



Change in Organizational Paradigms in Complex Supply Networks

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Abstract

Today's global, IT-based, multi-enterprise, complex and networked business relationships require organizational structures and paradigms which are radically different from what they were at the birth of the supply chain (SC) concept. Collaboration across partners stands out as a key theme at all organizational levels for the benefit of the entire network. This study provides a broad coverage of the change experienced in the organizational aspects and discusses the characteristics of the new era from organizational perspective. A clear shift is observed towards collaborative, lean and extended organizational structures with cross-enterprise teams being the most recent managerial units. Organizational structures which are dynamic, tightly coupled, process-centric, strategy-oriented, and trust-based appear as key for competitiveness in today's SC era. In this context, the unit of analysis and focus has shifted from the enterprise to network in organizational and managerial perspectives. A new organizational understanding, which is based on negotiation, consensus, openness and trust among SC partners, is required and a coaching-style leadership for the cross-enterprise, cross-country teams stand out among the main managerial skills.

Keywords: Organizations, Supply Networks

Introduction

Today, under changing business conditions and advances in IT, supply chains have turned into increasingly global, IT-intensive and highly interdependent, complex supply networks [1,2,3]. Supply Chain Management (SCM) practices, initially possessing a local, logistics-oriented and functionally-focused character, are reshaped after the new dynamics created by ever-demanding business pressures and advancements in the IT domain in order to meet the requirements of price-driven competitive markets. The outcome of this transformation is customer-driven, process-oriented, global, strategically coupled, complex, dynamic, multi-agent, web-based and value-creating collaborative networks [4]. Under such circumstances, increasing value creation, strategic orientation, web-based information exchange and collaboration at different SCM processes are well-supported to be the key themes that characterize the new way of doing business in the literature [5,6,7]. Consequently, we witness a transformation from a firm-centric understanding to a chain-centric one, representing a radical change from technological, organizational and managerial aspects in the SCM domain and resulting in new paradigms and understandings [4]. In this paper, we will focus on the organizational dimension of this change, and analyze the paradigm change from the organizational perspective.

Consistent with these transforming business practices in SCM throughout decades, the role and mission of the firm itself has also changed. Throughout the evolution of managerial theories, it has been established that the main goal of the management team of a company is to maximize the wealth of the shareholders. However, today the definition of shareholders seems to be changing with these new practices. As managers, are we concerned with the wealth of only the shareholders of the leader company, or of all the shareholders of all firms operating within the same supply chain? Is this concern limited to only the shareholder, or should we also include all stakeholders into the picture as well? In today's highly global and tightly-coupled business understanding, the answer to this question lies in considering the overall well-being of the SC, which involves all stakeholders of all of the chain partners.

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Therefore, the shift from a firm-level understanding to a chain-level one demands that instead of keeping the firm at the core of the management and organization theories, we should be concentrating on the common needs and interests of all the parties in a given SC, and on keeping the overall well-being of the chain ahead of the individual interests. Given that SCM is a well-supported strategic management tool which drastically affects both the performance and risk of the company [8,9], the context, focus, goal and the organizational structure all need to be redefined for the firm.

With this understanding, this paper analyzes the paradigm change experienced from an organizational perspective. Section 2 describes the transformation experienced in the domain, covering increasingly strategic and collaborative orientation, new organizational forms that have evolved, the new organizational culture and understanding of leadership. Section 3 provides the discussion, and Section 4 concludes.

Transformation in Organizational Aspects

A literature review on the organizational aspects of today's SCs reveals the following characteristics to describe the transformation experienced in the field:

Strategically Dependent and Collaborating Organizations

Managing a business in global and networked business conditions requires the resolution of the dilemma concerning valuing the network over individual enterprises [7,9]. It is necessary to give directions to the overall SC in alignment with the partner strategies, necessitating a holistic, integrative, multi-agent perspective with a process-oriented systems approach. Organizational dependencies and couplings are created at not only the operational-level, but also the strategic level. Naturally, planning and control of operations become paramount in moving an organization or a SC in the desired direction [10]. However, the degree of collaboration across organizations is extended far beyond basic operational and logistics activities enabled by the current IT availabilities. Collaborative planning, forecasting and replenishment (CPFR) integrates the main processes across enterprises, bringing in the ability to jointly handle the planning and control activities [11]. After this level of integrity, joint performance and risk management, as well as collaborative financial and budgetary planning are further included in today's broadened understanding of collaboration [7,12]. Information sharing, interactions and dependencies way beyond operational activities are created across organizational structures, and collaboration stands out as the main theme shaping the success in the domain. In this context, formal and informal mechanisms enabling communication and collaboration become essential, with cross-functional teams, category teams, supply councils, executive supply committees etc. turning into 'required attendance' for team members. Establishing and maintaining a governing SC Council that can provide constant and consistent validation of the strategy assumes an especially critical role for a systemic perspective and a strategic orientation [13].

Consequently, we are faced with highly dependent and cross-border organizational structures interacting beyond functional as well as individual enterprise boundaries to manage cross-enterprise processes. In the literature, we frequently witness the concept of 'blurred boundaries', and some scholars even speak of 'boundariless organizations' [14,15]. This concept of blurring boundaries eliminates the restrictions in the flow of information and knowledge, breaks down the functional barriers, enables cross-border process integrity, and helps organizations to build relationships with a set of partners that constantly change. It also represents an increasing ability for cross-border collaboration. As a result, it seems that boundaries no longer represent an essential element for organizations.

Birth of New Organizational Forms

The network-centric paradigm requires players to have dynamic adaptation capabilities, and forces enterprises to become organizationally lean and agile [4]. The capabilities of adaptability, agility, flexibility, resilience, responsiveness, robustness, innovativeness and sustainability are vital for the competitiveness and survival of any enterprise. However, tight dependencies across the organizations demand that these terms be considered for not only the individual enterprises, but also the overall SC. A 'leagile' philosophy is needed for the entire network, representing a strategic balance between agility and lean capabilities [16,17]. Eliminating the non-value added processes and waste across the SC while



improving adaptiveness, responsiveness and innovation are at the core of the overall success.

In such an environment, traditional, function-based and hierarchical organizational structures are naturally doomed to fail. Any partner containing over-hierarchy, functional barriers and inefficiencies is a node which blocks the network-level flows and negatively affects the overall network-level performance [18]. To ensure success in SC operations, the degree of decentralization also appears as a core issue. Both centralized versus decentralized organizational models have their own advantages and disadvantages, while center-led organization represents the trade-off between these two models [13,19]. In this context, a center-led SC organization focuses on corporate SC strategies, strategic commodities, best practice, and knowledge sharing while leaving the tactical execution to the individual units. A center-led structure relies on cross-functional and divisional teams, flexible processes and policy standards that can be tailored at the local level, coordinated metrics and incentives, and an integrated procurement information systems infrastructure that automates and aligns source-to-settle processes across the enterprise. The consequence is that traditional, multi-layered, hierarchical and centralized structures are being replaced by relatively independent and process-oriented units that are coordinated via cross-functional teams [15].

We further observe that a new stream of thought called ‘organizational fluidity’ has emerged in recent years, stressing the need for highly flexible and fluid organizational forms with quick improvisation and ad-hoc response capabilities [14]. In this new understanding, one can witness a transition:

- from hierarchies to networks,
- from formal programs and coordination rules to spontaneous action,
- from departmentalization to improvised, cross-border processes and temporary project teams, and
- from vertical lines of command to lateral, organization-wide lateral communication [14].

This stream of thought also reiterates that high-performing organizations be seen as constantly redesigning and reinventing themselves with increasingly fuzzy and eventually dissipating boundaries [14]. This is fully in line with the ‘blurring boundaries’ concept in the literature, with the focus shifting from rigid organizational structures to behavioral features of flexibility, dynamic capabilities, competencies, adaptation and cooperative networking. Consequently, what become essential are the organizational structures which are flat, flexible and utilizing cross-departmental as well as cross-enterprise teams which can collaborate. Among the partners, long-term strategic dependencies, agreements and alliances are formed and we witness the creation of new organizational forms and structures along with a multitude of recent terminology referring to these new organizational forms [20,21,22]. These terminologies can be summarized as given below:

- Extended enterprise
- Boundariless organization
- Strategic networks
- Dynamic networks
- Value-added networks
- Ad-hoc networks
- Project-based enterprise/network
- Virtual enterprise/organization/corporation/ network
- Coalescence

In the recent literature, one can observe a significant degree of overlapping and interchangeable use of such terms. To start with, the term ‘extended’ emphasizes the beyond-ERP (Enterprise Requirements Planning) integrity across multiple enterprise systems [20,23]. ‘Boundariless’ focuses on the idea of ‘blurring boundaries’ and disappearing functional barriers. The ‘dynamic’ character emphasizes the fast-reconfiguration and adaptation ability of the network to changing conditions. Both the terms ‘ad-hoc’ and ‘project-based’ highlight the transient and ‘as-required-basis’ character of the organization structure, and the limited duration for collaborative relationships. Naturally, this contains the dynamic ability to gather together and dissolve the partnerships triggered by a specific collaboration opportunity. ‘Virtual’ forms again represent temporary and rather volatile structures established on an ad-hoc basis with rapid reconfiguration abilities. However, they differ from the others by containing minimal/no physical resources, and having utmost reliance on IT infrastructure [21,22, 24,25]. In the study by Binder and Clegg [20], a clear comparison is put forward between extended enterprises and virtual ones. They



highlight that extended enterprises are characterized by: being quasi-permanent, having a lean and agile resource base, medium degree of transaction costs, and asset specificity and integration. Whereas, virtual enterprises are mentioned to have the characteristics of: being temporary, having a fragmented resource base with high level of transaction costs and asset specificity, and low degree of integration.

Among the above-mentioned terminologies, 'coalescence' refers to the ultimate unification, total integration and 'sharing a common faith' among partners, representing an extreme stage in the evolution of collaboration.

Despite this multitude of terminologies, it is obvious that these new organizational forms share the common characteristics of being dynamic, collaborative, IT-intensive and reconfigurable. This is perfectly in line with the 'fluidity' school of thought. Inarguably, these recently emerging forms are in sharp contrast to the hierarchical and rigid traditional organizational forms.

In this transformation, there exists obvious trade-offs between: (a) fluidity and stability, (b) formal, rigid structures and minimal structures, and (c) formal rules/procedures and few robust routines [20]. Consequently, there is a balance between flexibility (which is associated with organic structures, loose coupling and improvisation), and maintaining efficient routines (which are in conjunction with mechanistic structures, tight coupling, control and bureaucracy). Undoubtedly, successful organizational models are those that fit in both corporate-level as well as chain-level strategies.

New Organizational Culture

The aspects described earlier require an entirely new organizational culture, characterized by openness to communicate, negotiation, consensus and collaboration. Managing tight dependencies at all temporal levels (operational, tactical and strategic), and valuing the overall network over the individual enterprise interests necessitate: (a) establishment of dynamic, cross-functional and cross-enterprise teams for all these levels, and (b) managing these teams with continuous negotiation and consensus. In this organizational culture, joint evaluations, negotiations and collaborative decision-making, not only within the organization but also across the enterprises, become the new way of doing business. In addition, respect for the well-being of other partners and valuing long-term, win-win relationships become the key issues in this new collaborative environment.

Power, commitment and trust among SC partners appear as other key determinants of the new organizational culture. Together with the increasing length of relationships, we witness trust development, increasing commitment and decreasing opportunistic behavior among partners at all temporal levels [26,27]. This definitely contributes to further collaboration beyond material management. As a result, sharing of more strategic-level, almost confidential information becomes possible along with the development of trust, while collaboration on critical matters such as performance management and risk management are enabled across partners. The power of a channel partner, defined as the ability of a partner to affect key decision variables and to control critical assets, is also fully supported to affect collaboration among partners and SC integrity [28]. Hence, these three concepts become key notions determining the resultant scope of collaboration and the working culture across the network. Still, successful SC organizations are those that ensure the best fit between the organizational model and actual corporate culture, and not the desired corporate culture. Therefore, creation of a collaborative, trust-based organizational culture depends on managing the transformation in the prevailing organizational culture and mindsets.

New Approach to Leadership

Undoubtedly, new organizational forms and cultures demand new approaches and skills from the leadership perspective. Managing multi-enterprise human resources and talents in a multi-enterprise, cross-borders context is required with a broad understanding of complex, networked relationships. Leadership opportunities matter for not only a specific enterprise but also the overall chain because of all the extended and intensely coupled relationships [4]. In this context, the basic requirements for a leader are: (a) openness to communication, collaboration and consensus; (b) ability to lead multi-cultural, cross-border teams, and (c) openness to change. Without question, this demands a coaching-style approach to leadership rather than an authoritative one. Today's supply chain leaders have also been shown to possess the following characteristics: (a) the ability to understand and experience all aspects of an end-to-end SC,



not being limited to operational aspects, material management and logistics, (b) the experience for living and working in multiple regions and cultures in both developed and emerging markets, (c) the ability to foresee future market changes, (d) the ability to adapt quickly to new business models, and (e) the capability to understand where value is being created and re-created [29]. Thus, a broad vision, a strategic perspective, foresight with a proactive mode of behavior, and the ability to respond to new conditions define modern-day leadership. In the literature, the concept of 'transformational leadership' is specifically emphasized as a dynamic capability, referring to the ability of the leader to lead the organizational change, and having both a direct and indirect positive relationship with organizational performance [30,31,32,33]. In short, leadership in today's supply networks context requires those who can create and manage a collaborative, dynamic, consensus- and trust-based working environment, and who can manage the transformation of the organizations towards these ends. Still, the presence of one strong channel leader, or very small number of dominant leaders, will drive the direction of the chain in the governing council. Therefore, power asymmetries and the exercise or lack of power among the representative leaders in the governing board will affect the level of commitment of other channel members and the success of the overall chain.

Discussion

The transformation experienced in the SC domain due to changing business conditions and IT developments has resulted in dramatic changes from an organizational perspective. We have seen that the shift from a firm-level understanding to a network-level one is the main driver of all these changes.

It was revealed that the new era outlines an environment in which organizational and functional boundaries become increasingly blurred, relationships become more and more dependent, and collaboration appears as the dominant theme. It is apparent that process-centric, shared goal-oriented, trust-based, tightly coupled, and dynamic organizational structures are essential to meet the requirements of the new business environment. Having said so, the ability to engage in dynamic and long-term partnerships in which partners can collaborate beyond the operational relationships characterizes today's complex supply networks. Hence, we are witnessing new organizational designs, the birth of various flexible organizational forms and recent terminologies for extended, strategically-dependent and IT-intensive organizational structures. The multiplicity and immaturity of these terms is obvious in the literature. However, it has become apparent that they all point out to flexibility, liquidity, dynamic adaptation capability and web-intensive nature as key features. What's more, it has become evident that surviving organizational forms are, in fact, the ones that ensure a good fit with strategy and culture, while assimilating and utilizing IT towards cross-border collaboration.

It is also revealed that a whole new organizational culture is created, which values open communication, negotiation, consensus, collaboration and trust among partners, along with a new approach to leadership. Undoubtedly, all the opportunities and challenges related with working in a multi-partner and multi-cultural environment prevail, and negotiation and consensus-seeking stand out as crucial aspects of this new working environment.

Conclusion

Since its emergence, SCM has become a management tool with an increasingly strategic character, and context, focus, goal and organizational structure have been redefined for organizations. Within the global and extended context of business, a network-centric focus with network-level goals and objectives has become essential. As a result, a transformation is witnessed in the organizational structures of the partners, and less rigid, less centralized and boundariless organizational forms have now evolved.

Consequently, the collaborative network-centric paradigm of today's SCM creates strategically dependent and extended organizational structures that can engage into dynamic, long-term and collaborative partnerships. This trend is in contrast with the traditional, hierarchical, function-based and isolated understanding of organizations, and requires an entirely new, collaborative and 'leagile' mindset. The focus has shifted from operations, functional barriers, command-and-control and hierarchical organizational forms to integrated processes, cross-border integration, negotiation and consensus, and leagile organizational structures. Trust-based collaboration models appeared, and a giant step is taken beyond operational-level coordination, enabling strategic-level collaboration. We even speak of



'coalescence' as the ultimate unification, instead of the old versions of operational-level coordination. Therefore, it is obvious that organization and management theories of today should consider the network rather than the enterprise as their focus and unit of analysis with a global and holistic perspective, in which leader partners assume responsibility for not only wealth maximization for their own shareholders, but also for those of all the parties within the same chain.

With these in mind, the organizational and managerial aspects of collaborative networks and newly emerging organizational structures appear to be fruitful areas for future research.

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