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## Dynamic Capabilities in Supply Chain Management

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### Abstract

This paper is a theoretical analysis, opening with the introduction where the problem of the research, the object of the research, the purpose of the research and the research methods are described. The analysis revealed that the market situation, organization supply chains face today, differs a lot from the situation years ago. The role of dynamic capabilities has steadily increased with the effect that supply chains became longer and more complex. The competition has got stronger due to the fact that barriers to trade have been gradually reduced. The main object of this article is the dynamic capabilities in supply chain management. The principal purpose of the article is systemization and thorough description of the knowledge and information (found in a large number of sources) about the dynamic capabilities, dynamic capabilities concept, to present a coherent overview on such aspects of logistics as: supply chain, supply chain management.

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### Introduction

Regional collaboration and international sharing of production is the economical driving factor of modern world. Therefore, new relations between sectors and regions are created, and industrial production, as well as strategic decision making becomes increasingly global. Because of search for new resources outside of national borders and intensified competition, companies are forced to look for new realization markets, cheap resources and manpower.

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Therefore, international sharing of production work and cooperation encourages searching for new opportunities of supply chain management, and strategic partnership relations with other countries can be one of them.

Companies that participate in processes of supply chain elements, are separate and independent, therefore it is quite difficult to achieve perfect course and actions of supply chain. Main aim of supply chain is to satisfy the needs of customer, i.e. the one who uses final products (Weber, 1982). This aim can easily be achieved in a perfect supply chain. But tense competitive environment and constant changes has a big impact on chain quality (Prater, Biehl and Smith, 2001).

Regardless of the fact, if the chain is local or global, it has severe effect on a business, because high quality existence and competitiveness of company depends on quality of actions of supply chain elements. Review of scientific literature (Christopher, 1992; Mentzer et al., 2001; Lambert et al., 2005) revealed that there is a common opinion about, but there is a lack of clarity about the factors that influence the supply chain and influence on business organizations is also unclear.

Notion of dynamic capabilities that comprise the basis concept of activities of companies with same name can be considered a bridge that connects separate parts of the supply chain. This concept was formed in a school of strategic control and is reaching for ambitious goals – to explain, how company can maintain constant competitive advantage in constantly changing environment (Teece, 2007). Definition of dynamic capabilities (as well as other company characteristics related to intangible resources). Usually the term dynamic capabilities refer to companies' capacity of targeted creation, development and modification of resources (Helfat ir kt., 2007).

## **1. Supply chain management in organization**

Term “supply chain” was used for the first time in the beginning of 9<sup>th</sup> decade of XX century, when Oliver and Webber (1982) proposed that this notion would be use to describe new science field which was yet in development. Its creation was encouraged by the changes of common strategic business trends, where the focus was shifted from satisfying of inner interests of company to achieving greater good through more efficient structure of organization, which could create better value for clients and shareholders (Christopher and Peck, 2003).

Because of constantly changing business processes in 10<sup>th</sup> decade of XX it was aimed to increase the flow of multifunctional organizational processes by integrating elements of logistics, operation control and marketing (Christopher and Peck, 2003). The objective was to increase the efficiency of all flows that include movement of production from production of raw materials to final market of consumer of developed goods. And the development of information technologies facilitated this task by giving the ability to achieve better efficiency of supply chain and to get information about market changes and emerging consumer needs, more efficiently. Than it was started to look at chain phenomenon form the perspective of market factors, changes of consumer requirements and integration of separate processes and informational technologies. Supply chain – is a network of companies, which participate in processes of distribution of goods, services, financial resources and informational flows between initial supplier and final consumer (Christopher, 1992; Mentzer et al., 2001; Lambert et al., 2005).

After generalizing these definitions, supply chain concisely can be defined as all activities of product supply from raw material to consumer, including supply of materials and parts, development and assembly, storage and monitoring of reserves, acceptance and management of orders, distribution through all channels, delivery to consumers and informational systems needed for monitoring off all these activities. Management of supply chain is responsible for coordination and integration of all these activities into one continuous process. It connects all participants into one chain, departments into one organization, as well as all external participants, including suppliers, people responsible for delivery, third party companies and informational system providers.

According to Christopher (2005) supply chain management comprises all planning and control of activities related to extraction and acquisition, conversion and all logistic control activities. It is particularly important that it also includes coordination and collaboration with partners of the channel, which can be suppliers, intermediaries, third party service providers and clients. Essentially, supply chain management comprises supply and demand control inside company and between different companies. ‘As it is further explained by Christopher (2005), supply chain management can be defined as ‘management of upstream and downstream relations with suppliers, distributors and clients in order to achieve batter client value with less expenditure.’ Till the beginning of XXI century, supply chain was usually perceived as long-term collaboration with upstream suppliers. Increased market

uncertainty and complicated structure of supply chain led to consideration of new supply chain composition shown in figure 1. So it became evident that complicated approach is needed, which would uncover combination of different business functions and processes between different participants of supply chain. Now, equal amount of attention is put on collaboration with upstream client and lateral collaboration with competitors, this is the way to integrate the process of general value creation (Prater, Biehl and Smith, 2001).

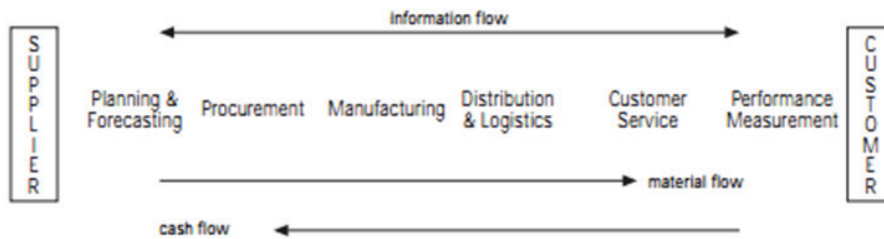


Fig. 1. Supply Chain Concept (Christopher 2005)

According to Christopher (2005), who noted emerging understanding that separate businesses no longer compete like separate entities, now competition is between separate supply chains, we applied changing competition priorities (Greis and Kasarda, 1997) for analysis of supply chain control decisions. Since company no longer controls all resources that are needed to satisfy the needs of market, in order to rationalize business operations they must synchronize with suppliers and clients, and work towards higher flexibility level than of one company and achievement of competitive advantage.

## 2. Dynamic capabilities

Dynamic capability determination according to its meaning originated from Sumerian competition that was based on innovations, in this competition competitive advantage is gained by creatively destroying present resources and its reconfiguration to new opportunities. These ideas remained and were further developed in literature, for example, architectural innovations (Abernathy and Clark 1986), configuration capabilities (Henderson and Cockburn 1994) and combined opportunities (Kogut and Zander 1992). By expanding these researches, Teece et al. (1997) expanded the notion of dynamic capabilities, and this successful work of authors (together with structure of dynamic capabilities) is considered to be most integrated and influential source of dynamic capabilities (Teece 2007). Significant progress has been made since the creation of dynamic capabilities approach. During recent 18 years of dynamic capabilities research, many important fields were found. Despite this progress, concept of dynamic capabilities created a chaos in scientific community (for example, Barreto, 2010).

Many scholars see dynamic capabilities as a process related to companies ability to reconfigure the basis of its resources, in order to respond to more efficiently changes in a field of its activity. Additionally, it is claimed that dynamic capabilities are focused on intentional changes of resource basis (Ambrosini and Bowman 2009).

Above mentioned structure underlines a concept of dynamic capabilities shown in figure 1: Snesting, Seizing, Reconfiguring (Teece, 2007).

With this expanded structure it can be easier for scholars to understand the basis of long-term competitive advantage and for managers to define appropriate strategic circumstances and priorities. Managers must accept these two things, in order to increase the efficiency of company and to prevent the tendency of zero profit, which is related to activities in global competition markets. (Teece, 2007). This structure recognizes all three types of dynamic capabilities and tries to separate minimal basis of mentioned capabilities from actual capabilities (Teece, 2007).

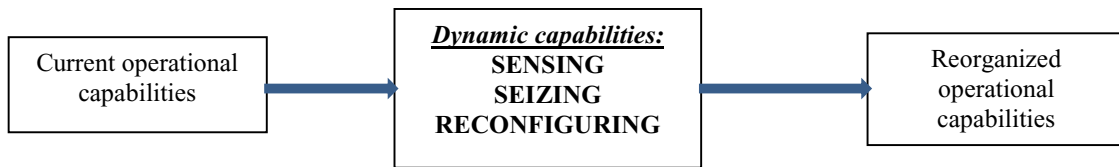


Fig. 2. Concept of Dynamic Capabilities by Teece (2007).

Reformation is significant for organization, where new products are a result of reformed operational capabilities (Henderson ir Clark 1990). Eisenhardt ir Martin (2000) proposed other concept of dynamic capabilities, which works as a tool for forming existing operational capabilities, are: *Sensing, Learning, Integrating and Coordinating*.

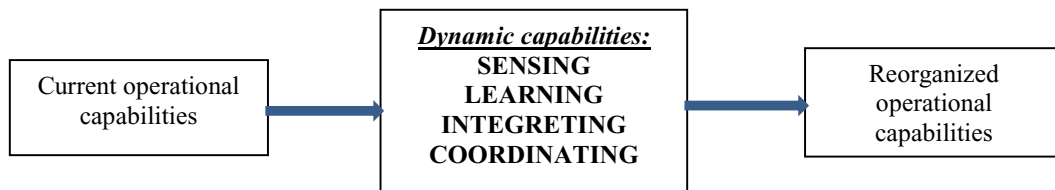


Fig. 3. Concept of Dynamic Capabilities by Eisenhardt and Martin (2000).

They are visually presented in figure 3, which concisely describes every capability and also explains the way of thinking that proposed dynamic capabilities helps reforming operational organizations abilities of business groups into reformed operational abilities that correspond to environment better (Eisenhardt and Martin 2000)

### 3. Dynamic capabilities and supply chain

Supply chain tend to have even more dynamic changes than casual markets for such reasons as constant change of customers behavior, or significant influence of non-governmental institutions (Hall, 2000). Also, strategy can provide competitive advantage when aiming to achieve long term development in technologies, mashines, instruments of process management. Despite that supply chain management and dynamic capabilities are two expanding directions in field of research and both were at the center of scientific studies, relation between these topics was very weak. It was difficult for supply chain management study to grasp the notion of dynamic capabilities (Defee and Fugate, 2010). Approach that connects supply chain management and dynamic capabilities is implementing at a high rates. It reveals theoretical structure, based on supply chain management practices, while using dynamic capabilities theory, and finding and connecting specific dynamic capabilities into specific repeated practices. Existing literature can be included in structure, which comprise the theory, and is a step towards creation of relation between supply chain management and dynamic capabilities (Meredith, 1993). This can be considered only a part of theory, because it lacks some of criteria, but it really helps the process of creating theory (Weick, 1995; Gold et al, 2010b).

Conceptual model connects several separate publications on this topic and connects them into one work with new ideas (Meredith, 1993). Notion can be used for creation of theory, because it allows the researcher to connect the data with which Corbin and Strauss (2008) was working. Similarly to dynamic capabilities study, supply chain management study is also relatively new topic, based on logistics and literature of supply chains. In recent years, supply chain management became rally important. This is evident from increasing number of works conducted in this field in recent years (Seuring and Muller, 208b). Similarly to dynamic capabilities notion, supply chain management information is transmitted. Material and information moves up and down the supply chain. Supply chain management is integration of these actions by using improved communication of supply chain, in order to

obtain competitive advantage.

Other such research on dynamics and supply chains, as dynamics of supply chains or flexibility of supply chains (Fisher, 1993; Duclos et al, 2003) is more focused on influencing the ability of supply chain to adapt to changes of market and less on forming the environment itself from the point of management and according to theory of dynamic capabilities. Until now not so much researchers have used dynamic capabilities in a context of supply chain management. Some of them are specific works Defee and Fugate (2010). Defee and Fugate (2010) focuses on possibilities of supply chain management in every dynamic capability rather than on central companies, who control dynamic capabilities. Additionally, governmental support was described as strategic orientation, which is needed for all organizations that take part in supply chain. There are two strategic orientations: orientation of supply chain and teaching orientation. Strategic orientation is similar to integration part and mostly to orientation of processes control (Pagell and Wu, 2009). According to Zollo and Winter (2002), dynamic capabilities is used to adjust existing capabilities and to create new ones. Dynamic capabilities are more related to with creation of new capabilities (Zahra et al, 2006). Dynamic capabilities are used in new theories of supply chain management. These dynamic capabilities influence effective use of static capabilities in case of acquisition of knowledge in an organization and cases of creation of new capabilities. This leads to discovery of competitive advantage.

## Conclusions

Separate businesses no longer compete like separate entities, now competition is between separate supply chains, we applied changing competition priorities for analysis of supply chain control decisions. Since company no longer controls all resources that are needed to satisfy the needs of market, in order to rationalize business operations they must synchronize with suppliers and clients, and work towards higher flexibility level than of one company and achievement of competitive advantage.

Many scholars see dynamic capabilities as a process related to organizations ability to reconfigure the basis of its resources, in order to respond to more efficiently changes in a field of its activity. Additionally, it is claimed that dynamic capabilities are focused on intentional changes of resource basis. Dynamic capabilities make organization with its resources to reconfigure its operational capabilities and find new capabilities which let organization to gain competitive advantage among other market participants.

Similarly to dynamic capabilities study, supply chain management study is also relatively new topic, based on logistics and literature of supply chains. In recent years, dynamic capabilities and supply chain management became really important topic in scientific literature. Similarly to dynamic capabilities notion, supply chain management information is transmitted. The combination of dynamic capabilities and supply chain management makes organization more flexible and dynamic, organization can easily and fast to adapt to new market trends and easily go through market turbulences. That creates to a company competitive advantage among other market participants.

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