

POSSIBILITIES FOR IMPROVING OF SUPPLY CHAIN PERFORMANCE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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Please cite this paper as:

Hassani, Y., Bițan, G.E. and Ștefănescu (Lupu), R., 2020. Possibilities for Improving of Supply Chain Performance in the Context of Sustainable Development. In: R. Pamfilie, V. Dinu, L. Tăchiciu, D. Pleșea, C. Vasiliu eds. *6th BASIQ International Conference on New Trends in Sustainable Business and Consumption*. Messina, Italy, 4-6 June 2020. Bucharest: ASE, pp. 966-973

Abstract

On estimating dynamic factor demands supported by normalizations and the new economic model imposed by globalization additional costs for research and development have occurred. These additional costs are constantly increasing and present a major challenge for the actors in the supply chain to achieve customer satisfaction. For achieving the objectives, the supply chain is impacted by the reduction of the costs and the productions activities are often restrained to meeting the immediate objectives without any integration with the upstream supply chain. Consequently, if a company wants to maintain balanced sustainable development, a quest towards an efficient supply chain should be based on the purchasing function, with an aim to achieve continuous improvement of margins and regular exchange of knowledge and information with suppliers and actors of the supply chain. This article aims at placing the purchasing functions in the context of the strategic management concerns of the companies, as well as in the operational flows, identifying the stakes of the purchases in the overall performance, and as a result, proposing a model for a sustainable logistic chain management, based on information and management systems external and internal integration.

Keywords

supply chain performance, upstream supply chain, integrated supply chain, procurement and sustainability, integrated management system quality - environment.

JEL Classification

L25, O32

Introduction

Nowadays, the complexity of the business environment in the supply chain operating is characterized by high risk, uncertainty and instability related to products, markets, prices, new

technologies, material availability, diverse cultures and collaborations with different stakeholders with the aim of increasing customer satisfaction (Marquardt et al, 2018). Therefore, ensuring the availability of goods and services necessary for the operation of the business requires an effective upstream chain strategy. The purchasing function is under pressure today more than ever, as it is confronted with constantly anemic growth and with a situation of persistent crisis, associated with more complex market conditions. It must face new economic and operational challenges. Environmental and societal policies reflect a real purchasing challenger and an effective supplier management policy. The concept of responsible purchasing leads to the implementation of new clauses and to the intensification of internal communication. In addition to the identification of needs, purchasing must be done in a preventive manner as far upstream as possible, in order to avoid that the customers' needs arise in inadequate situations, in particular, concerning the suppliers to be retained or consulted. Based on principle that what is not gained in purchases is definitively lost for the company and must be won by the other functions, the purchasing function presents a source of added value and is the cornerstone of the logistics chain optimization. A reduction of the costs at the purchasing level has a significant impact on the whole chain with less energy spent.

Purchasing performance criteria and their impact on the supply chain

In the supplier-buyer relationship, communications can lead to improved supplier confidence. Confidence positively leads to supply chain performance (Giannoccaro et al., 2015) and plays an important role in sharing forecast information (Özalp et al., 2011). The use of information technology and mutual trust are positively linked to the agility, flexibility, adaptability and performance of the supply chain. (Kabra et al., 2016) Several studies have discussed the strategic role of purchasing in the development of the economy (Gordon, 2009). However, suppliers and purchasing contribute to a company's innovation performance (Luzzini et al., 2015). In addition, the purchasing strategy, especially that of critical purchasing, guarantees performance and allows for quality, flexibility and innovation (Luzzini et al., 2012). The purchasing function is considered by some to be the engine of innovation (Uyarra et al., 2010). Indeed, customer-supplier collaboration is a flagship strategy as, by making the purchasing function mature, interactions are developed from relationships based on transaction processes, to ones based on information sharing and confidence (Hoyt et al., 2000). However, collaboration is considered an engine for efficient and strategic supply in the management of the supply chain (Horvath, 2001). A scientific study has identified a relationship between the different forms of collaboration and improved performance. These performances are measured on cost, quality, flexibility, supply and innovation (Vereecke et al., 2005).

In the figure no.1 it can be seen how continuous improvement of the buyer-supplier relationship allows the improvement of customer satisfaction. For this, adopting a PDCA approach in buyer-supplier relationship management will be profitable for all actors in the supply chain and ultimately, will positively impact customer satisfaction. Advantages have been identified in the continuous improvement process, allowing companies to provide a framework for addressing organizational objectives. The benefits include also, the operator's behavior; while achieving goals by working as a team, sharing knowledge and experience, workers feel they have progressive improvements (Singh, 2015) and optimal continuous performance. The constitution of a homogeneous and multi-disciplinary team turns out to be a key of success for the success of this phase, which can succeed by integrating of all supply chain's actors.

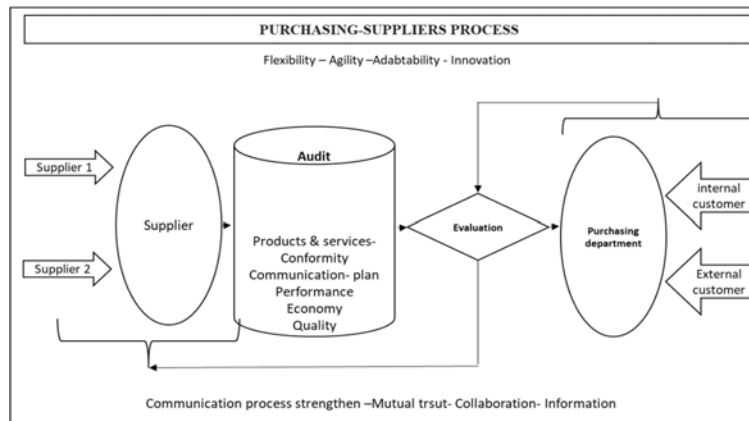


Fig. no. 1 Proposed continuous improvement of the buyer-supplier relationship

Source: Authors' own research

The concept of supply chain integration is a concept widely spoken by developed companies; this concept allows real improvement of management systems due to a more fluid and high level flow of information. Process integration describes the collaborative work between buyers and suppliers and concerns the development of common products and shared information systems. Today, the need for partnerships is increasing; companies tend to outsource many activities for better results. Process integration triggers the need for information transparency, joint strategies and shared visibilities (Christopher et al., 2000). Information sharing is therefore of paramount importance in buyer-supplier relationships; a better understanding of requests can increase supplier performance in terms of quality and compliance and can lead to improved supplier integration. Experts suggest that supplier integration allows for the integration of skills deriving from better coordination of all critical suppliers in the supply chain, in order to reach a set of service capacities. (Bowersox et al, 1999) Companies strive to integrate their supply chains to achieve flexibility and speed (Zhao et al., 2008). Integration is the extent to which the company work together with its partners to reach efficient and effective flows of information, products, decisions, money and valuable information, quickly and at low cost. Other research has been focused on the importance of external integration and internal integration. External and internal integration is important for manufacturers to understand environmental changes and uncertainties and it has an ultimate impact on the flexibility (Flynn et al., 2010). The structure of the internal and external relations of a company will play an important role in order to allow for sufficient sharing of information. Indeed, successful integration of the supply chain allows companies to learn better from past errors and, therefore, they tend to focus more on learning (Spekman et al., 2001). An organization that continuously learns and then processes knowledge about its external environment becomes more agile (van Hoek, 2000).

Information integration means having the ability to use digital technology to share data between buyers and suppliers, effectively creating a virtual supply chain. It focuses on unrestricted access to information and data sharing between suppliers and buyers via the Internet and electronic data exchange (Christopher et al., 2000). The most commonly used system is the Exchange of Computerized Data (EDI). EDI is a language that joins information systems from several organizations with completely separate databases, having an impact on improving the quality of service, in terms of speed, flexibility of delivery. The performance criteria based on the purchasing-supplier relationship strategy is presented in the figure no.2.

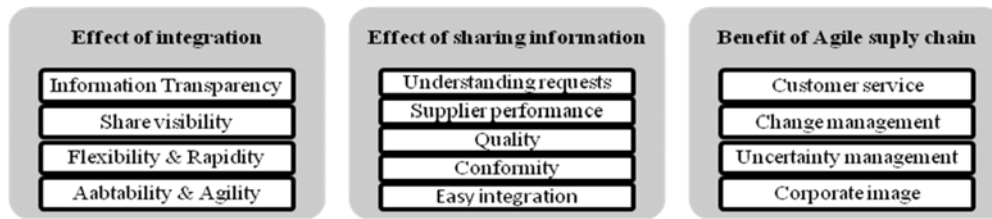


Fig. no. 2 Performance criteria based on the purchasing-supplier relationship strategy

Source: Authors' own research

On the other hand, a relationship is identified between the integrated logistics chain and the agile logistics chain (Tse et al., 2016). The objective of an integrated logistics chain is to maximize customer value by speed, at the lowest cost respecting the physical and information flows (Flynn et al., 2010). Improving reactivity, a major capacity of an agile supply chain will be demonstrate by listing three essential goals within the agile supply chain: enrichment of customer service compared to its competitors, control change and uncertainty thanks to constantly adaptable structures and evaluate the impact of the population on businesses using information technology (Ron et al., 2017).

Procurement and sustainability

Purchasing plays a key role in the supply chain and is the locking point between suppliers and the supply chain, aiming at finding the synergy through the definition of selection criteria and optimization choices. It is therefore a matter of identifying joint solutions for interfaces, with the aim of ensuring continuity and reliability of the flow of goods and services, through purchasing decisions based on pre-selected criteria. While respecting environmental and social requirements in purchasing requests, the pre-selected criteria can be described in terms of deadlines, quality and the most advantageous prices. Indeed, a company is no more sustainable than the suppliers from which it sources (Krause et al., 2009). In order to achieve sustainability, relations must been established only with appropriate partners, this is the means to manage uncertainties and to improve the level of exchange of knowledge and information (Lambert, 2008).

The concept of sustainable supply was discussed in 2002 at the United Nations World Summit on Sustainable Development. Sustainable purchasing follows the same logic. Several studies have analyzed the effect of business-to-business confidence on the environmental management of the supply chain. The concept of sustainability has become essential to help companies achieve their performance goals. Kennard M. (2006) indicates that benefits to an organization in adopting a Sustainable Procurement Policy will be to control costs by adopting a wider approach to whole life costing, improve internal and external standards through performance assessments, to comply with environmental and social legislation, to manage risk and reputation, to build a sustainable supply chain for the future and to involve the local business community. Nevertheless, management systems can be used to achieve sustainability, in particular ISO 9001 and ISO 14001. These two standards can be used jointly in building sustainable organizations (Jorgensen, 2008; Mezinska et al., 2015). Indeed, the new ISO 9001 standard can be considered as a tool that facilitates integration between different management systems while allowing the integration of risks based approach. It gives greater emphasis to the involvement of leadership, as it is easier to be used by service companies and knowledge based organizations (ISO, 2015). According to the report, sustainable development is the ability to meet the needs of the present, without causing damage to future generations. The figure no. 3 represents the context of sustainable performance.

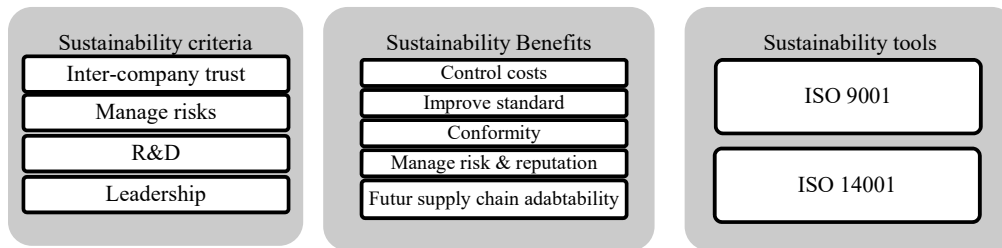


Fig. no. 3 Context of sustainable Performance

Source: Authors' own research

Risk and resilience key factors in selecting suppliers

It is necessary for companies to find an effective management system that allows them to understand risks and minimize their negative impact. The various risks can be increased by the context in which the organization operates. There are three basic sources of strategic risk: operational risk, damage risk to assets and complete risk (Simons, 1999). Competitive risk arises from changes in the competitive environment that can damage a company's ability to create value and differentiate its products and services. This can be seen as a risk of non-compliance with certain requirements of certain standards and represents a major risk to the activity of the company.

At this stage, a supply chain that is still able to survive after a disruption is characterized as resilient (Blackhurst et al., 2011). It is important that companies improve resilience (Hendricks, 2005). Resilience is the capacity for an enterprise to survive, adapt and grow in the face of change and uncertainty (Pettit et al., 2010).

In recent years, due to globalization, the considerable number of companies certified worldwide according to ISO 14001 and ISO 9001 standards has increased significantly in product ranges (Olaru et al., 2013; Maier et al., 2013). The decrease in product life cycles forces advanced companies to be afloat and protect their positions in competitive markets. The companies must benefit from having strong coordination and collaboration with new supply chain partners, allowing them to provide differences from their competitors, in order to increase their competitiveness.

An organization must take into account its context, in particular the aspects and the stakeholders that can impact or be impacted by it. The analysis of this context should enable it to identify what is at stake to successfully develop its product or service. By focusing on the needs of the stakeholders concerned by its challenges, the organizations define a policy, objectives, actions, processes and a management system.

At this stage, the company must take into account all the updated evolutions, the reforms in progress, the methods it can use to avoid unexpected and unwanted changes imposed by external forces. In this perspective, the company should exchange, communicate, collaborate, follow and observe its competitors, suppliers, customers and all stakeholders. The company can therefore define its priorities, strategy, objectives and the structure of the management system accordingly to the requirements, to ensure the conformity of its products and services and improve customer satisfaction. Companies take care to respect internal and external challenges and the products and services they receive. A failure of raw materials, sub-assembly or services with international requirements can constitute a risk of non-compliance of the products and service offered by the company. This constitutes a major risk and an entry barrier for the company on a competitive and increasingly dynamic market, with ever more sensitized and informed customers. The requirements of the standards are clear and it is expected that companies take all the criteria into consideration and implement serious, documented and proven actions to comply.

ISO 19011 (ISO, 2018) provide guidance on the process of conducting quality and environmental management system audits. The standard clarifies “the principles of management system auditing and offers advice on evaluating auditors and assessing their competence, guidance on managing audit programs, and guidance on conducting internal and external audits” (Kraus et al., 2008). The purchasing functions are at the forefront in acquiring the resources necessary for the transformation and development of the global supply chain. They play a key role in increasing the ability to continuously improve by selecting the best suppliers. Purchasing functions have been challenged to manage a certain number of operational risks of supply and supplier dependence, strategic risks linked to awareness of the new technology, politics, legal, ethical, societal and even environmental risks.

Proposed model in the context of sustainable development

Considering the literature review and the experience of the authors, we developed a model for continuous improvement of the integrated supply chain based on performance purchasing-supplier relationship strategy, presented in figure no.4.

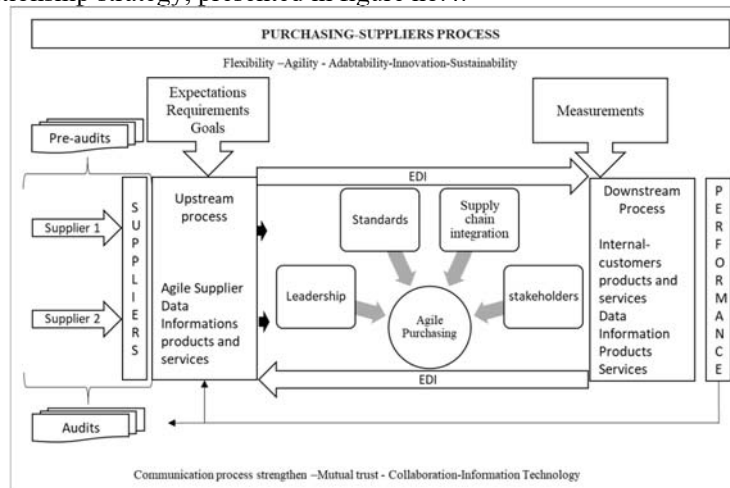


Fig. no. 4 Proposed model for continuous improvement of integrated supply chain based on performance purchasing-supplier relationship strategy

Source: Authors' own research

The overall performance of the company, purchasing and logistics must be understood, linked and sometimes even united in a single global supply function to build coordinated solutions. This model can be applied in any organization and can also be the foundation of other research projects in order to be improved.

Conclusions

Winning on purchases immediately has an impact on the margin which is an important reason for companies to focus their management effort on the logistics chain, in order to develop an adequate policy, mainly when it comes to direct purchases from production; that is to say, purchases go directly into the manufacture of the finished product. Purchasing performance is not achieved merely by negotiating the price at the time of purchasing the product or service. Suppliers must ensure good performance over time, with good annual productivity, which will directly impact the profit margin, as well as the compliance with the requirements of international standards on quality, safety and environment. The company must put in place different means and resources to control, influence and audit the entire acquisition chain from suppliers to final acceptance, in order to ensure the quality and compliance required.

With the increased requirements and global standard, companies must react fast and decisively to adapt and stay on the market. It may be that some companies will have to restructure their strategies and management processes, to join the dynamics of the market. There may be a need to reassess the ability to meet requirements, while updating and continuously improving performance indicators, to ensure the effectiveness, efficiency and agility of its management system.

Acknowledgement

„This paper was co-financed by The Bucharest University of Economic Studies during the PhD program”.

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