 9	■						■		■			
Component 10				■				■	■			
Component 11		■						■			■	
Component 12				■				■			■	
Component 13				■						■		
Component 14		■						■		■		
Component 15				■				■		■		

The criticality and the power matrix analyses has been conducted with the support of an online questionnaire that has been filled in by the COO. Additional information was collected by email to clear up misunderstandings. The questions of the questionnaire were based on the sourcing portfolio analysis developed by Cox (2015) and were derived from the critically matrix and the power matrix. The information of 15 components used in the production of the four products was collected in this analysis.

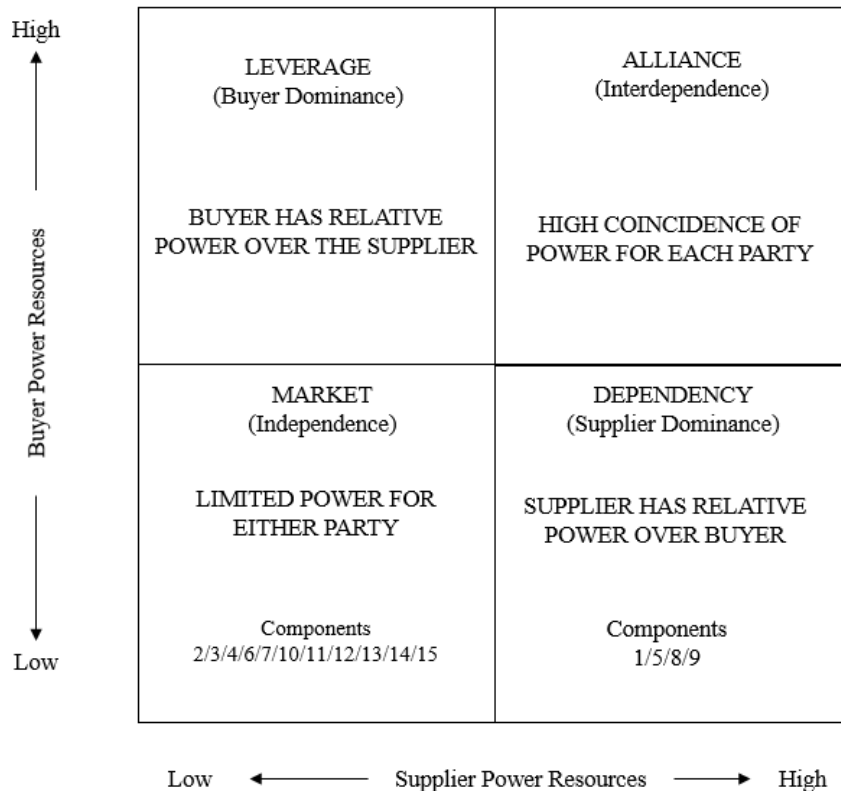


Figure 17. Power matrix (adapted from Cox 2015).

The critically matrix shows that the components having a ‘strategic critical’ and ‘strategic’ role in the good progress of commercial activities and the right execution of operational practices have a ‘tactical critical’ or ‘tactical’ level of expenditure. However, they are similar when it comes to organizational resources (except for component [1] and [11]). The power matrix indicates a limited power for either the case company and the suppliers in the exchange of 11 components. In this case, commercial transactions occur within the market and each party is independent from each other. The remaining components are under the dominance of suppliers. Out of these four components, two are ‘strategic critical’ and one is ‘strategic’ for the successful conduct of commercial processes and the smooth implementations of operational systems, as illustrated in figure 18. This imbalance of power should be taken into consideration during the formulation of the SC strategy.

The research focuses on the scoping analysis of the sourcing portfolio analysis which is the phase one of the strategic sourcing decision-making processes. This phase identifies the power position of the buyer over each supplier.

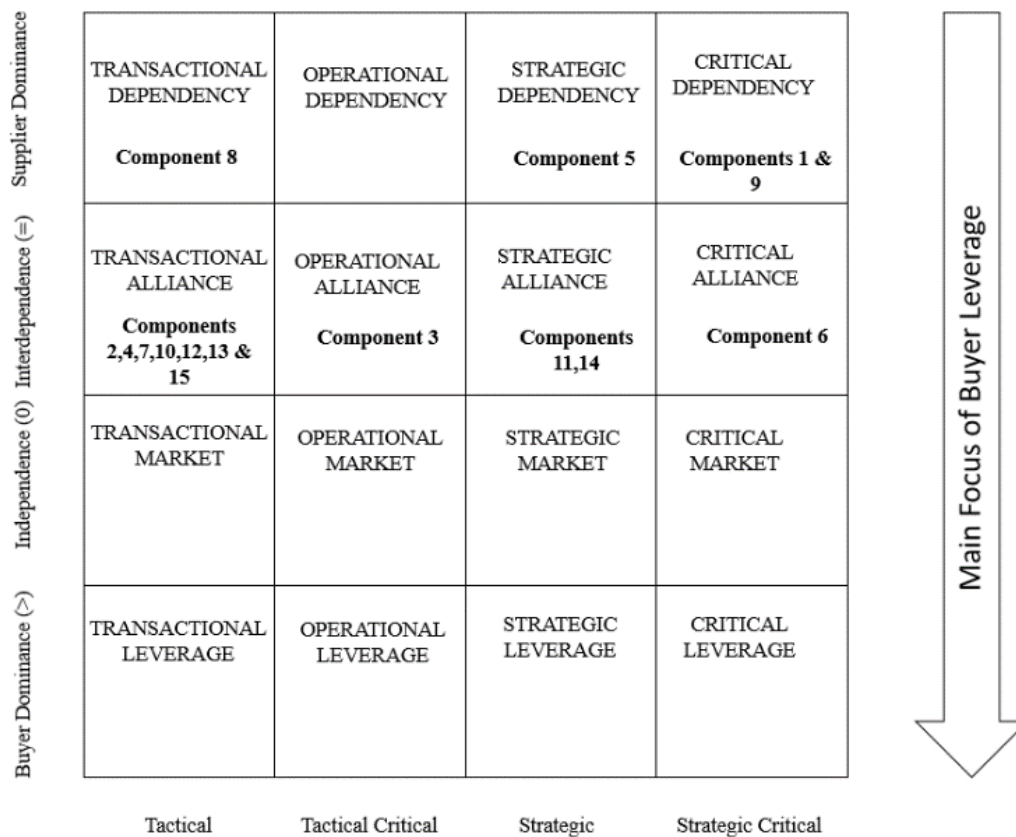


Figure 18. Sourcing portfolio (adapted from Cox 2015).

Highlighting the power position of buyer and suppliers provides an axis of development for the case company in finding potential sourcing alternatives for each option in the sourcing portfolio. The dynamic leverage analysis that considers the possible options to reduce the imbalance of power is not part of the research. Indeed, the thesis aims at identifying the nature of the relationships between suppliers and the case company, not the possible new power positions. The goal is to draw the attention of the case company to the fact that there is a need to develop processes that will reduce the dependency from suppliers over time. Hence, the dynamic leverage analysis and the identification of sourcing strategy for component [8], [5], [1], [9] are not included in the research. However, the case company mentioned that component [9] should be moved from the box ‘critical dependency’ to the box ‘critical alliance’ in the future. Even if sourcing alternatives for such move is not provided in this specific case, the analysis of the portfolio of buyer-supplier relationships still offers meaningful information as one ‘strategic’ and two ‘strategic critical’ components are under suppliers dominance.

## 7.5 Resource and Capability-Based Analyses

Financial, physical, technological and organizational resources are tangible assets while human, reputational and innovative resources are intangible assets (Hafeez et al. 2002; Barney 1991; Hitt, Ireland & Hoskisson 2008) The resource-based analysis consists of breaking down general resources into specific ones that sustain the competitive edge of the case company. Based on the questions developed by Power (2015) this investigation provides a ground for thought about the potential opportunities that the specific resources can leverage. The degree of rareness, the cost to imitate and the substitutability of specific resources as well as and the way they are organized to capture value are assessed. It turned out to be that the human and technological resources are source of differentiation.

Table 7. Resource-based analysis (adapted from Hafeez et al. 2002).

GENERAL RESOURCES	SPECIFIC RESOURCES		
	Name of Specific Resource 1	Name of Specific Resource 2	Name of Specific Resource 3
Financial resources (F)	Specific Resource (F) 1	Specific Resource (F) 2	Specific Resource (F) 3
Physical resources (P)	Specific Resource (P) 1	Specific Resource (P) 2	Specific Resource (P) 3
Human resources (H)	Specific Resource (H) 1	Specific Resource (H) 2	Specific Resource (H) 3
Technological resources (T)	Specific Resource (T) 1	Specific Resource (T) 2	Specific Resource (T) 3
Reputational resources (R)	Specific Resource (R) 1	Specific Resource (R) 2	Specific Resource (R) 3
Organizational Resources (O)	Specific Resource (O) 1	Specific Resource (O) 2	Specific Resource (O) 3

Core competencies are of strategic importance in the creation of sustainable competitive advantages. Their identification is made possible through the analysis of the capabilities inside each functional area of the case company. The research uses a top-down approach that breaks down these capabilities into key capabilities, competencies and core competencies.

The analysis follows a three-stage process (Hafeez et al. 2002):

- Key Capabilities:

The case company is divided into nine functional areas such as purchasing, unit of production one, unit of production two, sales & marketing, maintenance & service, research &



development, business & organizational development, procurement & logistics and finance. In total 38 key capabilities were identified based on their level of contribution to reach the objectives of the case company.

- Competences:

The level of integration of key capabilities across functions, products and business wide operations define the degree of collectiveness of the firm. The key integrated capabilities that are rare, inimitable and non-substitutable are the competencies. In other words, the 11 competencies identified within the case company are the key capabilities with a high degree of uniqueness and with a significant operational flexibility. The key integrated capabilities are placed on a cube which is characterized by three axes ranging from one to four. The competencies of the case company appear in the zone located in the top right corner of the cube, as can be seen in figure 19.

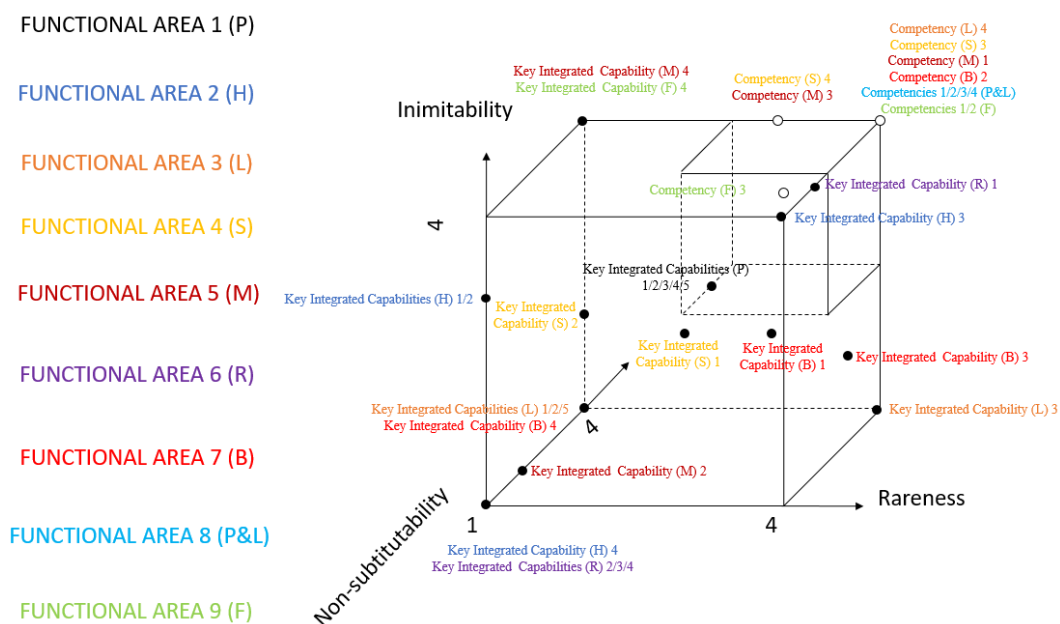


Figure 19. Identification of competencies (adapted from Hafeez et al, 2002).

- Core competencies:

Finally, competencies with a high strategic flexibility can redeploy resources to develop new potential business and can reorganize routine procedures to develop business activities in new directions. Four competencies are identified as the core competencies determining the sustainable competitive advantage of the case company.

The questionnaire related to the capability of the case company has been sent to the business and organizational development manager in the form of an excel spreadsheet. A printed version of the document was handed over in person to explain the whys and wherefores of the analysis before sending an electronic copy. The functional areas of the case company are identified from the organizational chart while the key capabilities are determined by the respondent based on the definition of Amit and Schoemaker (1993). Among the core competencies, three belong to the functional area of procurement and logistics while the last one is affiliated with the finance department. The BG company is currently in the phase of scaling up its operations and relies on customer service and innovative technologies to differentiate itself from its competitors. Even if, the case company seems to be properly in tune with its needs as new funding and key relationships are necessary to unlock growth potential a strategic refocusing on the demand side is necessary. The core competencies are currently focusing on the delivery of finished goods and should be redeployed to improve the delivery of services where the products are “*service-delivery vehicles*” (Vargo et al. 2008).

## 7.6 Characterization of Supply Chain Strategies

As mentioned in chapter four Perez-Franco (2016) developed a model that “*think the SC strategy of a business unit as a conceptual system*” that “*can capture, evaluate and reformulate a business unit’s SC strategy*” as well as “*connecting day-to-day SC activities with the abstract aspirations of the business strategy.*” The CSAR is used to overcome the limitations of SC categorization identified in subchapters 7.2 and 7.3 as well as expressing the SC strategy of the case company in a more apparent way. The so-called SC articulation consists of “*expressing a given supply chain strategy in explicit terms.*” The SC elements constituting a SC strategy are selected in accordance with specific thematic. Hence, this conceptualization enables organizations to design their own SC strategy reflecting the reality and needs of business environments. The CSAR model highlights the opposition between ‘categorization and articulation,’ ‘type-based and specific,’ ‘best practices and tailored practices,’ and ‘external and internal wisdom.’

As shown in figure 11, the aim of the CSAR is to connect the business strategy of the case company with its SC strategy and its operational practices. The ‘core’ represents the mission statement of the firm while the ‘pillars’ explicit the aspirations of the business strategy. The

‘principles’ identify the motives and overall objectives of the organization while the ‘imperatives’ capture their subtleties. The ‘policies and choices’ support the general and specific objectives of the case companies and are materialized into SC activities. The questions used to identify the SC strategy of the case company are drawn from the protocol for capture presented in the article “*rethinking your supply chain strategy: a brief guide*” written by Perez-Franco (2016). The guide lists recommendations that portray a SC strategy into a FSM. The evaluation and redesign of existing processes and solutions are not taken into consideration at this stage.

The first step aims at identifying the right functional areas and informants within the organization. The respondents are divided into three levels of significance according to their degree of involvement in crafting the overall strategy of the case company. Online questionnaires were sent to the global VP of business and organizational development (level 1), to the head of maintenance and installations (level 2) and to the business and organizational development manager (level 3). A one hour face-to-face meeting with each respondent is recommended, but for geographical and time constraints the three questionnaires were answered online. A qualitative data analytic tool is used to code and annotate the answers. In a third phase, the main themes are derived from ‘operational practices’ while the ‘policies and choices’ are identified. The ‘imperatives’ and ‘principles’ are listed before assembling the partial maps. Finally, the ‘nominal’ and the ‘executed’ strategy are combined to form the FSM.

As a result, no explicit statements about SCM were found in the general and specific objectives of the FSM, but all SC constituents could be identified, as showed in figure 20. Among those mentioned in the definition of SCM developed by Stock and Boyer (2009) identifying the right partners in the right markets to ramp up the business [General objective 5], financing business growth [General objective 6] and keeping satisfaction of employees high [General objective 3] refers to the “*management of a network of relationships within a firm and between interdependent organizations and business units.*” Supporting continuous improvement of business operations [General objective 8] and relate to “*the benefits of adding value, maximizing profitability through efficiencies*” while making products and services readily available to customers in megacities around the world [General objective 1] involves “*material suppliers, purchasing, production facilities, logistics, marketing.*”

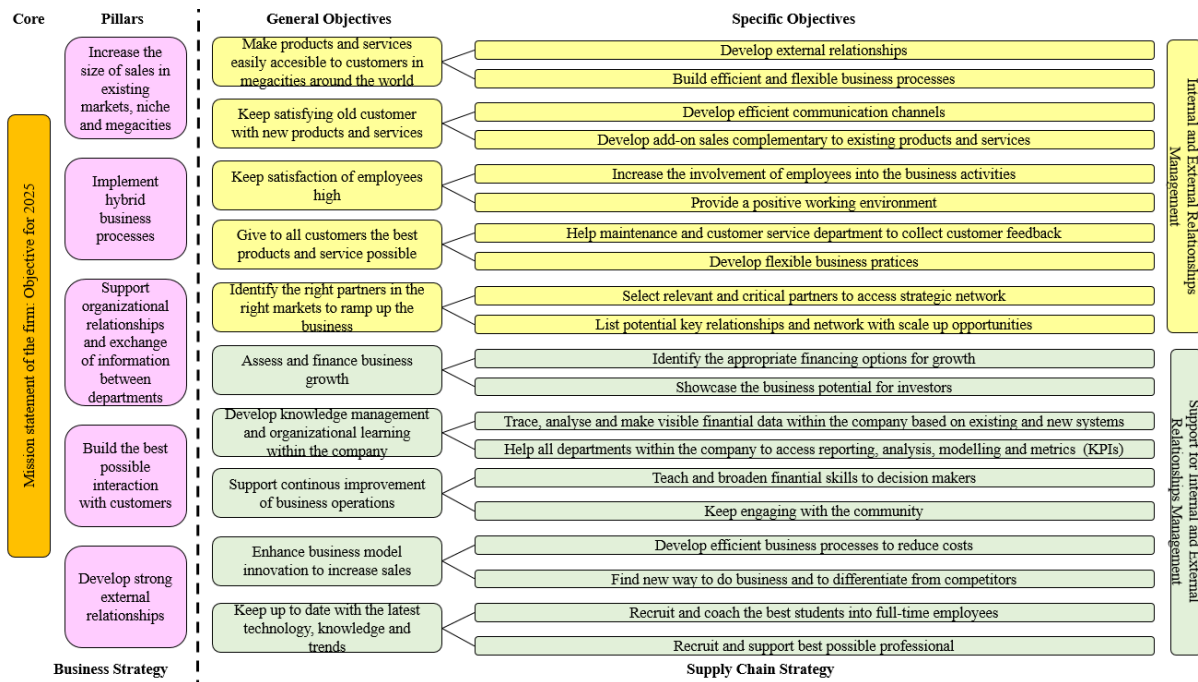


Figure 20. Functional strategy mapping: Supply chain strategy of the case company.

Developing KM and organizational learning within the company [General objective 7] applies to “*related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer*”. Finally, keeping satisfying old customer with new products and services [General objective 2] and giving to all customers the best products and service possible [General objective 4] is related to “*achieving customer satisfaction*”.

## 7.7 Organizational Network Analysis

An ONA aims at understanding the value of intangible assets generated through knowledge and relationships management inside and outside the case company. By identifying the nature of the relationships along and beyond the core SC, the ONA highlights the informal interactions taking place between all stakeholders, as represented in figure 21. Mapping the SCN defines the roles of stakeholders, describes the type of transactions and reveals the content of the deliverables. Roles are the positions of the participants within the SCN while the transactions represent the activities that occurs between two participants. Finally, the deliverables are tangible or intangible assets moving between two roles. (Allee 2008) Identifying key individuals, categorizing the network by function, stimulating new exchanges between

members or changing the configuration of the network optimize behavioral interactions, lead to network efficiency and improve organizational relationships. (Valente 2012)

ONA is increasingly used in SCM as it captures the relationships between all participants of the SCN. Stakeholders are visualized via a sociogram which shows the organizational interactions of individuals and groups of people within the SCN. (Sloane & O'Reilly 2013) The research design for network analysis is a four steps process defining “*the sampling unit, the relational content, the relational form, the level of data analysis*” at which “*setting the boundaries is the starting point in the collection of network data*” (Knoke & Kuklinski 1982). The ONA of the case company focuses on internal stakeholders operating at a tactical level. This choice is in line with the conceptual approach developed by Perez-Franco (2016) where the business unit’s SC strategy represents the tactical level of the organization. Hence, the sampling unit is an individual with a managerial role while the relational content includes both internal and external stakeholders. The frequency of contact between managers and the rest of the SCN characterizes the relational form of interactions while the level of analysis defines the role of the managers. The shift from SC to SCN management supports the optimization of value creation through the right allocation of resources, capabilities and core competencies within the network. (Lowson & Burgess 2002).

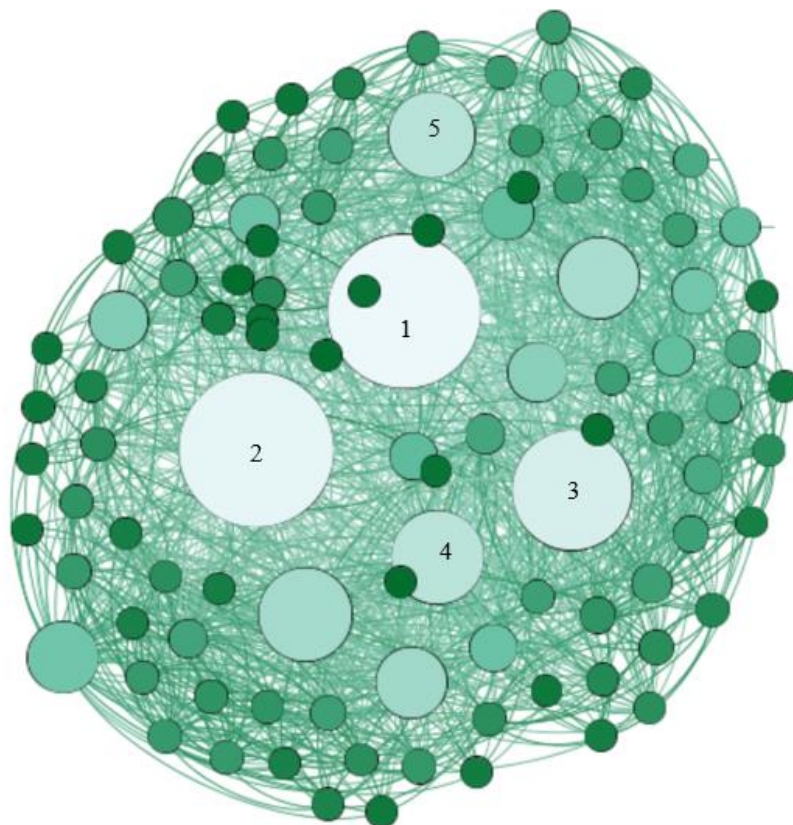


Figure 21. Five most connected managers of the case company (Visualization with Gephi).

This ONA relies on two online questionnaires that have been sent to 20 managers in three countries. The analysis includes the relationships taking place inside the case company and the interactions with external partners. All respondents had to fill out their profile and select the frequency of contact (daily, weekly, monthly, quarterly/never) that describes their interactions with each employee and with external stakeholders. The profile of each participant segment the network into organizational levels, organizational groups, countries, main departments, sub-departments and positions. In this ONA, external resources management embraces customers, suppliers and institutions.

- Customers:

The level of satisfaction and the type of buying behavior describe the nature of relationships between the customers and the case company. The customer satisfaction has been estimated as ‘moderately satisfied’ which highlights the alignment of customer expectations with the value proposition of the company. However, conducting a customer satisfaction campaign to validate this estimation is necessary to adjust the SC strategy. In region 1 customers have a substantial number of direct relationships at the operational and tactical while in region 2 customers are in contact with individuals involved only at the tactical level. Given the early stage of implementation in North America, commercial prospecting and operational activities are handled by a handful of people with both operational and managerial roles. On average customers have five relationships with the operations department, 2.5 with the growth revenue division, 1.7 with the R&D unit and one with the global support office. Commercial prospecting is made by employees involved in operations and growth activities from all countries and with the assistance of the global headquarters. As showed in table 5, the buying behaviors cannot be identified within a single country or from one country to another. In such a configuration, the one-size-fits-all SC approach is limited to express the SC strategy of the case company. Hence, including all customers in the ONA instead of one node representing their entirety as well as adding each product as a single entity could overcome such limitations.

- Suppliers and Institutions:

Six suppliers do not appear on the sociogram which indicates a low frequency of order for the components [1], [2], [4], [8] and [11] (quarterly/never). Such low volume products are kept in the inventory for a minimum of one-quarter. Put in perspective with the portfolio of buyer-supplier relationships, these components form a heterogeneous group of supply as they

showcase a different position in the power matrix. The suppliers of component [1] and [8] have a relative power over the case company. The former dependency is considered as a ‘critical’ while the latter dependency as ‘transactional.’ For the components [11], [2] and [4] there is a limited power for either of the parties. The case company should see supplier of component [11] as a ‘strategic alliance’ whereas the relationships with suppliers of components [2] and [4] should be handled as a ‘transactional alliance.’ Overall the management of components is done at both regional and global levels. The managers in region 2 order components from the global headquarters and the suppliers while the managers in region 1 deal with inventory directly with suppliers. Because the case company is at an early stage of internalization the teams country 1 plays a twofold role as a global and regional integrator. In addition, the global business unit is currently a facilitator between the core team in country 1 and the rest of the subsidiaries. Thus, the existing organization chart does not reflect the real interactions between the members of SCN. The institutional relationships are managed at the local level and supervised by the global headquarters. Each department deals with either private or public institutions in line with their field of expertise.

- Resources:

Human and technological resources have been identified as the two most important sources of value creation. Experience, knowledge, expertise, patents, trademarks, software and intellectual properties are the specific resources of the strategic fit. The science and R&D department manage such resources and share their potential with all organizational level. This team is in the country of origin of the case company. Human and technological resources seem to be transferred from the headquarters to a new country through the most experienced individual. Currently, the head of science which is one of the founding partners is operating the new subsidiary in country 3. Moreover, he can count on the continuous support of his team based in country 1. It turns out to be that the research director is the key individual of the network as he gets the highest centrality metrics. This managerial position is the most connected role within the network, the most important intermediary of other stakeholders and the fastest person in reaching all other members. As research director, he operates from the headquarters but communicates with all other departments and subsidiaries outside of the home country.

- Core competencies:

Procurement, logistics and finance are considered as the core competencies of the organization to develop the business. Such results can be interpreted as the capacity of the case company to quickly mobilize and arrange its key resources outside of the home market for the purpose of internationalization. Inventory planning, as well as inbound and outbound flow management, are the focus of procurement and logistics while finance concentrates on business development. The capability analysis reveals that the ability of the case company to enter new markets relies on redeploying and reorganizing core competencies and routine procedures over time. The procurement and logistics department is run by two individuals working in country 1. On the sociogram, these two nodes are strongly connected to each other and other subsidiaries. Orders from country 2 and country 3 seems to be managed with the support of intermediaries inside the operations and growth revenue department. The removal of such link can impact communication efficiency and knowledge. The potential intermediaries hold several positions within the two departments, but the maintenance manager has been identified as a connector between the sales team and the customer in a meeting with the procurement and logistic manager.

Individuals in country 3 are dealing directly with several suppliers of component which forebode that logistics operations are decentralized up to a regional or a local level. In addition, one 'strategic critical' component requires to be sourced regionally for supplying the surrounding countries. In country 1 and country 2, such component is acquired in Europe while provided by a local supplier country 3. Other components are sourced from multiple countries in Europe and China from regional facilities. The manager of procurement and logistics in country 1 interacts with such suppliers while in country 3 two individuals from the production team are dealing with suppliers. The functional area procurement and logistic is only mentioned for region 1 even if taking place in region 2. This configuration of interactions suggests that regional subsidiaries adapt to local requirements through a significant degree of autonomy from the headquarters. Thus, procurement and logistics activities are managed at a global, regional and local levels. However, the addition of a global procurement and logistics manager in the global team will facilitate the strategic development the SCN.

The global finance controller focuses on business development which can be interpreted as the aptitude of the case company to attract the best sales representatives and to identify the right



investors. The number of individuals involved in sales activities represents 11.5% of the total workforce. The global finance controller is connected to sales managers in country 1, in country 2 and in country 3. He interacts with 50 % of the individuals in contact with private investors and with all people dealing with governmental funding services. Therefore, it seems that fundraising and recruitment activities occur locally while supervised by the global headquarters. The business and organizational manager confirmed that the heads of teams and units oversee the hiring process. Managers can recruit new talents to address the needs of their field of expertise. Broader recruiting responsibilities are delegated to the CEO, the CTO and the global team.

- Groups:

On the operational level, the sociogram reveals that the growth revenue department is isolated from other organizational groups in region 1. Only one node from sales in country 2 connects R&D and operations business units. Hence, sales and marketing in country 1 are completely separated from other departments in the regional headquarters. On a tactical level, all organizational groups and geographical locations are connected to each other directly or through an intermediary. The density of the operational group is quite low (16%) while the density of the tactical network is quite high (62%). On the strategic level, the CEO and the CRO are the most connected individuals within in the network. Combined with other data, the ONA suggests that the company uses a mix between ‘group’ and ‘developmental’ organizational culture as employees have a high degree of autonomy to reach their objective and develop external relationships. These two-organizational cultures match the attributes of the lean and the agile SC.

- Functional strategy map:

The explicit articulation of the SC strategy is represented by the FSM, as showed in figure 20. Making the product and service easily available to customers in megacities around the world (General Objective 1) seems to be a major axis of development as there are no clear connections between the procurement/logistics department and the customers. As mentioned earlier the maintenance manager is the bridge between the sales teams and the logistics manager. The case company is currently insourcing the production and assembly activities which might prevent the redeployment and reorganization of his human and technology resources efficiently and effectively. The focus of the company should be more on the demand side than on the supply

side. Keep satisfying old customer with new products and services (General Objective 2) is done through a strong connection between the department of sales, R&D, service and maintenance. Regarding keeping employee satisfaction high (General Objective 3) the sociogram shows that there is no individual working in isolation and that all departments from region 1 are connected to all countries. This configuration implies an organizational culture with a global matrix organization. Giving to all customers the best products and service possible (General Objective 4) is supported by the direct interactions between the R&D department and the divisions dealing with customers such as marketing, sales, service and maintenance. Identifying the right partners in the right markets to ramp up the business (General Objective 5) is managed by individuals belonging to the department of operations. The procurement and logistics manager in country 1 and the production managers in country 3 are interacting with suppliers. Each local sales department of the domestic market (Country 1 and 2) administers customer's relationships with the support of all organizational groups of region 1. In country 3 the sales and production managers are in direct contact with customers but get additional support from the global team.

Assessing and financing business growth (General Objective 6) is managed by the global financial controller at a tactical and strategic level. The dissemination of financial knowledge is done through the funding partners and the members of the global headquarters as well as private and public investors. Private investors are approached at a local, regional and global levels while public investors are reached through the global team. Other types of institutional interactions are supervised through a type-based approach where each organizational group attracts partners related to their area of expertise. Developing KM and organizational learning within the company (General Objective 7) relies on the experience accumulated by the founding partners and on the transfer of knowledge between the members of the SCN. The COO keeps activities running at the domestic level in collaboration with the managers of other organizational groups. The CTO has been transferred from country 1 to country 3 to oversee the establishment of a new production facility. Finally, the CEO interacts mostly with the sales, marketing, financial and business development units in both regions. Moreover, the global business unit supports continuous improvement of the business operations (General Objective 8) and enhances business model innovation to increase sales (General Objective 9) by absorbing information from all geographical locations and organizational groups. The knowledge and experience of the COO seems to provide valuable knowledge to the global team in achieving these two specific objectives while developing a trial-and-error state of mind in business

development. Finally, keeping up to date with the latest technology, knowledge and trends (General Objective 10) is made possible by the dense interactions between the R&D, growth revenue and operations departments.

The case company follows a gradual internalization process as knowledge acquired within its home market is being used in a neighborhood country. The geographical area formed by country 1 and country 2 outlines the domestic market of the case company. However, the integration of new countries into this area of comparable business environment has not been yet expanded further as the case company has entered a country with a different psychic distance. As a service and technology-based company the case company can only enter a new market by establishing an assembly line and a customer support facility in the targeted country. For that reason, the case company does not follow the four steps of the Uppsala model during the internationalization of its operations. The case company seems to rely on a hybrid structure that combines the last two stages of the Uppsala model and the characteristics of a BG company, as showed in table 8.

Table 8. Uppasala model (adapted from Hollensen 2007).

<b>Stages</b>	<b>Case Company</b>
Stage 1: No regular export activities (sporadic export).	No
Stage 2: Export via independent representatives (export modes).	No
Stage 3: Establishment of a foreign sales subsidiary.	Yes
Stage 4: Foreign production/manufacturing units	Yes

Hence, focusing on a local approach to expand business operations is crucial. It explains the needs of regional and local subsidiaries to start selling. Currently, the case company is building a production facility country 3 which paves the way to opening local sales subsidiary along the east coast. The production site in country 3 follows the footsteps of the home market as it will become a gateway to tackle similar business environment in cities around this geographical area.

## 8 DISCUSSION

SC categorization and SC articulation has been treated simultaneously in both theoretical and empirical parts. The results of the thesis are in line with the concept of Perez-Franco (2016) which consists in expressing SC strategies in explicit terms instead of using a type approach. Categorizing buying behaviors into SC strategy and type of country was not possible. However, it turned out to be that the case company is progressively shifting toward the delivery hybrid products. In this context, there is an advantage of using a lean strategy to reach the general objectives that focus on internal and external relationships management, as seen in the FSM in figure 20. The sourcing portfolio analysis developed by Cox (2015) goes beyond the capabilities of the Kraljic matrix by providing a more comprehensive selection of sourcing strategies. This approach confirms the needs for providing more specific and tailored solutions in SCM. By shifting from an individual to a collective perspective, resources managers should focus on co-creation and on formulating SC strategies in more detail. Moreover, the identification of the most active members along the SC facilitates such shift. The ONA captured the informal relationships within the core SC and contributed to determine the internal stakeholders that are most capable of fostering collaborative activities and diffusing knowledge beyond the boundary of the company. Axis of development at the local, regional and global levels are listed in the sub-chapter recommendations. The summary of the findings is presented in the conclusion while the reliability and validity sub-chapter describes how the study removed bias and distortion. Finally, the limitations and suggestions for future research extend the results of the investigation beyond its initial purpose.

### 8.1 Recommendations

The resource and network analysis showed that the case company is a service and knowledge-based organization. Supervising people and administering assets are core activities as networks, facilities and equipment must be managed locally. Hence, developing the products and services depend on the creation, accumulation and diffusion of knowledge within and outside the company. In line with the SCN and the VN approaches the customers and other stakeholders must be at the center of attention in the formulation process of a contemporary SC strategy. The seven analyses suggest that the case company is managed under the attributes of the VC logic where business activities are organized to deliver a valuable product or service to customers.

Changing the paradigm of value creation from a firm or individual perspective to a relational or collective point of view will align the case company with the right model of management. Thus, formulating a SC strategy that integrates the concept of glocalization presented in the conceptual framework in figure 3 is only possible if paired with the rest of the network. As mentioned in subchapter 3.4 the make or buy decision supports costs optimization and SC efficiency while hybrid modes of governance enable the personalization of SC activities by enhancing collaborative relationships between stakeholders. (Sillanpää 2015) However, looking only at efficient processes to reduce costs is not enough anymore. Added-value creation processes are enhanced through customer services and the involvement of SC unit members in the product design phase. (Hilletoft 2009) Hence, the right question is not about the make or buy decision to optimize competitive advantages but rather about the presence of collaborative activities that generate value. Thereby, only a hybrid mode of governance, where the value proposition is shared by all parties, can enable value co-creation and unlock static power positioning, as shown in figure 22.

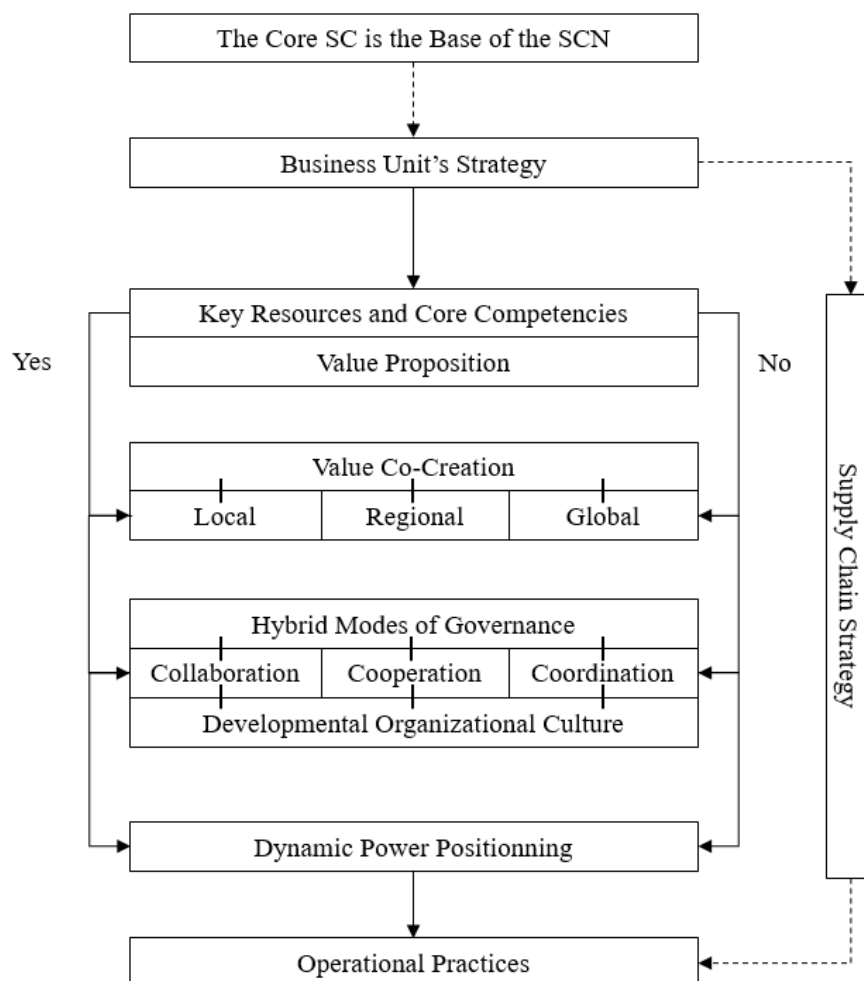


Figure 22. Formulation process of a SC strategy for born global firm in an era of glocalization

Being at an early stage of development the case company is subject to rapid changes at operational and tactical levels. However, having generic pillars supporting the business strategy of the BG firm and general SC objectives provide focus and direction to adapt to these changes over time. For that reason, the identified SC strategy presented in figure 20 should be updated regularly. Specific objectives, policies and choices as well as operational practices should be tested before their removal or adoption. Based on the concepts of value creation and collaborative relationships the thesis provides five recommendations to personalize the SC strategy of the case company in accordance with local, regional and global stakeholders, as showed in figure 23.



Figure 23. Summary of recommendations at a local, regional and global levels.

- Implementation and use information systems:

Implementing and using information systems so as to improve dependability (being on time), speed (being fast), flexibility (being able to change) and cost (being productive) is vital. Monitoring and storing customer information, basic cost structure, sales, project statuses, inventory level and delivery rates will enable the identification of key performance indicators. The implementation of such basic functionalities must be supported by the creation of a business analyst or knowledge manager, as represented in figure 24. He will oversee the promotion of the ERP system within the organization as well as identifying and collecting the right data from all business units to generate relevant knowledge to internal and external stakeholders. In order words, he will avoid the duplication and loss of information and instead focuses on visibility and traceability.

Customer service increases the performance of organizations by facilitating SC integration. (Vickery, Jayanth, Droge & Calantone 2003) Customer loyalty depends on the level of customer service skills within a company. (Abu-ElSamen, Akroush, Al-Khawaldeh & Al-Shibly 2011) Even if customer satisfaction has become an important index number for

designing business processes (Fecikova 2004), overall companies are more concerned with measuring practices than using the results to improve their customer service. (Broetzmann, Kemp, Rossano & Marwaha 1995)

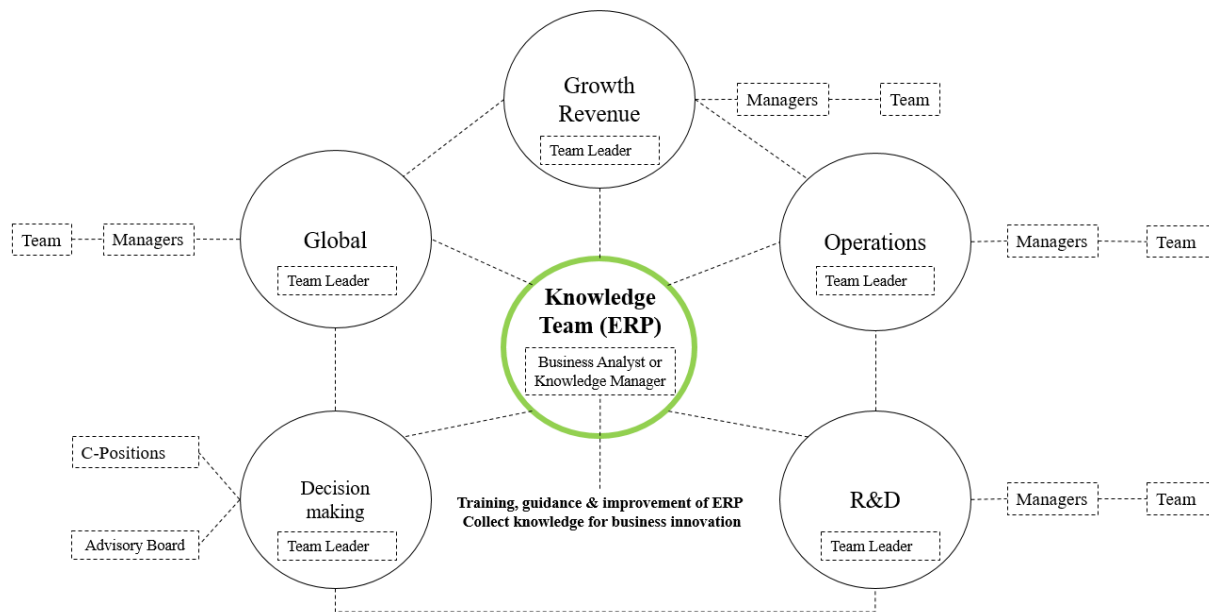


Figure 24. Recommendation for integrating KM as a strategic function into the organizational chart.

In this context, the case company should collect customers feedback on a regular basis while making them available to all internal stakeholders and selected external partners. Such process should be added to the responsibilities of maintenance and service staff. Each visit to a customer should be reported in the system following a strict procedure that describes the current relationship with the case company. On a service level the minimization of ‘waiting time for customers’ and the ‘idle time for resources’ as well as the maximization of ‘performance for employees’ and ‘experience for customers’ are facilitated through the integration of such course of action. These four key interconnected elements for success in SCM should “*embrace technology rather than trying to remedy isolated problems from a solely marketing or management perspective*”. (Voudouris, Owusu, Dorne & Lesaint 2008)

Monitoring prices of suppliers, late deliveries, quality deficiencies and sales history are additional data to integrate toward the optimization of supply activities. Moreover, developing sales forecast capabilities and storing technical drawings are also important. Additionally, information that relates to the interactions with suppliers and institutions should be stored in the ERP system. As an example, students that collaborate with the case company, should be

able to access to such data and previous studies. Such process facilitates problem identification and data collection toward the completion of their thesis. Also, each employee should list and share their top three issues while updating them over time. This approach fosters collaborative relationships while linking individual practices with the SC strategy identified in figure 22.

- Reorganizing the organizational structure:

The rebalancing and redeployment of organizational structure (roles and functions) per geographical area (local, regional, global) turned to be a significant axis of development. The top ten most connected employees of the case company are central connectors between each business units and the rest of stakeholders, as showed in table 9. They foster transactions and the flow of information within internal and external stakeholders. Dissociating the most connected people from local and regional roles to create a global team that include production, maintenance, science, sales, marketing and finance will remove duplications and overlaps. Clarifying the role and responsibilities locally, regionally and globally will facilitate the reallocation of resources that supports the internationalization of business activities.

Table 9. The ten most connected SC members of the case company (Core SC)

<b>Position</b>	<b>Rank (Degree Centrality)</b>	<b>Geographical Level</b>
R&D	1	Local, Regional and Global
Business and Organizational Development	2	Global
Maintenance and Service	3	Local, Regional and Global
Production	4	Local, Regional and Global
Sales	5	Local, Regional and Global
Production	6	Local, Regional and Global
Business and Organizational Development	7	Global
Marketing	8	Local, Regional and Global
R&D	9	Local and Regional
Procurement and Logistics	10	Local and Regional

In this configuration, such a global team collects information, generates new knowledge and passes information to regional and local subsidiaries but do not perform a high level of operational activities. They focus on developing procedures that promote co-creative relationships with customers, suppliers and institutions. Moreover, a global procurement and logistics manager which develops and implements strategy for regional and local centers is specially required. Hence, the roles and responsibilities related to operations, science, growth revenues and finance will benefit from being place under each geographical area. The functions



can be attributed to different or same person depending on the current resources of the case company. Therefore, the current global team will benefit from being in line with the organization chart in figure 25.

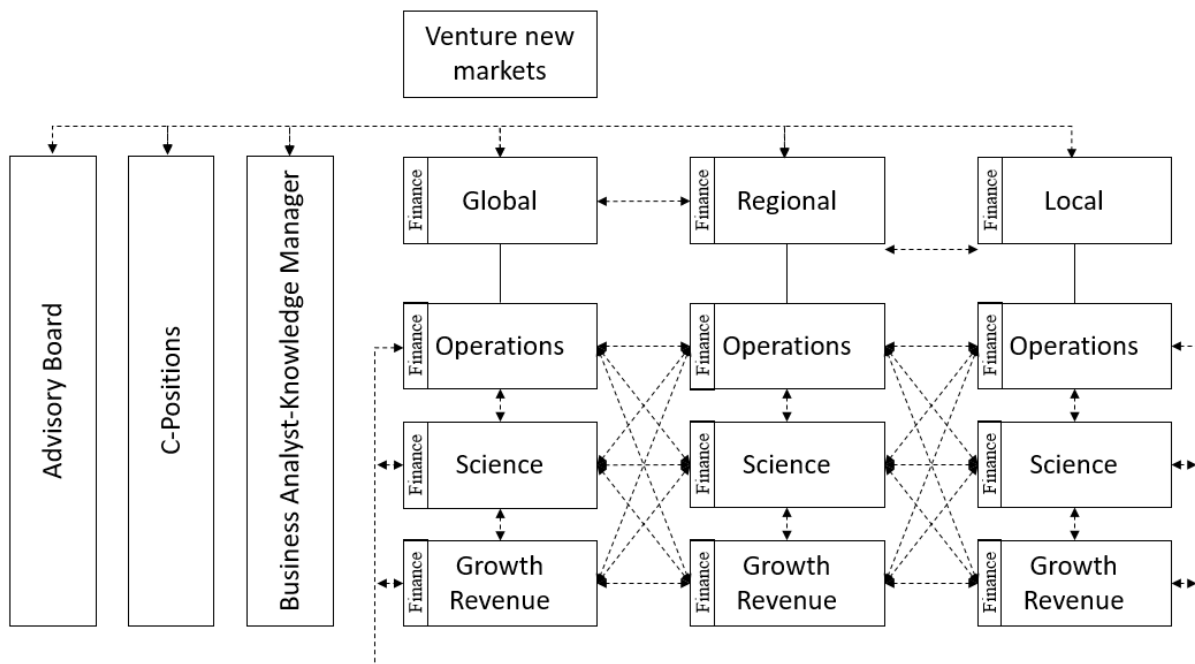


Figure 25. Reorganization of the organizational structure.

- Adopting an assemble-to-order strategy:

The case company will take advantage of adopting a modular and postponement manufacturing strategy to product design and production processes. This approach will connect its SC processes with the expectations of its customers. Using a hybrid strategy that combines the make-to-stock and make-to-order solutions optimizes the forecasting of generic modules and enable the delivery of more customized products to customers in a faster way, as represented in figure 26. The supply side handles raw materials and the delivery of finished goods by focusing on cost efficiency, delivery reliability and high productivity. In contrast, the demand side deals with support functions and the delivery of services to customers. Such postponement strategy optimizes inventory management and reduce the time of customization. Hence the case company should match its SC processes with the attributes of the assemble-to-order solution. This strategy will reduce inventory variation and stabilize the production while responding to challenges of product customization.

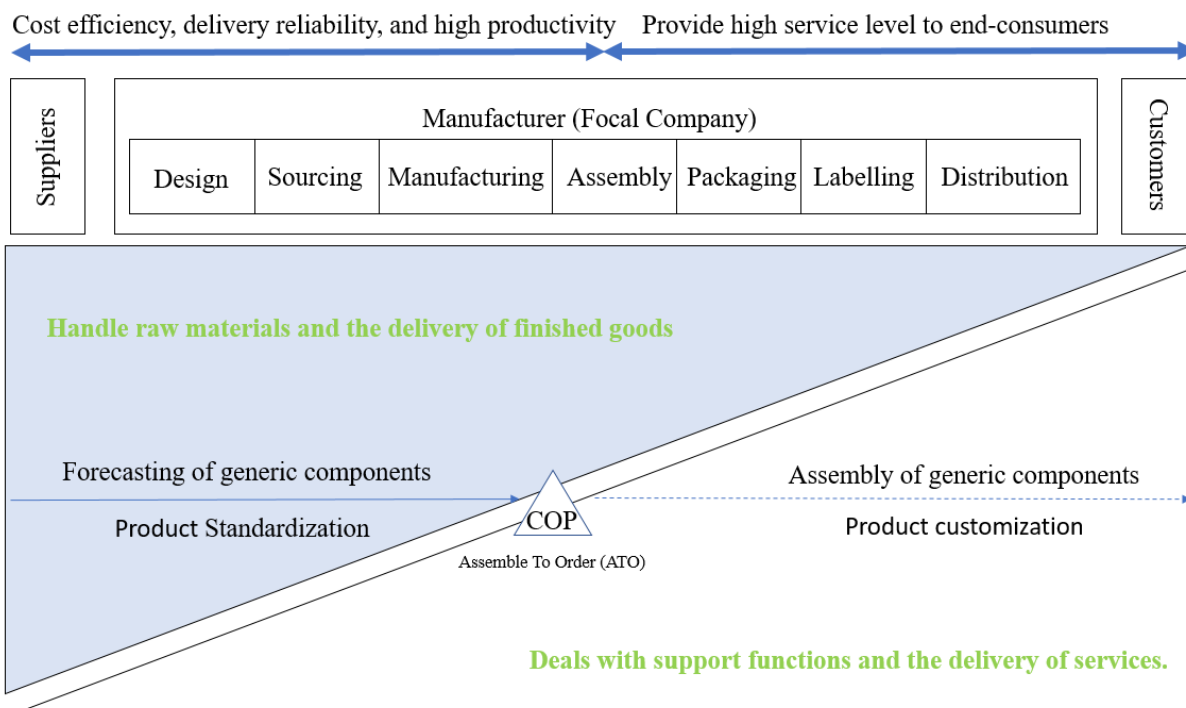


Figure 26. Implementing SC processes in line with the assemble-to-order customer order point.

- Collaboration with 3PLs at regional levels:

The procurement and logistic business unit is seen as a core competency that can be redeployed and reorganized easily over time to deliver the value proposition to customers. However, this opportunity has not been seized in practice as the company spends too much effort and time in managing the logistics department on its own and less in delivery the value proposition. Another explanation could be found in the confusion made between the delivering of finished goods and the delivery of services to customers. In the context of the study, such core competency is interpreted as the capability to deal with support functions and the delivery of services. Thus, a more comprehensive collaboration with a third party logistic provider at regional levels will release resources to enhance service quality. In other words, the case company will benefit from sharing logistics resources such as employees, warehouses, inventory, order and transport capacities with a third-party logistics services provider. In this configuration, handling raw material and the delivery of the finished good through a hybrid mode of governance will refocus the effort on customers which is the real role and responsibility of the procurement and logistic department. Such collaboration redefines the domestic market of the case company from a Nordic to a Baltic perspective. In this context, one option is to store and assemble generic

components in Estonia which will act as the regional logistics service center for the Baltic region, as showed in figure 27.

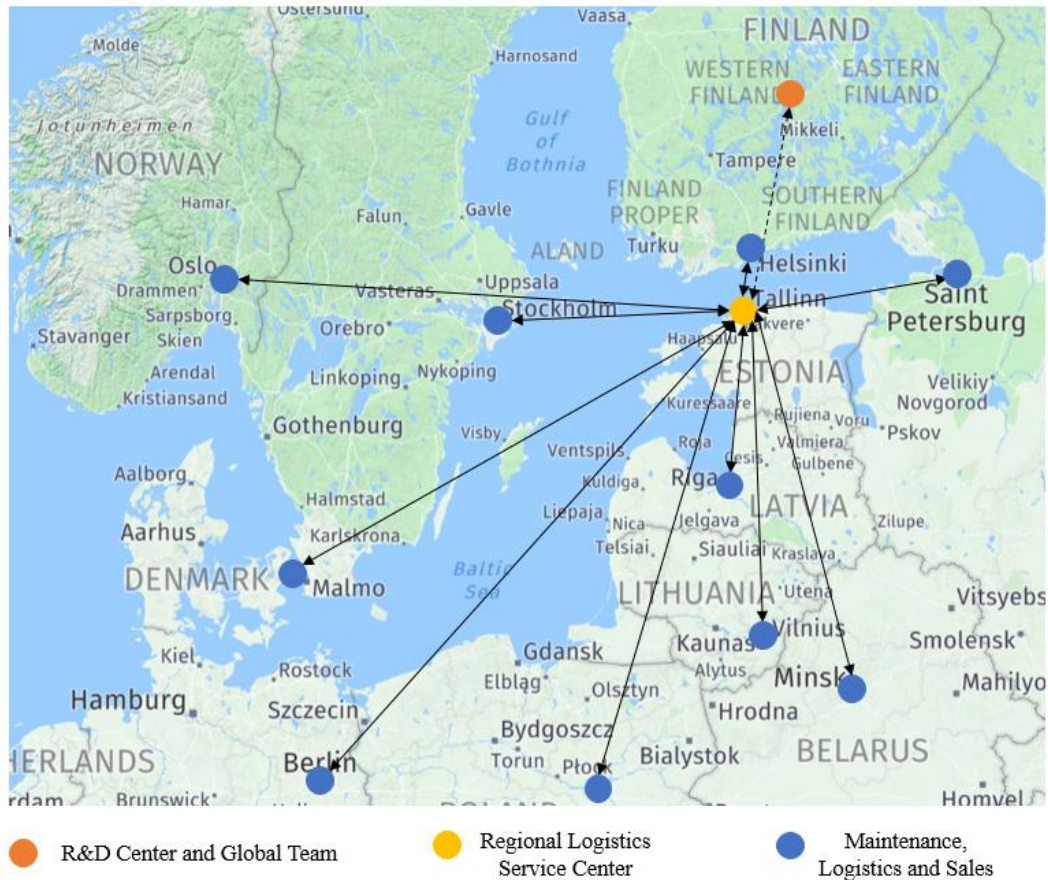


Figure 27. Example of regional logistics center.

The same approach is taken with North America where one location in the East Coast serves the surroundings cities. These regional logistics subsidiaries are based on a partnership between the case company and a third-party logistic service provider. The location of such premises is selected in accordance with transportation distances, means and frequencies. Such regional logistics centers manage the inventory of components and send the final products to customers. Spares can also be send to maintenance and services teams at local subsidiaries. This hybrid mode of governance focuses on the supply side which releases resources to focus on the demand side. Hence, the case company can focus exclusively on dealing with support functions and the delivery of services. The example showed in figure 27 is relevant if the company pursues a fast internationalization in the Baltic region. In the case the opening of new subsidiaries slows down the same approach can be implemented at the level of a country or a city.

## 8.2 Conclusion

The research identified the formulation process of a customized SC strategy for BG firms in an era of glocalization, as can be seen in figure 22. Such process sees the value proposition of the case company as the key integrator of stakeholders within the core SC. This approach enables value co-creation, focuses on hybrid modes of governance and involves a dynamic power positioning. In this context, the right question is not about the make or buy decision to optimize competitive advantages but rather about the presence of collaborative activities that generate value. Thereby, only a hybrid mode of governance, where the value proposition is shared by all parties, can enable value co-creation and unlock static power positioning. SC differentiation appeared to be an alternative to fill the gap left by SC categorization and SC best practices. The opposition between ‘categorization and articulation,’ ‘type-based and specific,’ ‘best practices and tailored practices’ and ‘external and internal wisdom’ presented by Perez-Franco (2016) was at the center of the research.

The characteristics of the lean, agile, leagile, hybrid and articulated SC strategies were identified to highlight the SC elements that support the personalization of SC processes. The surge of sovereign nations and the regionalization of global interactions emphasize the necessity to reconcile local considerations and global ambitions. The requisite of a SC structure that combines the standardization of SC processes with responsive and flexible capabilities are in line with the characteristics of the 21<sup>st</sup> century. In an era of turbulence and uncertainty, understanding the concept of customer centricity and the importance to adapt SCM to the notion of glocalization are crucial. To face such challenges the core SC of the case company is identified by conducted an ONA and is considered as the foundation of its SCN. The assemble-to-order decoupling point is presented as a solution that link the SC processes with the needs of customers. The steps toward the implementation of such hybrid SC strategy follow the characteristics of the VN and a dynamic approach to sourcing. In other words, the stakeholders of the core SC must collaborate with each other in order to co-create value. Implementing collaborative processes through hybrid modes of governance shapes the core SC in such a way that it can connect to other SCs in the SCN that share the value proposition of the case company.

The estimation of the customer satisfaction indicated the degree of coordination between the value proposition of the case company and the expectations of its customers. It proved to be

that no formal research has been conducted about how customers could engage in value co-creation. Instead, the marketing and sales department collect customer feedback during face-to-face meetings to respond to isolated demands. However, access to such information is difficult for internal and external stakeholders as knowledge is compartmentalized in each business unit. The estimation of the customer satisfaction showed that the value proposition of the case company and the customer expectation are aligned with. The service provided by the case company is categorized as innovative product which matches the attributes of an agile SC strategy and foster SC responsiveness. In contrast, the goods produced by the firm are considered as standard products which highlights the needs of implementing a lean SC that supports SC efficiency. However, the new design guide reveals a high degree of customization of existing and new products. The reduction of the product portfolio, the addition of accessories and the possibility to tailor some parts of the products foresee a transition toward a hybrid SC strategy. Moreover, the value proposition of the company focuses primary on the delivery of a service which is characterized through physical products and human interactions. Based on this outcome, the leagile strategy seems to be appropriate to manage the production and delivery of goods and services into an all-in-one SC solution. Hence, the case company should focus on adapting SC processes to hybrid products.

Identifying the profile of customers is an important step toward the formulation of a SC strategy. However, it turned out to be that buying behaviors could not be clearly distinguished within a single country or from one country to another at this stage of development. The same issue arose when categorizing customer expectations per product. This result shows that the design of a SC strategy based on the use of types of behaviors has its own limitations. Hence, it is preferable to rely on tailored SC practices than on SC categorization when formulating a SC strategy. In addition, identifying the portfolio of buyer-supplier relationships is vital during the design of a SC strategy. The power matrix and the sourcing portfolio analyses shed light on the necessity to embrace dynamic power positioning in strategic sourcing decision making. The case company has one 'strategic' and two 'strategic critical' components that are under dominance of suppliers. Despite such constraints, the management team has planned to move toward a more collaborative relationship to reduce such power for at least one of 'strategic critical' components. As regards to the other 12 components, there is limited power for either party and the cost of switching to alternative source of supply is low. However, deficiencies in data sharing and coordinating mechanisms prevent the case company from developing better relationships with some suppliers. Hence, planning dynamic power positioning will support the

reduction of supplier dominance over time only with the implementation and good use of information systems.

The resource and capability-based analyses identified the key resources and core competencies of the case company. It appeared that human and technological attributes are key resources in sustaining the value proposition of the case company. In contrast, the core competencies are procurement, logistics and finance which are the capacity of the case company to redeploy and reorganize the key resources over time to serve the objectives of the organization. Considering the results, the case company seems to direct new funding and developing key relationships toward the supply side. However, a strategic refocusing of the case company on the demand side is necessary to unlock growth potential. The formulation process of a SC strategy from a global point of view is made possible by extending the analysis beyond the scope of categorization. The expression of the SC strategy in explicit terms supports both local variations and global standards. In addition, the identification of organizational relationships within and beyond the core SC provides the leverage to tailor SC processes to the needs of internal and external stakeholders. In other words, the value is co-created when the value proposition of the case company is accepted by other members of the core SCN. The process of co-creation is enhanced through hybrid mode of governance and a dynamic power positioning.

Overall, the results showed the importance of shifting from a VC logic to a VN concept to better respond to the needs of the 21st century which is characterized as an era of turbulence and uncertainty. This phenomenon is aligned with the necessary transition from a SC to a SCN approach while emphasizing the crucial importance of the value proposition as a collaborative mechanism to manage external stakeholders such as customers, suppliers and institutions. In other words, *“resources, capabilities and competences are possible sources of value creation”* while *“value emerge from the systemic matching of actors, activities and resources and by stressing value co-creation and resource integration”* (Mele & Corte 2013). In this context, the case company has challenges in distinguishing the opportunities lying behind the supply and the demand sides. Handling raw materials and the delivery of finished goods is different from dealing with support functions and the delivery of services. The identification of ‘group’ and ‘developmental’ organizational culture within the organization supports this distinction as they match the attributes of the lean and the agile SC. Eventually, the case company is focusing too much on the supply side (efficiency) and will benefit from redeploying its core competencies on the demand side (agility) by promoting a ‘developmental’ organizational culture.

### 8.3 Reliability and Validity of the Research

The research relies on data triangulation and gathers information from a manifold line of evidence which reduces the focus of the research to its essence. The seven analyses conducted during the thesis aim at identifying a common line of research toward the formulation process of a SC strategy. The main goal of the study is not to generalize the findings to other organizations but rather to comprehend the stakes of SC strategy personalization and provide specific recommendations for the internationalization of the case company. Each analysis was based on conceptual frameworks derived from five articles about SC management and two templates available from online analytic tools. The data were collected through online questionnaires and electronic exchanges in order to create a generic conceptual model that considers local environments into global scalability. As the commissioner, did not have a specific line of inquiry for the research, two face-to-face meetings were organized to identify the upcoming priorities and the problems that might emerge from the internationalization. The case company being at an early stage of development and having a relatively small size, it was not difficult to identify the respondents with the best knowledge. Using a purposive sampling matches the requirement of the case study research as it deals with a relatively small number of respondents that hold relevant information. This sampling approach relies on the judgement of the researcher in the identification and selection of the most knowledgeable participants to answer the research questions. (Saunders, Lewis & Thornhill 2009) In total, 14 online questionnaires involved the participation of 21 people. The triangulation of their answers increased the reliability of the study as similar themes could be identified. Even if the roles and responsibilities of the respondents could differ from the organization chart provided by the case company the results were adjusted thanks to the accuracy of the ONA. The data collection was based on existing methodologies that have been tested empirically in the literature. The summary of data collection stages presented in table 1 contributes to the transparency of the research while the combination of the categorization and articulation approaches increased the consistency and accuracy of the approach taken as well as the results.

### 8.4 Limitations & Suggestion for Future research

The research attempted to categorize and articulate the SC strategy of the case company, in the most accurate way possible, using online questionnaires, face-to-face meetings and electronic

exchanges. Information about internal stakeholders was gathered directly from the individual involved in SC activities. However, the data concerning external partners were limited to the knowledge of the case company. Collecting information directly from suppliers, institutions and customers will provide useful insights about the process of value co-creation. In addition, expanding the number of respondents to the ONA beyond the tactical level of management will increase the accuracy of the organizational interactions. Even if the thesis relies on data triangulation and gathers information from a manifold line of evidence the FSM will benefit from the participation of additional respondents. The general objectives and the subsections of the SC strategy are mainly depicted through the lens of one business unit. The research does not formulate an improved SC strategy but instead captured the current SC strategy of the case company with the aim of providing a clear vision of SC practices. The recommendations are means of improvement to reach the objectives of the case company. Thus, the confirmation of the FSM and its thematic ranges should be validated by the respondents before crafting a new SC strategy.

Despite the fact, that the theoretical and empirical parts concentrated on of SC strategy the results extended the field of research to SCN. The goal of the thesis was to identify the formulation process of a customized SC strategy for BG firms in an era of glocalization which resulted in a conceptual framework describing such process under the SCN logic, as showed in figure 22. Thus, the research claims to shed light on the necessity to align the SC strategy of a company with the surrounding SCN. Future research should focus on identifying the differences and common points between the VC/SC approaches and the good-dominant logic as well as between the VN/SCN concepts and the service-dominant logic.



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## APPENDICES

### QUESTIONNAIRE 1: "Estimation of Customer Satisfaction"

#### Part 1: Customer Satisfaction Base

**Question 1:** Overall, how satisfied or dissatisfied are customers with your company?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 2:** You previously mentioned that customers are [Previous choice] with your company. Please explain why customers are [Previous choice] in the space provided below.

**Question 3:** How would you rate the ease or difficulty for customers of doing business with your company?

- Extremely easy
- Moderately easy
- Slightly easy
- Neither easy nor difficult
- Slightly difficult
- Moderately difficult
- Extremely difficult

**Question 4:** How often customers contacted your company directly with specific questions or concerns during the last three months?

- Extremely often
- Very often
- Occasionally
- Rarely
- Never

**Question 5:** When applicable, were questions or concerns resolved in a timely fashion?

- Yes
- No

**Question 6:** How satisfied or dissatisfied customers are with the final answer or resolution to their questions or concerns?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 7:** Overall, how satisfied or dissatisfied are customers with the customer service your company provides?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 8:** Please share any additional comments or feedback regarding issues of customers during the resolution process in the space provided below

## **Part 2: Satisfaction with product and service attributes**

**Question 9:** Overall, how satisfied are customers with the products and services offered by your company?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

The next 7 questions will ask how satisfied or dissatisfied you are with a number of attributes as they relate to our products and services.

**Question 10:** Overall, how satisfied are customers with the **quality** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied

- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 11:** Overall, how satisfied are customers with the **value** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 12:** Overall, how satisfied are customers with the **variety** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 13:** Overall, how satisfied are customers with the **price** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 14:** Overall, how satisfied are customers with the **exclusivity** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied

- Moderately dissatisfied
- Extremely dissatisfied

**Question 15:** Overall, how satisfied are customers with the **usefulness** of your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 16:** Overall, how satisfied are customers with the **ability to customize** your products and services?

- Moderately satisfied
- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

**Question 17:** Please choose the top 1 or 2 factors that are most influential in the decision of customers to purchase products or services from your company.

Type "1" for the most important factor and "2" for the second most important factor in the space provided next to each attribute.

- Quality
- Price
- Exclusivity
- Usefulness
- Ability to customize
- Value
- Selection
- Other

### **Part 3: Customer Loyalty**

**Question 18:** Based on your experience with customers, how likely or unlikely are customers to continue doing business with us in the future?

- Extremely likely
- Moderately likely
- Slightly likely
- Neither likely nor unlikely
- Slightly unlikely
- Moderately unlikely
- Extremely unlikely

**Question 19:** On a scale from 0-10, how likely are customers to recommend your company to a friend or colleague?

**Question 20:** Please share any additional comments or feedback from customers regarding your products or services in the space provided below.

QUESTIONNAIRE 2: “Product Categorization” For Product 1,2,3,4,5.

**Level 1 of importance**

**Question 1:** Is product demand predictable (fairly constant) or unpredictable (highly fluctuating)?

- Demand is predictable
- Demand is unpredictable

Provide additional information if necessary:

**Question 2:** What is the primary purpose of process?

- The primary purpose of the process is to supply predictable demand at lowest possible cost
- The primary purpose of the process is to respond quickly to unpredictable demand to minimize stockouts, forced markdowns, and obsolete inventory

Provide additional information if necessary:

**Question 3:** Is the competition circumstance stable with least change or highly changing and turbulent?

- The competition remains more or less stable without any radical changes
- The market environment is highly changing and turbulent

Provide additional information if necessary:

**Question 4:** Is the customer requirement stable with least change, or highly changing and turbulent?

- Customer requirement remains quite stable
- Customer requirement change rate is fast

Provide additional information if necessary:

**Question 5:** How long is the product life-cycle?

- The life-cycle is very limited ranging between three months to one year
- The life-cycle is long: greater than two years

Provide additional information if necessary:

**Level 2 of importance**

**Question 6:** What is the lead time required for “made to order” products?

- Between one day to two weeks
- Between six months to one year

Provide additional information if necessary:

**Question 7:** Is knowledge competent and empowered people (multi-skilled workers, who can shift from one product type to another in a short time) desirable or essential?

- Desirable
- Essential

Provide additional information if necessary:

**Question 8:** Is the quickness and timeliness of the product and service delivery desirable or essential?

- Desirable
- Essential

Provide additional information if necessary:

**Question 9:** What is the average stock-out rate of the product?

- High stock-out rates greater than 40%
- Low stock-out rates about 1-2%

Provide additional information if necessary:

**Question 10:** What is the average margin of error in forecasting at the time production is committed?

- High percentage error in forecasting ranging between 35-100%
- Accurate forecast

Provide additional information if necessary:

**Question 11:** Is it desirable or essential to have a short time period to make available a new product in the market?

- Desirable
- Essential

Provide additional information if necessary:

**Question 12:**

- Essential

Desirable

Provide additional information if necessary:

**Question 13:** Does the manufacturing focus on maintaining high average utilization rate, or deploying excess buffer capacity?

High average utilization rate

Excess buffer capacity

Provide additional information if necessary:

**Level 3 of importance**

**Question 14:** What is the profit margin?

High profit margin

Low profit margin

Provide additional information if necessary:

**Question 15:** Is the product variety low or high?

High variety

Low variety

Provide additional information if necessary:



## QUESTIONNAIRE 3: “Customer Segmentation”

### Part 1: Please describe the buying behaviors of your customers in country 1

#### Question 1: How would you describe the buying behaviors of your customers?

- Demand is unpredictable

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Products and services require innovative solutions to meet the demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers have a low sensitivity to price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are interested in quick and creative solution at practically any price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

#### Question 2: How would you describe the buying behaviors of your customers?

- Customers are driven by a need for quick responses to meet their uneven demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer prioritize urgent delivery responses

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer loyalty is low

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are price aware

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

#### Question 3: How would you describe the buying behaviors of your customers?

- Customers are driven by a need for consistent responses to meet their predictable demands

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers focus on efficiency

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are very price sensitive

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are driven by a need for predictable low-cost service

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Question 4: How would you describe the buying behaviors of your customers?**

- Customer loyalty is high

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers have a low sensitivity to price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer demand is mostly predictable

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are driven by a need for trusting relationships (Close working relationships)

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Part 2: Please describe the buying behaviors of your customers in country 2**

**Question 5: How would you describe the buying behaviors of your customers?**

- Demand is unpredictable

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Products and services require innovative solutions to meet the demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers have a low sensitivity to price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are interested in quick and creative solution at practically any price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Question 6: How would you describe the buying behaviors of your customers?**

- Customers are driven by a need for quick responses to meet their uneven demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer prioritize urgent delivery responses

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer loyalty is low

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are price aware

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Question 7: How would you describe the buying behaviors of your customers?**

- Customers are driven by a need for consistent responses to meet their predictable demands

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers focus on efficiency

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are very price sensitive

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are driven by a need for predictable low-cost service

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Question 8: How would you describe the buying behaviors of your customers?**

- Customer loyalty is high

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers have a low sensitivity to price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer demand is mostly predictable

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are driven by a need for trusting relationships (Close working relationships)

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Part 3: Please describe the buying behaviors of your customers in country 3**

**Question 9: How would you describe the buying behaviors of your customers?**

- Demand is unpredictable

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Products and services require innovative solutions to meet the demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers have a low sensitivity to price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are interested in quick and creative solution at practically any price

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

**Question 10: How would you describe the buying behaviors of your customers?**

- Customers are driven by a need for quick responses to meet their uneven demand

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer prioritize urgent delivery responses

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customer loyalty is low

Strongly agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

- Customers are price aware

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

**Question 11: How would you describe the buying behaviors of your customers?**

- Customers are driven by a need for consistent responses to meet their predictable demands

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customers focus on efficiency

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customers are very price sensitive

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customers are driven by a need for predictable low-cost service

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

**Question 12: How would you describe the buying behaviors of your customers?**

- Customer loyalty is high

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customers have a low sensitivity to price

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customer demand is mostly predictable

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

- Customers are driven by a need for trusting relationships (Close working relationships)

Strongly agree Agree Somewhat agree Neither agree nor disagree Somewhat disagree Disagree Strongly disagree

**Part 4: Products Please pick, group and rank the items below for products 1, 2, 3, 4, 5**

**Question 13: Please pick, group and rank the items below (drag and drop) related to product 1 (Minimum 5 items)**

- Demand is predictable
- Demand unpredictable
- Customers are very price sensitive
- Customers have a low sensitivity to price
- Customers require low-cost service
- Customers have a demanding behavior
- Customers require quick responses
- Customers require consistent and efficient responses
- Customers require fast delivery
- Customers require creative and innovative solutions
- Low customer loyalty

- High customer loyalty
- Customers require trusting relationships

**Question 14:** Please pick, group and rank the items below (drag and drop) related to product 2 (Minimum 5 items)

- Demand is predictable
- Demand unpredictable
- Customers are very price sensitive
- Customers have a low sensitivity to price
- Customers require low-cost service
- Customers have a demanding behavior
- Customers require quick responses
- Customers require consistent and efficient responses
- Customers require fast delivery
- Customers require creative and innovative solutions
- Low customer loyalty
- High customer loyalty
- Customers require trusting relationships

**Question 15:** Please pick, group and rank the items below (drag and drop) related to product 3 (Minimum 5 items)

- Demand is predictable
- Demand unpredictable
- Customers are very price sensitive
- Customers have a low sensitivity to price
- Customers require low-cost service
- Customers have a demanding behavior
- Customers require quick responses
- Customers require consistent and efficient responses
- Customers require fast delivery
- Customers require creative and innovative solutions
- Low customer loyalty
- High customer loyalty
- Customers require trusting relationships

**Question 16:** Please pick, group and rank the items below (drag and drop) related to product 4 (Minimum 5 items)

- Demand is predictable
- Demand unpredictable
- Customers are very price sensitive
- Customers have a low sensitivity to price
- Customers require low-cost service
- Customers have a demanding behavior
- Customers require quick responses

- Customers require consistent and efficient responses
- Customers require fast delivery
- Customers require creative and innovative solutions
- Low customer loyalty
- High customer loyalty
- Customers require trusting relationships

**Question 15:** Please pick, group and rank the items below (drag and drop) related to product 1 (Minimum 5 items)

- Demand is predictable
- Demand unpredictable
- Customers are very price sensitive
- Customers have a low sensitivity to price
- Customers require low-cost service
- Customers have a demanding behavior
- Customers require quick responses
- Customers require consistent and efficient responses
- Customers require fast delivery
- Customers require creative and innovative solutions
- Low customer loyalty
- High customer loyalty
- Customers require trusting relationships

**Question 16:** Please add any relevant additional information

## QUESTIONNAIRE 4: “Portfolio of Buyer-Supplier Relationships”

**Question 1:** Could you tell what is the impact of each component on operational delivery and commercial/mission of the organization?

- Significant impact on both operations AND the strategic commercial/mission critical goals of the organization

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Relatively low impact on operational delivery, BUT nevertheless impact significantly on the strategic commercial/mission critical goals of the organization

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Significant impact on operational delivery, BUT NOT on the strategic commercial/mission critical goals of the organization.

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Limited significance for EITHER operational delivery or the commercial/mission critical goals of the organization

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 2:** Could you indicate the level of total expenditure of each element?

Total level of expenditure may not be high, although it often is

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

Total level of expenditure may not be relatively high

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

Total level of expenditure may be relatively high

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

Total level of expenditure will not be relatively high

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 3:** Could you indicate the level of management and organizational resource input required to manage each component?

- Requires extensive senior management attention, WITH the highest levels of organizational resource input in the sourcing process in terms of expenditure, time and involvement.

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Do not normally require extensive senior management attention OR the highest levels of organizational resource input in the sourcing process in terms of expenditure, time and involvement.

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- The organizational resource input required in the sourcing process, in terms of financial resources, time and involvement of internal and external stakeholders, is normally not as significant as that required in the previous choice (Second option)

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Requires only limited attention, WITH middle- and lower-level managers participating in ad hoc teams. The organizational resource input required in the strategic sourcing process, in terms of financial resources, time and involvement of internal and external stakeholders, is normally quite low

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 4: Could you identify the appropriate power scenario in which your firm and its suppliers operate for each element?**

- Your firm has relative power over the supplier

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- High coincidence of power for each party

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Limited power for either party

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Supplier has relative power over your firm

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 5: What would you expect in the future?**

- Your firm has relative power over the supplier

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- High coincidence of power for each party

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Limited power for either party

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15



- Supplier has relative power over your firm

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 6:** Could you indicate the appropriate approach to commercial leverage and operational ways of working between your firm and its suppliers?

### **Approach to Commercial Leverage between your firm and suppliers**

- Your organization maximizes value

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Neither your organization or supplier maximizes their share of value

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Supplier maximizes value

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

### **Operational Ways of Working between your firm and suppliers**

- Arm's Length

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Partial Collaboration

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Full collaboration

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Joint Venture

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

- Insourcing

Component 1 Component 2 Component 3 Component 4 Component 5 Component 6 Component 7 Component 8  
Component 9 Component 10 Component 11 Component 12 Component 13 Component 14 Component 15

**Question 7:** Please provide any additional relevant information

## QUESTIONNAIRE 5: “Characterization of Supply Chain Strategy”

### Organizational Level 1

#### Part 1: Name of your position

**Question 1:** What is the name of your current position?

**Question 2:** Who do you report directly to?

- Name of the position 1:
- Name of the position 2:
- Name of the position 3:
- Name of the position 4:
- More position(s):

**Question 3:** Do you participate directly in crafting the overall strategy of your firm?

Yes

No

#### Part 2: Strategic mission of the company

**Question 4:** Do you agree that the following single statement captures the core strategic mission of the company?

Yes

No

**Question 5:** If not, could you provide a single statement reflecting the purpose and the core strategy of the company?

**Question 6:** Could you provide the pillars (3 to 5) that will support the core strategy of the company?

Each pillar is illustrated by a short statement representing a thematic that supports the core strategy. The pillars are identified by answering the question "How will I achieve the core strategy"

- Pillar 1:
- Pillar 2:
- Pillar 3:
- Pillar 4:
- Pillar 5:
- More Pillar(s):

### **Part 3: Positions reporting directly to you**

**Question 7:** Could you tell me which positions report directly to you?

- Name of the position 1:
- Name of the position 2:
- Name of the position 3:
- Name of the position 4:
- More position(s):

The next blocks of questions are related to key activities of such-and-such positions. There is one block of question per position (if less than 5 positions reporting directly to you, fill the required block(s) and leave the remaining ones empty by clicking next at the end of page(s)).

### **Part 4: Position 1**

**Question 8: Write the name of the position 1:**

**Question 9:** What would you say are the key activities of position 1?

- Key Activity 1:
- Key Activity 2:
- Key Activity 3:
- Key Activity 4:
- Key Activity 5:
- More Key Activity(ies):

**Question 10:** What is the purpose of each activities related to position 1?

- Purpose(s) of Key Activity 1:
- Purpose(s) of Key Activity 2:
- Purpose(s) of Key Activity 3:
- Purpose(s) of Key Activity 4:
- Purpose(s) of Key Activity 5:
- More Purpose(s) of Key Activity(ies):

**Question 11:** What results have been achieved through each activity related to position 1?

- Result(s) 1 of Key Activity 1:
- Result(s) 2 of Key Activity 2:
- Result(s) 3 of Key Activity 3:
- Result(s) 4 of Key Activity 4:
- Result(s) 5 of Key Activity 5:
- More Result(s) of Key Activity(ies):

**Question 12:** How such results related to position 1 are being implemented in the field?

- Implementation of result(s) 1 in the field:
- Implementation of result(s) 2 in the field:

- Implementation of result(s) 3 in the field:
- Implementation of result(s) 4 in the field:
- Implementation of result(s) 5 in the field:
- More Implementation of result(s) in the field:

**Question 13:** What general objective is being pursued for each result related to position 1?

- General Objective for Result 1:
- General Objective for Result 2:
- General Objective for Result 3:
- General Objective for Result 4:
- General Objective for Result 5:
- More General Objective for Result(s):

**Question 14:** What specific objectives are being pursued for each result related to position 1?

- Specific Objective(s) for Result 1:
- Specific Objective(s) for Result 2:
- Specific Objective(s) for Result 3:
- Specific Objective(s) for Result 4:
- Specific Objective(s) for Result 5:
- More Specific Objective(s) for Result(s):

#### **Part 4: Opportunities and challenges**

**Question 13:** What would you say is the biggest opportunity facing you today?

**Question 14:** Can you give me an example?

**Question 15:** What would you say is the biggest challenge facing your function today?

**Question 16:** Can you give me an example?

**Question 17:** What would you say is your business?

**Question 18:** What do you provide the customer?

**Question 19:** What is your value proposition?

**Question 20:** Who is (are) your customer (s)? Can you name each of them?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Customer Type:

**Question 21:** What are the needs of these customers?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Need(s) for Customer Type:

**Question 22:** How do you satisfy these needs?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Need(s) for Customer Type:

**Question 23:** Please share any other additional information you consider relevant concerning the supply chain strategy:

### **Organizational Level 2 & 3**

#### **Part 1: Name of your position**

**Question 1:** What is the name of your current position?

**Question 2:** Who do you report directly to?

- Name of the position 1:
- Name of the position 2:
- Name of the position 3:
- Name of the position 4:
- More position(s):

**Question 3:** Do you participate directly in crafting the overall strategy of your firm?

Yes

No

#### **Part 2: Strategic mission of the company**

**Question 4:** Do you agree that the following single statement captures the core strategic mission of the company?

Yes

No

**Question 5:** If not, could you provide a single statement reflecting the purpose and the core strategy of the company?

**Question 6:** Could you provide the pillars (3 to 5) that will support the core strategy of the company?

Each pillar is illustrated by a short statement representing a thematic that supports the core strategy. The pillars are identified by answering the question "How will I achieve the core strategy"

- Pillar 1:
- Pillar 2:
- Pillar 3:
- Pillar 4:
- Pillar 5:
- More Pillar(s):

### **Part 3: Activities of your position**

**Question 7:** What would you say are the main activities of your position? In other words, think of a typical week or month: What are the things that take most of your time and attention?

- Key Activity 1:
- Key Activity 2:
- Key Activity 3:
- Key Activity 4:
- Key Activity 5:
- More Key Activity(ies):

**Question 8:** What is the purpose of each activities related to your position?

- Purpose(s) of Key Activity 1:
- Purpose(s) of Key Activity 2:
- Purpose(s) of Key Activity 3:
- Purpose(s) of Key Activity 4:
- Purpose(s) of Key Activity 5:
- More Purpose(s) of Key Activity(ies):

**Question 9:** What results have been achieved through each activity related to your position?

- Result(s) 1 of Key Activity 1:
- Result(s) 2 of Key Activity 2:
- Result(s) 3 of Key Activity 3:
- Result(s) 4 of Key Activity 4:
- Result(s) 5 of Key Activity 5:
- More Result(s) of Key Activity(ies):

**Question 10:** How such results related to your position are being implemented in the field?

- Implementation of result(s) 1 in the field:
- Implementation of result(s) 2 in the field:
- Implementation of result(s) 3 in the field:

- Implementation of result(s) 4 in the field:
- Implementation of result(s) 5 in the field:
- More Implementation of result(s) in the field:

**Question 11:** What general objective is being pursued for each result related to your position?

- General Objective for Result 1:
- General Objective for Result 2:
- General Objective for Result 3:
- General Objective for Result 4:
- General Objective for Result 5:
- More General Objective for Result(s):

**Question 12:** What specific objectives are being pursued for each result related to your position?

- Specific Objective(s) for Result 1:
- Specific Objective(s) for Result 2:
- Specific Objective(s) for Result 3:
- Specific Objective(s) for Result 4:
- Specific Objective(s) for Result 5:
- More Specific Objective(s) for Result(s):

#### **Part 4: Opportunities and challenges**

**Question 13:** What would you say is the biggest opportunity facing you today?

**Question 14:** Can you give me an example?

**Question 15:** What would you say is the biggest challenge facing your function today?

**Question 16:** Can you give me an example?

**Question 17:** What would you say is your business?

**Question 18:** What do you provide the customer?

**Question 20:** What is your value proposition?

**Question 21:** Who is (are) your customer (s)? Can you name each of them?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Customer Type:

**Question 22:** What are the needs of these customers?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Need(s) for Customer Type:

**Question 23:** How do you satisfy these needs?

- Customer Type 1:
- Customer Type 2:
- Customer Type 3:
- Customer Type 4:
- Customer Type 5:
- More Need(s) for Customer Type:

**Question 24:** Please share any other additional information you consider relevant concerning the supply chain strategy:



## QUESTIONNAIRE 6: “Resource and Capability Based Analysis”

### Part 1: Resource Analysis (Excel Sheet)

**Question 1:** Please indicate the specific resources of your firm for each general resource listed below:

- Financial resources:
- Physical resources
- Human resources
- Technological resources
- Reputational resources
- Organizational resources

Please answer the following questions by filling the appropriate excel cells with yes or no. (Copy Paste specific resource from question 1 and add line(s) if necessary)

**Question 2:** Does the resource help **your firm** to exploit an opportunity or neutralize a threat and hence create value? **If YES**, proceed to the next question. **If NO**, ask this question again for the next resource

**Question 3:** Is the resource limited, scarce or rare and does **your firm** control the resource in a significant way? **If YES**, proceed to the next question. **If NO**, start again with question 1 for the next resource

**Question 4:** Will a **different firm than your firm** that wants to create or purchase the rare and scarce resource and hence imitate the capability incur a significant cost? **If YES**, proceed to next question. **If NO**, start again with question 1 for the next resource

**Question 5:** Does one or more **competitors** have a substitute capability that provides the same functionality and results? **If YES**, start again with question 1 for the next resource. **If NO**, proceed to the next question.

**Question 5:** Is **your firm** organized to strategically exploit the resource? **If YES**, there is no more question, start again with question 1 for the next resource. **If NO**, start again with question 1 for the next resource.

### Part 2: Capability Analysis (Excel Sheet)

**Question 1:** Please list the key capabilities of your firm that you can think of, for each functional area of your firm listed below (Add functional area(s) if necessary).

- Functional area 1:
- Functional area 2:
- Functional area 3:
- Functional area 4:
- Functional area 5:

- Functional area 6:
- Functional area 7:
- Functional area 8:
- Functional area 9:

**Question 2:** Please indicate the degree of integration of key capabilities across functions, products and business units' wide operations on a four-point scale where 1=no integration and 4=high integration

**Question 3:** Please indicate the probability that totals from the previous table comprised between 7 & 12 are rare, inimitable and non-substitutable (Scale from 1 to 4 where 1=very low probability and 4=very high probability).

**Question 4:** Place on the cube the level of probability of the key integrated capabilities identified in stage 3 (Scale from 1 to 4 where 1=very low probability and 4=very high probability). The cube represents 3 Axis= Inimitability, non-substitutability and rareness. Put dots and names of the key integrated capabilities on the axis

**Question 5:** For the key integrated capabilities that are located in the upper right corner of the cube (small cube) indicate the degree of flexibility on a 4-point scale (where 1 refer to not flexible and 4 refers to highly flexible).

## QUESTIONNAIRE 7: "Organizational Network Analysis"

### Part 1: Network Visualization of Managers Relationships

**Question 1:** With whom do you directly work to perform your everyday tasks?

Please select the frequency of contact (during the last 3 months) that you had for all internal (direct co-workers & colleagues) and external (customers, suppliers or any type of institutions) stakeholders listed below.

- Internal Stakeholder:

Daily  Weekly  Monthly  Quarterly / or less

- External Stakeholder:

Daily  Weekly  Monthly  Quarterly / or less

**Question 2:** After indicating the frequency of contact for all names and representatives, click "save and proceed" at the end of the list and complete your profile into the next page.

### Part 2: Network Visualization of Team Members Relationships

**Question 1:** Please provide your first and second names that I can link your information with the organizational network analysis tool.

**Question 2:** Do you supervise or manage one or more team-members?

Yes

No

If your answer is NO click on the red button at the bottom right corner of the page to terminate the questionnaire

**Question 1:** If YES please list the names of your team members (up to 15 members).

- Team Member(s):

**Question 2:** With whom your team-members directly work to perform their everyday tasks within your firm? (co-workers & colleagues).

- Co-workers & colleagues

Works daily with:  Works weekly with  Works Monthly with: Works quarterly or less with:

**Question 3:** With whom your team members work outside of your firm's boundaries to perform his everyday tasks? (External Stakeholders).

- External Stakeholders

Works daily with:  Works weekly with  Works Monthly with: Works quarterly or less with: