Supply chain managers: professional profile and the role in the cross-functional integration of SCM

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Abstract
Supply chain management can be seen as a way to achieve integration of all corporate functions. Due to this, the objective of this paper is to present the theoretical indications regarding professional profile recommended for the supply chain management and discuss the role of these professionals in cross-functional business processes.

Keywords: Supply chain management, Supply chain managers, Integration

Introduction
Despite the popularization of the concept since its introduction in the 1980s, the Supply Chain Management (SCM) is considered a discipline still in formation (Chen and Paulraj 2004, Tiwari et al. 2014). Its body of knowledge has been formed in confluence with areas such as logistics, operations management, information technology, marketing, resulting in principles and specific strategies, as demand management, postponement, e-supply chain, sustainable chain and others.

In practice, SCM are complex and characterized by numerous activities spread over multiple functions and organizations, which pose challenges to reach effective implementation (Maleki and Cruz-Machado 2013). According to Teller et al. (2012) most of the initiatives to implement the practices and principles of SCM fail or are not completed. Studies have pointed out two main reasons for this fact: (i) the low observance of the human factor in behavioral and professional profile terms (Rossetti and Dooley 2010, Sohal 2013) and (ii) inadequate organizational structure to promote intra-organizational flows (Kim 2007, Oliva and Watson 2011), both have a negative impact on integration (Cousins and Menguc 2006, Fawcett et al. 2008, Kotzab et al. 2006).

Internal and external integration as a key factor in achieving improvements has been one of the main themes in the SCM literature (Flynn et al. 2010). While the external integration focuses on the relationship between the other members of the supply chain like suppliers and consumers, the internal integration seeks to make possible the different flows (information, money, material, decision) among all corporate functions (Fabbe-Costes and Jahre 2008, Mentzer et al. 2001, Shoenherr and Swink 2012). In this point, Lambert et al. (2008, p.113) assert “academics and managers need to consider the linkages between SCM and the business functions and business processes”.

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Although regarded as a primordial condition for the benefits of participating in a supply chain are effectively achieved (Danese 2013, Shub and Stonebraker 2009), integration is much more difficult to achieve in practice than in theory predicts (Fabbe-Costes and Jahre 2008). Despite the definitions of SCM suggest the areas of purchases, operations and logistics as cross-functional, in business practice do not occur: the chain management is more focused on improving external processes rather than to internal functional integration (Koulikoff-Souviron and Harrison 2010, Rossetti and Dooley 2010).

Because the crucial role in ensuring the continued firm competitiveness, formulation the strategies and monitor the execution, the role of supply chain managers has become increasingly prominent. There is a visible growth in the studies which seek to measure its proper professional profile and its role in promoting internal integration role (Esper et al. 2010, Fawcett and Waller 2013, Lambert et al. 2008, Lorentz et al. 2013, Mangan and Christopher 2005, Menon 2012, Omar et al. 2012, Wu et al. 2013). However, there is still a lack of agreement on the domain of supply chain managers, situation which justifies the need for more studies on the theme.

This article is based on literature review, and aims to integrate the discussions about the existing issue. Specifically, our goal is to present the theoretical indications regarding professional profile recommended for the SCM and discuss the role of these professionals in cross-functional business processes.

**Internal integration in supply chains**

Supply chain management is actually the main theme in discussions on business competitiveness. Fawcett et al. (2011, p.116) discussed that SCM is the “business of business”, but it has been managed as back office by companies. Some difficulties in its operationalization have drawn the attention of academics, entrepreneurs and managers of this issue (Khan et al. 2013, Kotzab et al. 2006, Teller et al. 2012), mainly those related to integration. The literature recognizes that collaboration in the supply chain can only be achieved with the integration of intra and interorganizational functions and with the establishment of common goals (Chen and Paulraj 2004, Jutinier et al. 2007, Lambert et al. 2005, Mentzer et al. 2001).

SCM implies a “horizontal” organizational orientation rather than a “vertical” one (Maleki and Cruz-Machado 2013, Mangan and Christopher 2005). Vertical orientation is associated with the idea of external integration, while horizontal orientation is associated with the internal integration between functional areas and teams, including logistics, sales, marketing, finance, operations, and purchasing. Information accurate and fast, cost effective, product development, quality, innovations and right decisions are the main benefits of internal integration (Shoeherr and Swink 2012). Likewise, the internal integration has been understood as a prerequisite, or antecedent, to the desired external integration between the links upstream and downstream of a supply chain (Esper et al 2010, Mello and Stank 2005, Mentzer et al. 2001, Miocevic and Crnjak-Karanovic 2012). In this sense, internal integration is commonly defined as the collaboration and linkages between and across organizational functions as well as organizational partners, including customers and suppliers. Miocevic and Crnjak-Karanovic (2012) claim that value creation is a process in which all members of the supply chain should invest their resources, skills and knowledge internally, interacting results of this creating value throughout the chain. As a consequence, the value is delivered to the final costumer. In fact, the models SCOR – Supply Chain Operations References e GSCF – Global Supply Chain Forum predict the need for internal flows as complementary to external flows (Lambert et al. 2005).
The basic level of integration is the internal operation of each company. The benefits which are gained are directly related to capacity efficiencies across functions within a company based on strategic alignment of each functional area related to SCM (Chopra and Meindl 2012). However, reaching this level of integration is not easy to obtain, with many barriers. Bowersox et al. (2007) present those who consider the main ones: (1) Organisation - the organizational structure of a company may restrain the interdepartmental processes. The traditional practice has been grouped all the people involved in performing a given task in functional departments with silo mentality, complicating the process management; (2) Measurement and reward systems - traditional systems of measurement and reward hamper cross-functional coordination by relying on functional realization isolated instead of measure the overall performance of the process; (3) Leveraging of inventory - inventories are leveraged to facilitate functional performance. The traditional position is to maintain sufficient level to protect the operational uncertainties and demand or achieve economy of scale in production, passing the problem of excessive inventory to other departments (4) Infocratic structure - information technology is an enabler of process integration. However, the structures and philosophies of traditional management does not favor the exchange of information between functional areas, occurring slowly and fragmented; (5) Knowledge transfer - there is a lack of understanding about how to share knowledge, coming from the excessive strengthening of functional specialization and the lack of people willingness.

It is noticed that two factors stand out among these barriers: (i) people and (ii) organizational structure. The first relates to the supply chain professional, in terms of technical and behavioral skills and functions to be performed. The second relates to the organizational format currently recognized as inefficient in allow flows (information, knowledge, material) required for SCM. There are also issues related to organizational strategy, planning (tactical and operational) and human resources policies. In this scenario, a figure has emerged: the supply chain manager and its role in integration, especially intra-organizational. The next sections expose this subject.

**Supply chain managers: current characteristics**

The SCM is human centric (Maku et al. 2005, Thornton et al. 2013). Getting strategy execution right is the essence of any strategy formulation exercise. However, there is a gap between SCM performance measurement, business strategy, human resources system and organizational structure (Omar et al. 2012, Teller et al. 2012). Because of this, supply chain managers are been considered a critical dimension in SCM (Lorentz et al. 2013, Mangan and Christopher 2005, Van Hoek et al. 2002). The way companies need to think the modern supply chain executive has significantly changed over the years. Initially with a focus on logistics functions (Gammelgard and Larson 2001, Murphy and Poist 2007) and supplies (Large 2005, Othman and Ghani 2008), discussions were progressing to a broader view of the performance prerogatives of this professional (Harvey and Richey 2001, Harvey et al. 2013, Kovács et al. 2012, Sohal 2013, Van Hoek et al. 2002).

However, questions like “who are we” and “what do we do” have not been fully answered (Fawcett and Waller 2013). Only recently companies have designated a specific post for supply chain managers and universities have included the discipline of SCM in its curriculum (Fawcett et al. 2010, Richey et al. 2006, Wu et al. 2013). Rossetti and Dooley (2010) indicate a justification for this fact: the absence of consensus on the concept of SCM, causing a lack of clarity in defining what are the professional practices and the types of jobs associated with SCM. The authors suggest eight possible positions of management associated with SCM: (1) Supply
manager – develops activities aimed at improvement and management of the supply network, (2) Operations manager – develops activities aimed at process improvement in global operations, (3) Service operations manager – monitors the service providers and outsourced companies, (4) Purchasing manager – develops activities aimed at controlling inventory and supplies usage, (5) Information manager – develops activities aimed at the global information management in the supply chain, (6) Integration logistics manager - develops activities aimed at the internal and external monitoring of product flow, (7) External logistics manager - promotes the interface between company and consumer, (8) Manufacturing manager - develops activities aimed at production management and also quality management and processes.

Supply chain managers are a quite varied group: they often come into a logistics, transportation, procurement, and sales (Mangan and Christopher 2005) being common the reference “logistics manager” and “supply chain manager” similarly (Gammelgaard and Larson 2001, Lambert et al. 2008, Murphy and Poist 2007). In a study performed with senior level executives in more than 100 companies, whose aim was to identify the skills required of logistics managers relative to the beginning of the 1990s, Murphy and Poist (2007) realized redefining the role of these executives. The comparison suggested that the skills for the management of contemporary logistics are defined from the supply chain orientation, which requires human management skills and systems view of the business and not only technical skills related to specific functional area. Gammelgaard and Larson (2001) posited a three-factor model of SCM skill areas for executive development and other programmes aimed at logistics managers: interpersonal/managerial basic skills, quantitative/technological skills, and SCM core skills. They also stressed the importance of good communications skills for today’s logisticians, both upward and downwards communication within the organization. Large (2005) stressed the same. A survey with buyers and purchasing executives in German companies suggested that interpersonal communication plays as important role in the management of supplier-customer relationships. So, purchasing executives should support intensive, open and friendly communication behavior of their subordinates but, as preconditions, should have oral interpersonal communication capability and positive attitudes with suppliers.

Concerning professional qualification, Esper et al. (2010) suggest that supply chain managers have not only functional skills, but also managerial and interpersonal. Interpersonal characteristics are: openness, trust, awareness, adaptability, willingness to constant learning and extroversion (to deal with employees and customers). Ability to make decisions, solve problems and manage work time (own and team) are the managerial skills. Already functional skills relates to specific knowledge in functional area allocation and the business as a whole. Barnes and Liao (2012) suggest that supply chain managers should have knowledge of other functions and business processes of the company and possess skills of cooperation and problem solving. In selection processes should recruit professionals with openness to cooperation and interpersonal skills to ensure the exchange of information, an essential factor for collaboration in operating activities. Mangan and Christopher (2005, p.181) appointed that this re-orientation of the supply chain manager require a “T-shaped” skills: managers have in-depth expertise in one discipline (for example, logistics) combined with enough breadth to see the connections with others (business process engineering, asset management, activity-based costing). Using a triangulation research approach (focus group, interviews/surveys and a case study) in order to capture the views of the professionals, students and providers of education and training in SCM about the key knowledge areas and competencies/skills required by logistics and supply chain managers, the authors found: (1) General – finance, information technology, management/strategy, (2)
Logistics and SCM specific – operations/SCM, focus on processes/flows, legal, security and international trade, multimodal logistics, logistics in emerging markets, (3) Competencies and skills – analytical, interpersonal, leadership, change management, project management.

The ability to see the “big picture” is included in the supply chain manager professional profile. Due to the competition in the global marketplace, supply chain manager need to possess multicultural knowledge, foreign languages, external focus on local social and economic conditions and develop a management style that is concert with the local environment (Harvey and Richey 2001, Harvey et al. 2013, Kovács et al. 2012). Ellinger and Ellinger (2014) presents four requisite skills for global supply chain manager: (1) Higher order problem solving – analytical, technical skills, creative thinking and ability to see the “big picture”, (2) Managing ambiguity – high order diplomacy and commercial awareness who can learn from past experiences and apply that learning in new imprecise situations are needed, (3) Multi-level communicator – ability to converse horizontally and vertically within organizations and across communities of trading partners and be able to explain the SCM concept and (4) World citizen – manage and relate teams located in multiple countries. The personal characteristics are equally important. According Harvey et al. (2013), their cultural heritage and past experiences directly affect their ability to interact effectively with others in a foreign context.

In summary, multicultural knowledge, knowledge of the general business scenario, technical knowledge in SCM, training and monitoring of work teams (including multifunctional), change management, conflict resolution, breach of functional barriers, interpersonal and communication skills, ethical awareness and social responsibility are the main skills, competencies and functions expected of the modern supply chain managers. These findings further emphasize that supply chain managers should be manager first and technical specialist second (Cousins and Menguc 2006, Murphy and Poist 2007, Lorentz et al. 2013).

Discussion: supply chain managers and supply chain internal integration

As noted earlier, people involvement is critical to the success of strategic initiative implementations in supply chains (Maku et al. 2005, Shub and Stonebraker 2009, Smith-Doerfllein et al. 2011, Sweeney 2013). At the same time, also the organizational structure (Kim 2007, Kotzab et al. 2006, Oliva and Watson 2011). According Maleki and Cruz-Machado (2013), in the context of SCM a large number of individual interact with other using specific internal structures. Additionally, Lambert et al. (2008, p.117) state that each functional area plays an important role in the successful implementation of SCM, in which “no function should dominate; that is, all functional efforts should be aligned with the business goals and focused on the management of relationships with customers and suppliers”. Nevertheless, cross-functional opportunities are easier to identify than to implement. The fact is that organizations have been unable to find the harmony among people, structure and cross-functional flows (Cantor et al. 2012, Khan et al. 2013, Teller et al. 2012). This is the scenario wherein the role of supply chain managers becomes crucial. Fawcett et al. (2010, p.22) argue that supply chain leader “is a cross-functionalist who understands the key supply chain functions and keeps them rolling in synch, a choreographer who sees the “big picture” while understanding where individual pieces fit the pattern”.

Human aspects are fundamental to organizational integration (Barki and Pinsonneault 2005). The adoption of practices enablers of SCM (for example, quality management, demand management, partnership with suppliers, benchmarking, VMI) requires internal modifications,
including organizational culture (Mello and Stank 2005), in order to promote cross-functional relationships between the areas related to creating customer value (Fawcett et al. 2008, Juttner et al. 2007, Lambert et al. 2005). However, effective implementation is considered dependent on the human factor in terms of skills, capabilities and favorable predisposition of employees to perform the functional tasks of these practices (Gowen III and Tallon 2003, Lengnick-Hall et al. 2013, Teller et al. 2012). Aversion to change and the challenges of managing people in the operational routine are also found in the sphere of SCM (Kotzab et al. 2006, Omar et al. 2012). Therefore, support actions, reinforcement, monitoring and development of the human factor are vital for the proper performance of intra-organizational professional activities (Cantor et al. 2012, Koulikoff-Souviron and Harrison 2010).

Since human interactions influence SCM practice largely, human resource development strategy significantly affects supply chain performance (Ellinger and Ellinger 2014, Sweeney 2013). Regarding the impact of human interaction on supply chain practices, Maku et al. (2005, p.29) propose an operational definition: “human interaction within supply chains can be defined as the region of intersection between the HR system and supply chain strategy execution”. Lengnick-Hall et al. (2013) define HR system as a multilevel construct (HR architecture, principles and philosophy) that direct the management of human capital, some mid-range elements (HR policies and programs) that provide alternate means for aligning HR activities with the specific activities implemented within a firm. The HR practices usually considered in the literature on people management in SCM are: (a) staffing, (b) job design, (c) performance appraisal, (d) reward and compensation, (e) training, (f) socialization and (g) communication (Barnes and Liao 2012, Gowen III and Tallon 2003, Koulikoff-Souviron and Harrison 2010, Shub and Stonebraker 2009). In view of this, Smith-Doerflein et al. (2011) suggest that supply chain management must be managed aligned with the human resource management instead of isolated areas. It is estimated that with the support of the principles and practices of people management common barriers to integration, including external, may be more easily overcome (Cousins and Menguc 2006). Exactly at this point is the supply manager as a “people manager” not only a “technical specialist manager”.

Menon (2012) conducted a study with 228 professionals involved with the SCM aimed analyzing the contribution of human resource practices to professional satisfaction and the relationship with internal integration. The results showed that the training and development of teamwork practices have greater influence. Flexible working and establishing performance goals for obtaining rewards also present significant relationship between professional satisfaction and supply chain performance. Given these results suggested that training related to SCM promote technical formation and process analysis, as well as behavioral formation aimed the building capacity for teamwork and establishing collaborative relationships.

Similar study was conducted by Koulikoff-Souviron and Harrison (2010) in a large European pharmaceutical company, which aimed explores how HR practices evolve within the strategic intra-firm supply relationship. The results showed that interdependent operations requires an HR system that is designed to invest heavily in the relationships and aimed all employees involved in the interaction of the intra-firm supply chain, not just top management. Another interesting finding was that HR practices could have positive and negative effects on collaborations and integration. In case, if they are implemented with specific and distinct goals among functional areas, causing internal disputes, and not focusing on the overall performance of the supply chain. Because of this, the authors propose to supply chain managers: (a) a focus on employees and jobs related to broad supply chain rather than local optimization, (b) encouraging information
and knowledge sharing and relational abilities that allow employees to leverage value and (c) collective reward systems that support achieving mutual and interdependent goals.

The issues relating to organizational structure directed to SCM are also liable to be managed from the practices of human resource management. As traditional format of division labor between functional areas has been unable to promote synergy required for the SCM, the role of supply chain managers has also been highlighted in the organizational structure factor. Omar et al. (2012) emphasize the social dilemma is common within the company, a reflection of rivalry among the people allocated in different functional areas, very encouraged by the structures (functional silos) and metrics and performance evaluation systems distinguished. The same is highlighted by Koulikoff-Souviron and Harrison (2010) and Mangan and Christopher (2005).

Rossetti and Dooley (2010) indicate internal functional integration and process management as two activities to be carried by supply chain managers. The first aims to increase and improve the information flow between functional areas intra and interorganizational and, the second aims to measure, analyze and improve processes in the supply chain. Lambert et al. (2008) discussed how logistics managers contribute and gain from their involvement in the eight cross-functional processes identified by The Global Supply Chain Forum (GSCF): customer relationship management, supplier relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, product development and commercialization, and returns management. In the demand management process, for example, the main benefits are more accurate forecasts, better planning and smoother execution of logistics activities, better capacity utilization and reduced inventory levels, well-crafted contingency management plans, capabilities and costs of logistics-based flexibility are understood throughout the organization.

For that, managers should promote and maintenance the redefinition of organizational structures of “vertical flow” type for “horizontal flows” type, principally in the behavioral management of persons involved (Deffe and Fugate 2010). In this same line of reasoning, Gammelgaard and Larson (2001) and Teller et al. (2012) and highlight the importance of the decision makers in considering the internal focus and promote the interconnection actions between the areas of purchasing, logistics, marketing and product development actions in the supply chain. To promote a greater level of cross-training across functional boundaries to ensure this interconnection is one of the strategies indicates to the supply chain managers (Ellinger and Ellinger 2014, Gowen III and Tallon 2003, Mangan and Christopher 2005).

Formation of work teams, including multifunctional, is considered one of the most effective strategies to eliminate structural barriers and human relationship, whose development and monitoring is responsibility of supply chain managers. Training, evaluation and feedback, remuneration and compensation, attention to organizational climate and motivation are among the management practices recommended for the development and monitoring teams (Koulikoff-Souviron and Harrison 2010). Encouraging teamwork, joint problem solving, exchange of information and knowledge are ways to eliminate the structural difficulties supported by the principles of people management (Menon 2012, Miocevic and Crnjak-Karanovic 2012, Othman and Ghani 2008, Rossetti and Dooley 2010).

**Conclusion**

This paper reinforces the importance of discussing the current role of supply chain managers in cross-functional business process. The literature review demonstrated a growing interest in the
thematic, especially because the “soft” aspects (human and behavioral) to achieve supply chain internal and external integration. In the internal integration, there are inherent organizational barriers, like structure (department, hierarchy, information flows), human conflicts, functional disputes and lack of professional qualification. Nevertheless, all functions must be involved in SCM and supply chain managers have a critical role to play: challenge the supremacy of functions in the organizational structure, implementing the practice of "horizontal work" through cross-functional teams. On the other hand, this professionals need to have a set of skills, abilities and competencies to achieve this intra-organizational configuration and to be leader just a technical specialist.

In summary, it is expected of supply chain managers: strategic orientation with a global perspective, ability to manage change processes and to balance the external needs of the function with the internal vision of efficiency, align strategic objectives of SCM with the overall strategy of the organization, expertise to manage risk and uncertainty, motivate people for mutualism and cooperation, obtain positive operating performance of work teams, good communication (written and oral) to influence their subordinates and other parties related to the business (including external partners), translate “client vision” into strategic and operational practices, establish metrics and reward systems aligned and coherent across functional areas.

The companies, local or global, need to recognize the importance of supply chain managers to competitiveness and find alternatives to develop and retain these professionals, since the demand for experienced and qualified has been greater than the current supply. Besides the development of internal policies, there is the possibility of collaboration between business, universities/colleges and industry associations with the aim of developing an appropriate set of competencies for supply chain professionals. Future research could consider this issue, as there is little understanding about the types and curriculum of training adequate for logistics and supply chain managers. Another area identified for further investigation is Human Resource Management (HRM) and Supply Chain Management connection. It is becoming increasingly crucial establish HR practices capable of manage the individual knowledge and commitment to the supply chain integration processes.

References


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