“Entrepreneurial management of project supply chain – a model approach”

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ENTREPRENEURIAL MANAGEMENT OF PROJECT SUPPLY CHAIN – A MODEL APPROACH

Abstract

The paper's principal purpose is to present the original concept of the project supply chain's entrepreneurial management. Based on the literature on the subject, one defines the entrepreneurial management concept showing the influence of entrepreneurial management on company operation. Moreover, the paper also outlines the most important concepts of the project supply chain and presents the functioning scheme. Theoretical considerations concerning contemporary theories of entrepreneurial management and project supply chain are the prelude to presenting the concept of entrepreneurial management. The presented approach can be found helpful for the effective management of the project supply chain, which has not yet been thoroughly defined. It should be mentioned that the designed model of the entrepreneurial supply chain management is an original proposal for the paradigm of project supply chains. Both in a classical and project supply chain, a significant role is given to the flow of material resources between the individual chain components. It determines that the project supply chain is mainly driven by the need for its members' value increase. It was explained that regarding entrepreneurial competences, knowledge can be transferred to other organizations in the whole supply chain. It was also mentioned that the project supply chain's entrepreneurial management takes into account the flexibility manifesting itself through the establishment of agile project teams, and by focusing on human relationships. It is the basis for the presented concept of the entrepreneurial management model of the project supply chain.

Keywords entrepreneurship, supply chain management, links, framework, logistics

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INTRODUCTION

The supply chain's essence has been an important and interesting research topic for many years in the literature. However, at the beginning of the 21st century, scientists and practitioners became strongly interested in the supply chain theory (Rimienė, 2011). The increased attention was induced by the strong competitive pressure of the business environment and the need for entrepreneurs to simultaneously coordinate financial flows, products, and information in the market environment (Shukor, Mohammad, Mahbub, & Halil, 2016). At the same time, it was found that a single supply chain that was developed for a given project (Voordijk, Haan, & Joosten, 2000) could consist of several dozens of elements of the so-called construction supply chain. This new type of supply chain led more and more researchers to examine the supply chain in the context of inter-organizational project activities (Lee, M. Kim, & K. Kim, 2014). On the one hand, these activities were reflected in integrating the individual functional areas of the actors taking part in the supply chain and, on the other hand, in the transfer and diffusion of information between the various stakeholders in the same chain. Thus, modern science often looks at the

supply chain from the perspective of project teams' working conditions that create a new type of supply chain, i.e., the project supply chain (Eriksson, 2015). An important element of the project supply chain's functioning is its effective management (Bhakoo & Chan, 2011). In this respect, it is worth bearing in mind that more and more researchers often link the issue of effective management of an organization and processes to entrepreneurial management (Teece, 2016). In such an approach, entrepreneurial management translates to the capacity to recognize and exploit market opportunities. This vigilance and market awareness of an enterprise becomes a prerequisite for its development (Levie, Kelley, Martínez, & Schøtt, 2014). Thus, efficient project teams, oriented towards cooperation among individual project members, a limited number of structuring rules, and decentralized powers of individual project units become a prerequisite for entrepreneurial management (Bruining, Verwaal, & Wright, 2013). Owing to these features, it is possible to exploit business opportunities in an entrepreneurial manner.

Despite the above dependencies, the literature fails to link business management with supply chain design. Based on their literature studies, it is found that subject was not included in the context of the project supply chain, which, due to its properties, is a project entity and a multi-element scheme built on the entrepreneurial use of market opportunities. For this reason, an attempt has been made to fill the cognitive gap, at the same time indicating the points where entrepreneurial management and project supply chain connect and describing the interdependencies between the two areas. This property determined the present study's objective, introducing its own model of managing the entrepreneurial project supply chain.

The considerations presented in the paper should be treated as a pioneering deliberation on the essence of the entrepreneurial management of the project supply chain. Simultaneously, theoretical deliberations can be a valuable source of information for the theory of management sciences on entrepreneurial management's role in stimulating the processes taking place in the project supply chain. Moreover, entrepreneurs can find it a stimulus for effectively building and managing the project supply chain.

1. THEORETICAL BASIS

1.1. The essence of entrepreneurial management

The creator of the theory of entrepreneurial management in management science was P. F. Drucker. He analyzed entrepreneurial management concerning managing employee teams in the innovation process (Webster, 2009). Like Schumpeter, Drucker examined entrepreneurship in the context of innovation, which is the source of employers' and employees' entrepreneurial behavior and constitutes the basis for the economic efficiency of an economic entity (Corner & Ho, 2010). Regarding these considerations, it should be noted that any organization's capability to be entrepreneurial depends on the existence of the previously mentioned efficient teams of employees. The members of such teams should complement each other in pursuit of one common objective (Ferreira, Fayolle, Fernandes, & Raposo, 2017). This is a prerequisite for the organization's employees to acquire skills described by Kirzner, such as recognizing and exploiting market opportunities (Klein & Bylund, 2014). Unlike Kirzner, Drucker argued that those skills should be attributed not only to entrepreneurs or managers but also to their employees. He also stressed how important it was for the entrepreneur to create the right conditions for his employees' teams to implement her/his entrepreneurial and innovation policy (Ferreira et al., 2017). According to Drucker, to ensure an enterprise's innovative capacity, it was necessary to create flat organizational structures, which were the core of the organization's entrepreneurial behavior (Corner & Ho, 2010). At the same time, he also believed that efficiently functioning teams liberated employees' entrepreneurial spirit, which made them create targeted innovations based on their knowledge and experience (Lee et al., 2014). Drucker quite often highlighted a customer-oriented approach as a vital element of entrepreneurial management. He believed that only efficient, entrepreneurially managed teams could provide comprehensive customer service that would meet customers' expectations

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(Beeka & Rimmington, 2011). Moreover, he argued that efficient teams that provide the employees with the autonomy of action and development opportunities foster the company's flexibility in responding to current market incentives.

Bearing in mind that one of the pillars of the management of an entrepreneurial organization is the search for customer-oriented market opportunities, it can be concluded that Drucker's theory of entrepreneurial management is based on the stream of process reorientation, which in turn, is reflected in the modification of processes taking place in the company (Corner & Ho, 2010). The company's process reorientation is seen in modifying the processes related to creating and offering products and services to the customer. Adaptation processes are carried out by employees who strive to optimize the processes taking place within the organization, which contributes to satisfying the needs of customers who, in turn, are one of the main factors determining employment and salaries in a given organization (Boso, Story, & Cadogan, 2013; Çera, Belas, Rozsa, & Cepel, 2019). It should be noted that the idea of process reorientation is to initiate changes by the employees themselves, not by the managers. Thus, process reorientation encourages the employees' entrepreneurial initiatives (Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015). However, the delegation of powers by owners and managers is necessary for the above process. In this arrangement, managers share their insights and experience with employees without imposing their own opinions. What is important is that they do not initiate any actions, as it is the employees who should be driven by initiative and creativity (Boso et al., 2013). An important element is to involve each participant in the process in such a way that he or she is responsible for his or her own work but that of the whole team and that he or she fully uses available resources and shares the necessary knowledge and experience. Thus, process reorientation is a prerequisite for establishing interdisciplinary work teams, whose members are characterized by entrepreneurial attitude oriented towards achieving specific targets (Schepers, Voordeckers, Steijvers, & Laveren, 2014).

Apart from the business management theory concepts mentioned above, special attention should also be paid to H. Stevenson's theory. The researcher continued the considerations initiated by Kirzner. He analyzed the entrepreneurial management concerning the process aimed at the entrepreneur's use of the opportunities existing in their environment (Ciuchta, Letwin, Stevenson, McMahon, & Huvaj, 2018). However, he defined an opportunity as a future condition that differs from the present and, at the same time, is possible to achieve by an entrepreneurial organization. He believed that the degree to which we take advantage of the emerging opportunities depends to a large extent on the skills of an individual, i.e., of an entrepreneurial person (Hatak, Harms, & Fink, 2014).

Stevenson and Jarillo (2007) made a clear distinction between entrepreneurship and corporate management. He believed that entrepreneurial management is about detecting and pursuing opportunities by an entrepreneurial individual. Corporate management refers to providing the necessary resources and conditions within an organization that supports the process of entrepreneurial management (Ciuchta et al., 2018). Based on his concept, Stevenson and Jarillo (2007) defined six basic conditions for enterprise management in an organization:

1) entrepreneurial management takes place in an entrepreneurial organization, which is oriented towards detecting and willing to pursue market opportunities;

2) the degree of entrepreneurial management is an effect of established attitudes and behavior of an organization;

3) entrepreneurial behavior of an organization is positively correlated with individual entrepreneurial attitudes and behavior of its employees;

4) companies that minimize the negative consequences of grasping market opportunities represent a higher level of entrepreneurial management;

5) frequent dissemination of positive patterns of entrepreneurial behavior among employees determines their willingness to reproduce them in the organization;

6) organization that creates a network of informal inside and outside links demonstrates entrepreneurial effectiveness (Stevenson & Jarillo, 2007).

Stevenson and Jarillo (2007) argued that entrepreneurial management could only exist in an organization whose activities aimed to detect and exploit entrepreneurial opportunities. They described entrepreneurial capacity as creative decision-making in an organization while facing uncertainty about the use of opportunities. They stressed that in the process of taking advantage of opportunities, it was also important to focus on encouraging employees to develop right attitudes and behavior by acquiring market knowledge about such things as competitors, suppliers, customer needs, and specialist know-how about the functionality of a given organization (Austin, Stevenson, & Wei-Skillern, 2012). Another important aspect was the technology used and the innovation of the production process. According to Stevenson and Jarillo (2007), the employees' access to knowledge, innovation, and technology boosted their job satisfaction and awareness of the existing opportunities (Wang & Chugh, 2014). Besides, they stressed the need to minimize workers' reservations when pursuing market opportunities. Workers' concerns most often regarded the loss of jobs, demotion, or wage reductions. The researchers also felt that those fears were significant constraints on undertaking entrepreneurial activities and contributed to its stagnation. Moreover, it is also worth noting that what was essential for the entrepreneurial management to happen was to encourage employees to replicate entrepreneurial behavior patterns, thanks to which the synergy effect in the company's operation could be achieved. It is also important to use informal bonds built upon an atmosphere of openness and friendliness and upon flexible cooperation. Owing to this, the allocation of resources may be more effective than in formal networks (Austin et al., 2012). This benefit is reflected by the fact that in the formal structures, employees must follow strictly defined procedures, determining specific behavior. A more flexible approach can be applied in informal structures that allows for decision-making that is more responsive to market requirements.

Bratnicki's studies were also an important contribution to the conceptualization of entrepreneurial management (Dyduch & Bratnicki, 2018). The researcher equated entrepreneurship with pragmatic behavior of the organization, which was directed, among others, at recognizing and seizing opportunities facilitating the rapid growth of the company; verbalizing the mission; creating strategies, and gaining resources and competencies essential for the implementation of objectives. He believed that thanks to entrepreneurship, understood as recognizing and creating opportunities connected with strategic management, an organization can convert resources and competencies into goods and services and add new value to the organization and its environment (Zbierowski, 2016). Thereby, entrepreneurship and management are strategically intertwined in the course of creating innovation, in the functioning of the organization's networks, in the process of internationalization, in the process of learning about the organization, as well as in its adaptation and flexible operation (Bratnicka, Gabrys, & Bratnicki, 2013).

The implication of entrepreneurship and strategic management, understood as entrepreneurial management, is to lead to a company's constant pursuit of above-average performance efficiency and strategic flexibility. This is possible thanks to mobilizing its strategic potential and skillfully managing the dynamics of the organization's competences (Syam, Akib, Patonangi, & Guntur, 2018). Based on the previous considerations concerning the nature of business management, it is clear that the authors addressed the analyzed issues as a process aimed at the recognition and exploitation of business opportunities. Thus, the entrepreneurial management manifests itself in creating an organization's strategy, providing necessary resources for its implementation, and promoting innovation. This is possible by shaping such organizational structures that support the use of opportunities existing in the environment and allow entrepreneurial units to plan, organize, and control processes related to a given organization's operation more effectively than before. A measurable effect of this is the increased efficiency of resources and processes within the organization, with enhanced flexibility while responding to market stimuli. Consequently, business management contributes to strengthening the capacity to implement innovations and increase the organization's competitiveness.

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1.2. Supply chain and project supply chain

There are many definitions of the conventional supply chain in the literature, but the project supply chain has not yet been thoroughly defined. In this context, it should be stated that the conventional supply chain is associated with a group of enterprises (mining, production, trade, services, etc.) that interact with each other, and among which products, information, and services flow (Witkowski, 2010). However, one cannot ignore the fact that the literature also provides the concept of a supply network, which cannot be identified with a conventional supply chain (El Ouardighi & Shniderman, 2019). This is because the supply network is linked to information and product flows, while the supply chain is characterized by the coordination of flows and vertical integration of companies that constitute individual links in the chain (Witkowski, 2010).

Given the above, it must be concluded that the supply chain is a concept that aims at delivering products and services to the customer through the activities of organizations, people, and technology. It can also be a multi-element system based on integrating project activities (Seuring, Brix-Asala, & Khalid, 2019). Thus, given that the supply chain is related to project activities, it can be said that the project supply chain is 'the global network used to deliver a project from raw materials to the final project customer through an engineered flow of information and physical distribution. A project supply chain thus involves the principal contractor who is in charge of the management of the project, the clients and their own clients, the suppliers and their own suppliers and subcontractors, the subcontractor and their own subcontractors' (Parrod, Thierry, Fargier, & Cavaille, 2007). It is worth bearing in mind in this respect that essential to this definition is that it approaches the supply chain as a project in which the principal contractor is the most important component.

It is worth noting that other researchers describe the supply chain as the coordination of activities to execute a given project, usually the construction one (Sobotka & Wałach, 2011). This approach coincides with the definition of Xue, Wang, Shen, and Yu (2007). They claim that the construction supply chain '(…) consists of all the construction business processes, from the demands by the client, conceptual, design and construction to maintenance, replacement and eventual decommission of building, and organizations, which are involved in the construction process, such as client/owner, designer, general contractor (GC), subcontractor, supplier, consultant, etc. CSC is not a chain of construction businesses with business-to-business relationships but a network of multiple organizations and relationships, which includes the flow of information, the flow of materials, services or products, and the flow funds between client, designer, contractor, and supplier'(Xue et al., 2007).

Following the Xue, Wang, Shen, and Yu's (2007) definition, other researchers identify the project supply chain with a complex system in which suppliers, subcontractors, and customers collaborate. At the same time, they use the information to manufacture and deliver the materials to the final customer (Behera, U. Mishra, & B. Mishra, 2017). It should be noted here that Al-Werikat (2017) analyzes the project supply chain through the lens of a complex, large undertaking. This complexity results from the materials used and the number of suppliers and subcontractors. Al-Werikat (2017) believes that the more components involved, the more complex the project becomes. However, regardless of this fact, Al-Werikat (2017) believes that companies and contractors should project the supply chain to reduce costs and improve the quality of the project (Khalfan, Kashyap, Li, & Abbott, 2010). Nevertheless, many components can be counted in hundreds, resulting in fragmentation of the project processes, limiting the partners' integrity in the project supply chain (Gosling & Naim, 2009). In summary, the project supply chain is a complex system as it consists of many elements. When their number is reduced to the most important types of partners, it can be presented in the following way (see Figure 1).

One of the most important components of the project supply chain is the principal contractor coordinating the project implementation, making strategic decisions throughout the whole chain, and managing the project resources. The fact that cannot be overlooked is that subcontractors also play an important role as the components in the project supply chain since they perform work for the principal con-

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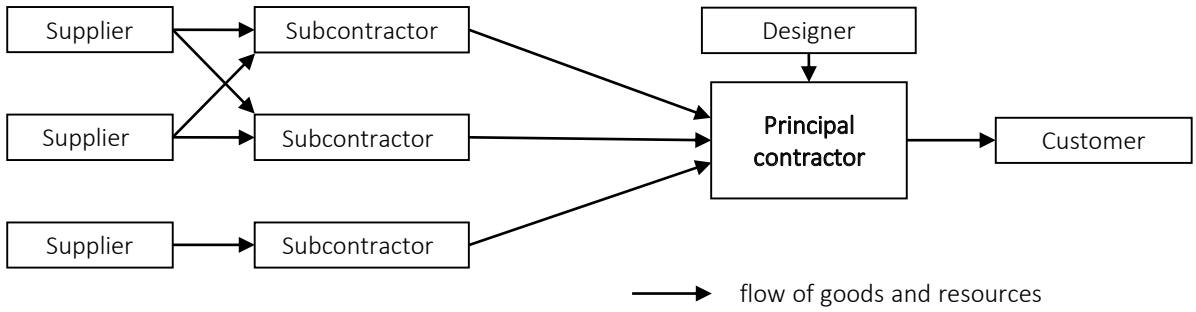

Figure 1. Concept of simplified project supply chain

tractor. The suppliers and the designers also have an important function in the project supply chain. The former deals with supplying materials and services to subcontractors, while the latter develop a project plan and decide on the materials and goods to flow between the individual components in the chain (Voordijk et al., 2000). At the very end of the chain, the customer is usually a single entity, and it is their order that commences the project. Therefore, the customer is the driver for the construction and operation of the entire project supply chain.

Based on the above description, the project supply chain features that distinguish it from the conventional supply chain can be identified, the most important of them are:

- chain components are companies involved in other conventional supply chains;
- project supply chain is created for a unique project;
- complex stream of materials, services, and cash flows among the components of the project supply chain;
- project supply chain is a temporary entity as it is created for an individual project;
- components of the chain are focused on maximizing their profits without considering the efficiency of the whole chain (O'Brien, Formoso, Vrijhoef, & London, 2008; Dainty, Briscoe, & Millett, 2001; Venkataraman & Pinto, 2008).

Summarizing this part of the work, one of the most important features of a project supply chain is its complexity, which determines how this type of chain is managed. It also results in many areas that require analysis and scientific reflection. This is because the management of a project supply chain is associated with a constant need to cooperate with individual chain partners. In this sense, the project's supply chain management starts with product planning and demand analysis and ends with order execution. Therefore, it can be concluded that project supply chain management refers to different functional areas (Vrijhoef & Koskela, 2000). It is also important to note that three broad areas in the project supply chain management may be problematic for the main contractor to coordinate. These areas include:

- minimizing total costs, including logistical costs;
- minimizing the duration of the project;
- effective allocation of the activities performed by subcontractors (Vrijhoef & Koskela, 2000).

The above areas serve as strategic factors that increase the project supply chain's value, which increases the competitive advantage of its components. Coordination of these components is only possible if the whole chain is managed effectively (Cooper, Lambert, & Pagh, 1997). In the literature, such an approach is identified with integrated logistics management (Ross, 1998). This is because the project logistics covers an increasingly broader area, as it includes not only warehousing, transport or distribution, but also marketing and production (Ross, 1998), risk management, investment, human resources management or financial management (Winkler, Kaluza, Rogl, Schemitsch,

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& Schmidt, 2007). Thus, in the project supply chain, attempts have been made to integrate processes through various strategic alliances of individual elements of the chain, through the unified ordering and design procedures and building partnership relations (Ofori, 2000; Pryke, 2009). It is necessary to implement effective management methods based on project teams oriented towards taking full advantage of entrepreneurial opportunities in this context.

2. RESULTS

In recent years, the authors addressing the development of business activity and the creation of innovative solutions more and more often focus on the nature of the project approach (Weiss, Hoegl, & Gibbert, 2017). The project approach is identified with an organized process of human activities focused on achieving a given result (Tamis et al., 2016). Thus, the human being who allocates resources inside and outside the company integrates and coordinates the processes of product, information, and financial resources flow from the place of acquisition to the place of consumption. As a result, this contributes to the participants' competitive advantage in these processes (Tamis et al., 2016). The process mentioned above that concerns all networks and relations among organizations is impossible without these organizations' entrepreneurial actions and the implementation of entrepreneurial management. Therefore, it should be stated that if this process takes place within the network gathering several organizations, it also directly takes place among the elements of the project supply chain, i.e., recipients and suppliers (Figure 2).

The principal contractor initiates and coordinates the flow of resources between the project supply chain's various components. Therefore, the principal contractor makes strategic decisions on the efficient use of resources and the elimination of delays and disruptions in the flow of resources and goods. Moreover, it becomes the actor with the strongest impact on the composition of the whole supply chain. Its activities aim to increase the value-added by the individual supply chain elements to the product expected by the customer. This process can happen thanks to exchanging information between the principal contractor and the individual actors in the supply chain, i.e., suppliers, subcontractors, designers, and clients. As shown in the diagram above, the information exchange process aims to make changes in internal and external organizations participating in the project supply chain. Internal changes concern the modifications of processes in individual organizations often associated with changes in human attitudes and behavior patterns. External changes are reflected in the organization's functioning in the project supply chain.

As part of the exchange of information between the principal contractor and individual components of the supply chain, the principal contractor creates a specific and unique business management process. An important role in this respect is played by organizational learning, which is a process aimed at absorbing and distributing knowledge and information by the contractor among the supply chain actors. As a result, the information provided conditions the entrepreneurial competence of individual chain links. These competencies include knowledge, skills, and attitudes.

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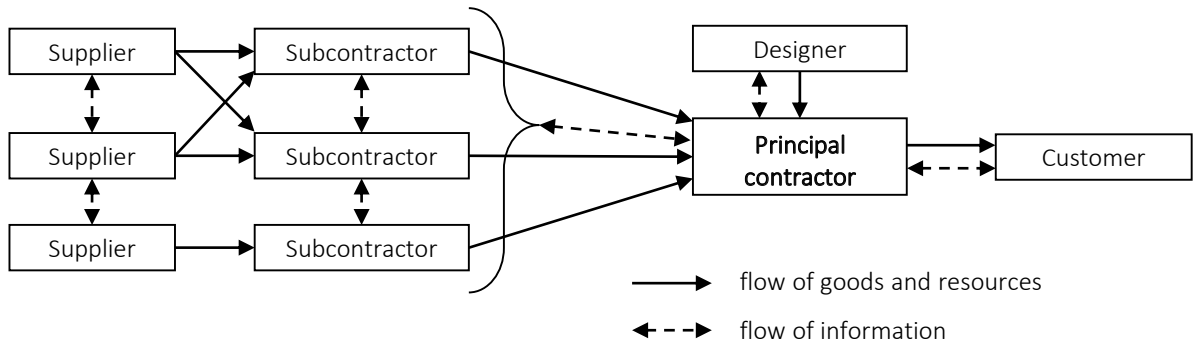

Figure 2. Model of entrepreneurial management of the project supply chain

They are necessary to ensure the effectiveness and efficiency of activities undertaken and carried out within the supply chain. It is worth noting that, on the one hand, these competencies enable us to arrive at certain values when facing uncertainty and risk (Kozubíková, Dvorský, Cepel, & Balcerzak, 2017). On the other hand, they lead to new solutions and innovations due to the creative use of the combination of resources in the project supply chain (Lii & Kuo, 2016). Furthermore, it should also be borne in mind that the entrepreneurial competencies determine the components' relational capacity in the supply chain. These capabilities are reflected in creating and maintaining interactive relationships between the principal contractor and the project supply chain actors (Lavie, 2006). Consequently, the project supply chain's entrepreneurial competencies can be equated with relational competencies (Paulray et al., 2008). In this sense, entrepreneurial competence will guide the principal contractor in acquiring and sharing information with other supply chain actors. These activities are designed and implemented based on a targeted institutional framework. Moreover, these competencies condition the company's relational strategy, which means making strategic choices related to creating, developing, or removing elements from the inter-organizational networks within the project supply chain. Given the above, it can be concluded that business management in the project supply chain is based on a resource-based approach and the transaction cost theory. In the former, thanks to exchanging and complementing information, the principal contractor can achieve efficiency gains in the activities undertaken within the chain's individual components. In the latter, due to an effective coordination mechanism and the propensity of the project chain actors to create additional value for the customer, it is possible to reduce transaction costs. In this respect, it should be highlighted that the possession and transfer of information between the principal contractor and the actors in the supply chain are important and individuals' ability to use it properly. This is possible thanks to entrepreneurial competencies based on the recognition and use of market opportunities.

Summarizing, the designed entrepreneurial supply chain management model is an original proposal for the paradigm of the conventional and project supply chains. An important issue in this respect is that in a classical or project supply chain, a significant role is given to the flow of resources, mainly the material ones, between the individual chain components (Luo, Shen, Xu, Liu, & Wang, 2019). Less emphasis is put on the flow and load of information shared among the actors. Furthermore, less attention is paid to the relevance of entrepreneurial competencies based on the relationships among the chain actors and the importance of recognizing and seizing entrepreneurial opportunities. Moreover, what is accentuated in the classical supply chain is the flow of physical goods linked to cash flows. This approach focuses primarily on the logistical functions and processes among the individual chain components (Hong, Schoenherr, Hult, Zinn, & Goldsby, 2019). An important aspect is that these processes are also mainly based on IT support. On the other hand, in the proposed model, it is of great relevance to coordinate individual chain components' activities when pursuing business opportunities without the need for IT or logistical support.

Given the nature of the project supply chain, it must be concluded that it is oriented towards completing a unique project, most often a construction project, in which many actors are involved (Kshetri, 2018). These actors are members of other conventional supply chains and therefore constitute focal points through which the abundance of materials, services, equipment, information, and cash flows (Meyer & Torres, 2019). This fact determines that the project supply chain is mainly driven by a desire to increase the value-added by its members to the project commissioned by the end buyer (Gaudenzi & Christopher, 2016). Unlike in the entrepreneurial management model of the project supply chain, the principal contractor's role in coordinating the entrepreneurial activities of the individual chain components is of great significance. This coordination is based on the existence of a network of relations among the actors and the effective use of their intangible resources. Besides, the proposed model not only refers to unique ventures involving multiple actors but to each venture regardless of the number of the chain elements. It is also important that the proposed model also highlights the cost-effectiveness, which is possible thanks to the efficient flow of information throughout the chain. This not only reduces the cost of the functioning of such a chain but also helps to eliminate numerous errors in the

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process of supplying a given service or project to the customer. It can be noticed the presented model relies on the operation of inter-functional project teams, and the operation of these teams, in turn, is based on entrepreneurial competences, which not only condition the performance of particular chain actors but also help individual actors accept the worked-out solutions. Moreover, thanks to entrepreneurial competencies, knowledge can be transferred to other organizations in the supply chain. Thus, competences are a prerequisite for deepening the relations between the different actors in the supply chain, better two-way information, and knowledge flow and achieving synergies resulting from the vast range of perspectives. Consequently, the above contributes to the production of a component or the provision of a service that meets the end buyer's expectations.

It is worth noting that the philosophy of operation based on multi-entity and multilateral exchange of information among the actors participating in the supply chain is part of an adaptive approach to implementing projects. The use of agile project management methodologies has been developing dynamically in recent years. This is mainly related to the change in implementing project solutions in highly uncertain and complex environments. This approach promotes the simplification of processes and the capacity to simultaneously initiate and respond to changes in the environment while maintaining a balance between the stability of the entire project management process and flexibility. In the case of entrepreneurial management of the project supply chain, the flexibility may manifest itself through, e.g., the establishment of agile project teams and focusing on people-to-people relationships. The establishment of such an agile project team within the supply chain structure may improve communication and the efficiency and effectiveness of a project supply chain's entire entrepreneurial management process.

DISCUSSION AND CONCLUSION

The paper presents a new approach to entrepreneurial management in the project supply chain area, which is not found in the literature. The most important aspects of entrepreneurial management and project supply chain are shown as a basis for considerations because these two areas' tangent points are not described in this literature. The mentioned points are necessary for building a model, which helps define the entrepreneurial management impact on the project supply chain. The presented model refers to entrepreneurial competences. In other words, this article study can help to understand the essence of the idea of entrepreneurial management from the competences' perspective. They create the base on which knowledge can be given to other supply chain members. They also create the multilateral exchange of information among these members building agile project management methodology, basically well known by now. Flexibility in the entrepreneurial management of the project supply chain area plays an important role in supporting the establishment of agile project teams and people-to-people relationships. This establishment among supply chain members may improve communication and the effectiveness of the entire entrepreneurial management process in a project supply chain. It is needed to explain that a specific sort of coordination is also presented. This coordination is based on a relations' network among the supply chain members. In the background, it can be seen the effective use of intangible resources and realizing unique ventures involving multiple actors. Additionally, the proposed model highlights the effectiveness because of the efficient flow of information in the whole chain. That contributes to reducing the cost of project supply chain functioning and eliminating errors in the projects' supply.

Concerning the above results, it should be concluded that even though this study's objective has been accomplished, the subject matter of the study has certainly not been exhausted. In this respect, however, it is important to underline the significant limitations of this study resulting from the problem's theoretical approach. The research undoubtedly requires empirical verification, including broader quantitative analyses based on a representative sample of firms. Despite this shortcoming, the study succeeded in diagnosing the most important elements that affect the entrepreneurial management of the supply chain. Thereby, the results can be found helpful for the effective management of the project supply chain.

AUTHOR CONTRIBUTIONS

Conceptualization: Jarosław Korpysa, Marcin Halicki.
Data curation: Agnieszka Lopatka.
Formal analysis: Agnieszka Lopatka.
Investigation: Jarosław Korpysa.
Methodology: Jarosław Korpysa, Marcin Halicki, Agnieszka Lopatka.
Project administration: Marcin Halicki, Agnieszka Lopatka.
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Validation: Agnieszka Lopatka.
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Writing – review & editing: Jarosław Korpysa, Marcin Halicki, Agnieszka Lopatka.

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