

RECONSTRUCTION AND COMPARISON OF THE APPROACHES OF INTERNATIONAL SUPPLY CHAINS AND GLOBAL VALUE CHAINS

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Purpose: recreating, comparing and evaluating research approaches of the supply chains management and the global value chains.

Design/methodology/approach: comparative analysis based on the reconstruction of theoretical assumptions.

Findings: similarities and differences between the supply chains management theory and the global value chains theory.

Research limitations/implications: simplifications resulting from the level of approach generalization.

Practical implications: better understanding of tasks by managers.

Social implications: revealing the links between economically oriented management and social effects.

Originality/value: reconstruction of the theories and identification of similarities and differences.

Keywords: supply chain management, global value chain.

Category of the paper: general review.

1. Introduction

Undoubtedly, the modern world economy is to a large extent shaped by the process of globalization. It turns out that it is more difficult to find a commonly accepted answer to the question of what globalization is. For example, Gorynia and Mińska-Struzik recognize that "globalization is the most intense stage of internationalization of multidimensional relationships between different countries" (Gorynia, Mińska-Struzik, 2018, p. 52). They clarify this general definition by pointing out that "globalization in the area of the economy can be defined as a process of gradual blurring of the boundaries between individual national economies, expressed in the intensification of international trade flows, increased migration of capital, people and technology" (Gorynia, Mińska-Struzik, 2018, p. 50). These terms are

undoubtedly formulated from a macroeconomic perspective. A microeconomic approach from the point of view of business entities participating in the indicated flows allows us to see the processes of outsourcing, offshoring and networking resulting from the decisions of managers, in particular large transnational corporations. Rybiński suggests the following terms (Rybiński, 2017, p. 14-15): a) outsourcing is the transfer of orders, production or services to another company, b) offshoring is the transfer of orders, production or services outside the country, c) networking is a business strategy for organizing the production process and providing services that provides flexible access to specialized resources on a global scale. As a result of these decisions, chains of cooperating enterprises emerge, between which there is a transfer of primarily material goods, but also knowledge, information and financial resources. This way, international supply chains are created, which can also be viewed as global value chains.

International supply chains and global value chains are not, however, synonymous names for the emerging economic phenomenon. There are different analytical approaches to researching this phenomenon. The aim of this study is to reconstruct these two research approaches, compare and evaluate them. The first part of the study relates to the approach of international supply chains, and the second - to global value chains. For each of them, the shaping evolution was presented and the cognitive inspirations were reconstructed. The third element is a comparative analysis of both approaches in the genesis, goals and research problems, explored subject scope and applied research methodology. The concluding remarks provide an overall assessment of the research perspective and the output of these approaches.

It is also worth emphasizing that these different research approaches focus on the same subject that is analyzed and assessed from two different points of view. The approach of international supply chains emphasizes the issue of ensuring the collective effectiveness of the chain as a whole thanks to the integration of the enterprises that form it, i.e. it examines the competitiveness of this chain. In turn, the approaches of global value chains focus on chain management systems, the consequence of which is a different possibility of economic and social modernization of enterprises and their employees.

2. The essence and the attributes of the approach of international supply chains

The approach of international supply chains is strongly related to logistics. Although the concept of logistics is interpreted in various ways by various authors, for example, after analyzing the most significant definitional propositions, Szołtysek recommends the term "Logistics is shaping (through logistic management) material and information flows in order to achieve accessibility (to material goods or places) on the basis of agreed rules and priorities for action" (Szołtysek, 2015, p. 72). An important observation here are the statements that logistics

uses a tool in the form of logistic management and has a flow character. Logistics management is essentially managing the flow of things and information, so it can be argued that it is done through the management of supply chains¹.

The current form of supply chain management has not emerged *ex machina* (Laskowska-Rutkowska, 2014, pp. 33-46). More and more complex economic systems and increasing competitive pressure sparked the interest of managers of production enterprises in the issues of commodity chain management. The cooperating companies were willing to take care of the continuity and reliability of supplies. Over time, it has been noticed that the movement of goods can be subject to economization processes. This movement of course requires transport and storage operations. On one hand, it is possible to search for the optimum cost between transport and warehouse stocks, because the right order quantity, rational choice of means of transport and loading units, and the right frequency of transport allow to minimize the level of stocks and, consequently, the size of the warehouse infrastructure. This meant a divergence from the management of commodity chains in favor of logistic management understood as the management of transport and warehouse processes. The above-mentioned forms of management consisted in controlling supply streams and undoubtedly allowed to increase the financial results of enterprises. In the next phase of evolution, attention was drawn to the potential resulting from controlling the demand side. Experiences from market research and buyers' behavior research have revealed the importance of customer satisfaction. Obviously, this satisfaction is determined by the utility value of the product, but it can be increased by the high logistic quality of customer service. Logistics management transformed into supply chain management and contributed to building the competitiveness of this chain. Therefore, it allows: a) maintaining the continuity and reliability of supplies, b) economization of transport and storage operations, and c) maintaining the assumed quality of logistic customer service. Thus, it can be concluded that supply chain management is the most mature stage in the evolution of the control of logistics processes between cooperating companies.

The process described above was influenced by the progressing globalization of the world economy. Gołemska (Gołemska, Gołemski, 2020, pp. 19-28) points out this, characterizing the development rhythms of logistics in the perspective of the waves of globalization. The so-called second wave of globalization, which took place after the end of World War II and lasted until the end of the 1990s, was the catalyst for the first wave of globalization of logistics. The growing intensity of international exchange obviously triggered the needs of international transport and the need to create large logistics hubs enabling this transport, as well as transshipment and storage processes. So it can be argued that international supply chain management has emerged. The intensity of logistics globalization is evidenced by the level of logistics globalization, which consists of the geographical dispersion of production,

¹ Such an interpretation, however admissible, is not universally accepted, and there are other interpretations in addition to this traditional approach (Rutkowski, 2004, pp. 2-7).

the dispersion of distribution and the cultural diversity of logistics operations (Gołemska, Gołemski, 2020, p. 21). Since the end of the 1990s, the second wave of logistics globalization has been marked, which is related to the increasing use of advanced information and communication technologies. These technologies allowed for a significant increase in the degree of integration of international supply chains. This integration took place in two forms: product integration and geographic integration. Product integration means joining enterprises in supply chains in connection with the production of specific types of products, regardless of the geographic regions in which the merger took place. More often, however, this integration is geographic in nature and results in the regionalization of logistics (Gołemska, Gołemski, 2020, p. 25).

International supply chains are therefore characterized by a transnational geographical dispersion of procurement, production and distribution processes, and by a significant cultural diversity of logistics operations. Inevitably, geographical dispersion increased the length of transport corridors and the time it takes to move material goods. The problems that started to emerge influenced the formation of - as Blaik calls it - a modern concept of logistics, which consists of: a) a systemic (comprehensive) approach, b) flow and time orientation, c) customer (market) orientation (Blaik, 2017, p. 80).

A systemic approach means a comprehensive approach to logistics, which is also reflected in the highly integrated management of international supply chains. Thus, the perspective of managerial decisions takes into account the interests of the supply chain as a whole, and not the suboptimal benefits of individual companies making up this chain. Then, the process of transforming the characteristics of the potential of individual enterprises participating in the emerging supply chain and the nature of the relations between these enterprises appears. Following Bunge, it can be assumed that two mechanisms are at work here: reorganization and growth. Both of these mechanisms change the structure of the system formed by the supply chain (Bunge, 1979, pp. 248-249).

Reorganization is a change in the structure of the system as a result of different relationships and interactions between enterprises. Growth changes the structure of the system due to the increasing number of its elements, in this case, due to the emergence of more companies entering the supply chain. These two mechanisms - continuing Bunge's reasoning - are the reason why it is impossible to infer about the state and desired shaping of the supply chain operation as a whole by referring to even the best knowledge about each of the companies separately. This is due to the so-called emergence, i.e. the sudden appearance of something new and at the same time improving the state of affairs. Enterprises participating in the supply chain through the relations resulting from their cooperation create a previously non-existent structure and thus a new mechanism determining the logic of the supply chain operation as a real system. Therefore, a question arises about the essence of economic optimization of each of the companies that make up the supply chain and this chain as a whole, and the relationship between these two mechanisms. It is fairly agreed that maximizing EVA (economic added value for

shareholders) is the goal of any company that conducts economic activity under competitive conditions. The mechanism of supply chain management, unlike the mechanism of managing the enterprise forming this chain, is focused on shaping competitiveness on the final market served by this chain. In turn, the competitiveness of the chain as a whole is a condition for the effectiveness of each of the enterprises participating in the chain. Therefore, the goal (s) of managing the (also international) supply chain should be different from the goal (s) of managing the companies that make it up (Banaszyk, 2020, pp. 2-9).

The desired sequence of dependencies is therefore the following: a) each of the companies forming the supply chain obtains economic and financial benefits that increase the EVA value, which satisfies the financial capital suppliers, b) these companies discipline the costs of their activities or distinguish their products and thus can be competitive increasing the utility value of its product offer, which satisfies buyers, c) the supply chain as a whole rationalizes infrastructure investments and uses cheaper sources of their financing, building its competitive potential, which satisfies both suppliers of financial capital and buyers, e) the supply chain as a whole improves its competitiveness by creating both a positive working climate and its reputation, which satisfies employees and customers.

The flow orientation emphasizes the importance of the continuity and reliability of the movement of goods and information along the supply chain. Blaik cites the phrase that "the concept of flow orientation is understood as such detailed shaping of processes (...) which is oriented towards fast, cross-sectional and turbulent-free flows of materials, goods and information (...) along [the entire supply chain], manifested, among others, by minimizing inventories and shortening the storage time of these goods, and the desired and efficient system of benefits on a scale [of the entire supply chain]" (Blaik, 2017, p. 125). This term clearly suggests that it is about the so-called supply chain thinning. Manzouri and Rahman (Manzouri, Rahman, 2013, pp. 38-54) analyzed a large number of definitions and characteristics of Lean Supply Chain Management to conclude that the system aims to shorten lead times while improving the quality of the final product. As a result, the economic performance of enterprises and the competitiveness of the supply chain as a whole increase. According to Liu et al. (2013, pp. 2123-2135), applying lean philosophy to supply chain management required a serious intellectual effort and innovative courage, as it is much easier for one enterprise to implement preferred policies and methods of operation compared to the community of enterprises that make up the supply chain. The participants of such a chain are managed by management teams that differ in terms of experience, competences and views, and this makes it difficult or even impossible to apply a coherent management system. The success of Lean Supply Chain Management is highly dependent on the close collaboration of the chain management personnel. Lean supply chain management is an operational and strategic philosophy that enables the continuous improvement of the activities of the network of suppliers and service partners.

Nimeh and co-authors have shown that the most common methods of lean chain and supply chain management are five basic methods: on-time delivery, information flows, supplier relationships, customer relationships, and waste reduction. The just-in-time delivery system has at least two important effects - cost and efficiency. From the cost point of view, it is about reducing the volume of inventories and thus reducing the financing needs of both the operating capital necessary to finance these inventories and the fixed capital financing the warehouse infrastructure. In turn, from the efficiency point of view, the observations resulting from Toyota's experience are emphasized. These observations are based on the belief that, thanks to smaller reserves, it is easier to see the sources of waste and remove them (the metaphor of ocean tides was used - all dangerous rocks are better visible at low tide) (Skalecka, 2003, pp. 663-672). It is crucial that all production is launched only when there is a need for its results. Therefore, the basic link that initiates production processes is demand on the final market. Thanks to this, there is no need to maintain either stocks of materials and raw materials, products in progress or finished products. Of course, the challenge is to ensure business continuity in the face of the lack of safety stocks buffering any disruptions. In addition, the principle is also the perfect adaptation of the final products to customer requirements. Thanks to this, there is no need to produce any details that do not create utility value for recipients.

The customer (market) orientation of an enterprise can be tested in the context of the impact of the supply chain. Lim, Darley, and Marion argue that there are many publications showing that high levels of economic efficiency in market-oriented companies are only achieved with strong support from the supply chain. If we divide the market orientation into responsive (i.e. preferring responses to requirements generated by existing markets) and prospective (i.e. identifying potential, future requirements in non-existent and already existing markets), the support from the supply chain facilitates the impact on the customer thanks to better customer service and stronger relationships with him. This is because of the support provided by the deliveries and more rational inventory management (Lim, Darley, Marion, 2017, p. 915). The authors quoted clearly believe that the supply chain can affect the effectiveness of market orientation in terms of customer satisfaction, as well as shorten product development time, generate more reliable products, and improve the quality and use value of a new product (Lim, Darley, Marion, 2017, p. 914). Min, Metzer and Lad, in turn, explain that supply chain support involves the exchange of information between the companies that make up the supply chain in the field of technological and market opportunities and about potential cooperation to take advantage of these opportunities. That is, the cooperation of partners in the supply chain enables the acquisition of external resources necessary to offer products that retain and acquire customers, which provides enterprises with better economic and financial results than competitors (Min, Metzer, Lad, 2007, p. 508).

Supply chain management usually results from a specific philosophy behind the top management. This philosophy can be reduced to one of two models (ideal types) of supply chain management, also international.

The framework scheme for the construction of the supply chain management model is constituted by the following parameters (Banaszyk, Fimińska-Banaszyk, 2016, pp. 455-464):

- a) The basic premise of strategic managerial decisions: It concerns the choice of the basic criterion for shaping the supply chain. The existence of the supply chain means that managers have given up building an autarkic, vertically integrated conglomerate in which hierarchy is the main tool of coordination. Striving to concentrate financial and human potential on the so-called core business results in the implementation of an outsourcing strategy. The argument of Oliver Williamson that the phenomenon of the specificity of assets causes that the greater the degree of complementarity of the attributes of the action potential to the partner's potential, the less possibility of alternative use of these assets is of great importance here. The supplier therefore has an economic interest in maintaining and nurturing cooperation with its recipient. "Thanks to the supply chain management model, the goal is to maximize profit by increasing competitiveness on the market of final products, and this competitiveness is achieved by reducing operating costs and carrying out economic tasks in the shortest possible time. This is possible when the supply chain is tightly coordinated along its entire length, so that total inventory is minimized, bottlenecks are eliminated, time is compressed and quality problems are eliminated" (Waters, Rinsler, 2010, p. 3). Thus, the relation of competition migrates from the level between enterprises (as in M. Porter's model) to the level between supply chains.
- b) Dominant information system: It is about how entities in the supply chain and network communicate with each other. Three main methods can be identified here: formalized, transactional and relational. The formalized information system uses a paper carrier and is coded individually for each cooperation agreement. The contract simply contains very detailed arrangements between the parties defining the expected product and the conditions for its acceptance by the recipient. The transactional information system uses IT software of the EDI class, which enables the transfer of standardized data sets between autonomous information systems, which eliminates the multiplication of information gathering and processing activities and accelerates their use. The relational information system is, of course, also of an IT nature, but the database is centralized, i.e. in the form of a data warehouse, to which certain employees with granted permission rights have access at any time.
- c) Income statement used: It consists of choosing the preferred method of calculating the costs of business activity. Of course, in each case, it is about creating reliable information about the costs incurred and shaping the premises for a decision on how to minimize them. There are at least three methods of identifying and accounting for costs, namely cost accounting, activity cost and life cycle cost. Classic cost accounting uses their structure, either by type and by function calculation based, and provides aggregated information on the costs of operations of each participant in the supply chain separately.

It is a full cost account, usually the settlement is made in relation to a specific product or product groups (Skarżyńska, 2012, p. 44). As each participant in the supply chain differently defines its products and the total cost of production includes not only direct costs, but also indirect costs, therefore the knowledge about the production costs of the final product delivered to the consumer is very approximate. From the point of view of the reliability of information on the actual cost of manufacturing the final product, activity-based costing is more useful. In this account, products are only the source of the activities necessary for their production. Thus, individual activities or groups of activities become the unit of account (Skarżyńska, 2012, p. 45). Of course, monitoring the costs of activities in a comprehensive supply chain requires full access to economic information from each of the participants in this chain. It is particularly difficult to include in the bill those costs that are incurred after the sale of products to recipients and finally to the consumer. Currently, logisticians emphasize the last activities known as reverse logistics. This, of course, has a strong ecological and ethical justification. In a way corresponding to this, the postulates of running a product life cycle costing appeared. This account is about the total settlement of both the so-called costs of the marketing cycle (product development, placing on the market and keeping it on the market and its withdrawal from the market), as well as costs of the environmental cycle, i.e. costs related to negative, external economic effects occurring in each phase of the marketing cycle (Joachimiak-Lechman, 2014, pp. 82-84).

The symbiotic model of the supply chain assumes the implementation of the strategy of outsourcing all economic activities that third parties are able to perform more effectively. This is how the network configuration of the chain organization is shaped, and in the case of more complex chains - even the cluster one. Coordination of the activities of chain participants requires intensive information exchange, therefore EDI systems may turn out to be insufficient, therefore the practice of using data warehouses, often allowing for cloud processing, is becoming more common. In essence, this means rights to mutual access to strategic information by all or most of the participants in the network. Cost management should take place across the entire supply chain in order to optimize their size from the point of view of the final product directed to the consumer, taking into account the costs of reverse logistics. The key is to work out an equitable distribution of the financial surplus among all participants in the chain.

The parasitic supply chain model also assumes the implementation of an outsourcing strategy. However, a linear organization of the supply chain dominates, with only elements of a not very extensive network. Coordination of economic activities of the chain and network participants is primarily of a formal and contractual nature with the possibility of a limited use of EDI systems. Access to information of strategic importance is severely limited, and only the information absolutely necessary for the satisfactory operation of the supply chain is exchanged. Each of the participants in the chain runs its own cost account and is interested in

strengthening its bargaining power in order to gain an advantage over the partner and grab the greater part of the generated financial surplus.

3. The essence and attributes of the global value chains approach

The motivation for adopting the global value chain approach is the assessment that the modern world economy has been shaped precisely by those chains that have a large share in international trade, create a significant part of global GDP and employ a large number of people around the world. About 1/3 of world trade takes place inside geographically fragmented transnational corporations, and yet a large part of this trade is carried out between formally autonomous enterprises, but included in global value chains. Companies leading in global value chains strive to improve their own competitiveness and increase the efficiency of their activities, and therefore they decide to offshoring and outsourcing (Petrobelli, Rabellotti, 2008, p. 2).

The concept of value is the central point of reference (Lewicka, 2014, pp. 64-72). There are three most important understandings of it. Firstly, the understanding of value as a benefit created for the supplier of capital to the enterprise, which understanding is closely correlated with the realized and potential economic profit that can be counted on in connection with the company's operations. Second, it is the market-shaped exchange value of a commodity, that is, the price of that product. Thirdly, it is the utility value of the offered goods that creates the satisfaction of the buyer. Global value chains apply to some extent to each of these terms. The enterprises that make up this chain always have some share in the created benefit for the capital supplier, proportional to the profit made. Its size depends on the difference between the sales revenues and the costs of obtaining these revenues, i.e. the exchange value of the goods. After all, the volume of sales revenues is also determined by the satisfaction of buyers, i.e. the utility value of the products. Sometimes this surplus value is interpreted as a kind of economic rent. For example, Coe pushes the view that "in addition to creating value in the work process, value may take the form of technological pensions through access to specific products or process technologies, or it may manifest as relational rents based on inter-organizational linkages improving know-how, transfer and collective labor learning" (Coe et al., 2004, p. 474).

Gereffi and Fernandez-Stark emphasize that the methodology of this approach allows the study of (Gereffi, Fernandez-Stark, 2011, p. 4): a) the structure of inter-industry flows and thus it becomes possible to characterize the process of processing raw materials into final products, b) geographical conditions that determine location benefits and access to human and natural resources, c) a governance structure that explains how the value chain is controlled, d) the institutional context in which the value chain is embedded. This research is carried out by analyzing (Gereffi, Fernandez-Stark, 2011, pp. 5-12): a) the input-output dependencies in

the chain from the producer to the consumer and thus revealing the connections between value chains, b) geographical scope, which enables the identification of the so-called leading companies in each segment of the chain, and then the participation of individual countries in this chain, c) management, which shows the location of the chain's authorities, control and coordination, d) institutional context, i.e. embedding in local economic, social and legal dynamics.

The global value chain is built by cooperative relationships between enterprises. The terminology used uses the terms node and chain segment. A node is a point in the value chain where a product is replaced or undergoes a major transformation. In turn, a chain segment is its module composed of two nodes and interactions between them. This value chain is managed, i.e. the leading company organizes its activities in order to achieve a functional division of labor, resulting in a specific allocation of resources and distribution of profits among the enterprises of the chain, as well as defining the conditions of participation in the chain (Bolwing et al., 2010, pp. 175-176). The leading company is usually a large transnational corporation with the potential to manage the global value chain. This is because such corporations initiate the process of fragmentation and geographical relocation of production, taking a strategic position in the emerging chain. Its sources are: monopoly, proximity to the target market, knowledge, technology, resources and the ability to generate innovation (Campling, Selwyn, 2018, p. 418). Leading firms focus on appropriating the lion's share of the value generated in the chain and expanding their dominant position (Campling, Selwyn, 2018, p. 419). Leading companies drive the business and development of global value chains. This drive can be twofold (Humphrey, Schmitz, 2001, pp. 6-7): a) by buyers, which takes place when the chain is organized and managed by retailers (companies closest to the final outlets) or by owners of particularly valuable and recognizable brands, b) by producers, when the organization and chain management is the domain of the owners of product or process technologies.

Coordination of the activities of enterprises in the value chain does not require ownership control. Gereffi presented the regularity - the greater the specificity of resources in Williamsonian interpretation of the production, the greater the exclusion of outsourcing, i.e. the management takes place in a hierarchical manner, due to the risk of opportunism. When there is no such danger, then enterprises included in the value chain may be autonomous units on the basis of established rules (Gereffi, Humphrey, Sturgeon, 2005, pp. 80-81). To mitigate opportunism, it uses the reputation of companies, social norms, and certification of activities and their effects, social norms and certification of activities and its effects. The choice of the management system depends on (Gereffi, Humphrey, Sturgeon, 2005, pp. 84-85): a) the complexity of the transaction - the more non-standard the production, the higher the transaction costs, but they can be reduced by implementing the standardization of processes and products, b) the degree of codification of information - this degree can also be reduced by

using the standardization of messages sent as part of chain, c) the ability of suppliers to meet norms and standards.

Leading companies create a global value chain management system, locating it somewhere between two extremities - a fully competitive market that communicates data for decisions using the price mechanism and strict vertical integration making production units dependent on ownership, i.e. through hierarchical dependencies. An intermediate solution is to create a network based on compatibility resulting from advanced resource specificity. (Gereffi, Humphrey, Sturgeon, 2005, p. 83) Depending on the choice of the above-mentioned methods of coordination, the real types of global value chain management are (Gereffi, Humphrey, Sturgeon, 2005, pp. 84, 86-87): a) markets - full freedom to conclude transactions due to the search for partners operating on the basis of low costs (easily codified transactions, simple product specifications, low resource specificity), b) modular value chains - production fully adapted to customer requirements requiring high technical and technological flexibility (codification concerns complex products, technical standards simplify production, exchange of technical information is required), c) relational value chains - delivery and collection require a lot high resource specificity, i.e. partners focus on long-term cooperation (lack of product codification, high complexity of transactions, necessary information exchange, the existence of specialized producers leads to outsourcing, the costs of change are high), d) slave value chains - small suppliers are highly dependent on large recipients, i.e. the costs of changing the recipient are very high and this is the source of slavery (codification requirements and product specifications are high, the production potential of suppliers is low, which forces a leading company to engage in their operations), e) hierarchy - management control dominates in vertically integrated production systems (lack of codification of the product and specialized suppliers, which discourages outsourcing and results in operating in own units).

As a result of the analysis and evaluation of the methods of coordination and management used by leading companies, the approach of global value chains allows to estimate the chances of so-called modernization. Petrobelli and Rabellotti define it as an innovation aimed at increasing the added value created by the manufacturer (Petrobelli, Rabellotti, 2008, p. 4). In other words, modernization is a possibility for producers to move up the value chain (Bolwing et al., 2010, pp. 176-177) and is the result of an analysis of the global value chain, in a way, from the bottom up. However, it allows a smooth transition from the micro level to the macro level, i.e. from enterprises striving to improve their position to the economic policy implemented by individual countries, which is intended to support the aspirations of enterprises. Modernization can take place in four ways (Gereffi, Fernandez-Stark, 2011, pp. 12-13): a) process modernization, i.e. striving for more effective transformation of raw materials into final products, b) product modernization, i.e. increasing their quality or technological complexity, c) functional modernization, i.e. adding or abandoning selected production operations, d) chain or cross-sector modernization, i.e. the company's transition to another industry.

The chain of addictions is as follows (Humphrey, Schmitz, 2001, pp. 3-6): a) low-level suppliers need a leading company to have access to outlets, b) cooperation with a leading company enables modernization, i.e. a steep learning path, c) suppliers are trapped by their production specialization and without an external impulse (from the lead company or from the economic policy) are unable to carry out the modernization.

The modernization presented above is of an economic nature. If it is implemented, it creates the possibility of social modernization. Moving a company higher in the value chain usually means an increase in the qualifications of its employees and higher wages. The latter are possible because the generated sales revenues and, consequently, the profits are higher. Much, however, depends on management decisions made in leading companies, which unfortunately most often capture at least some, and sometimes all of the benefits of economic modernization in dependent (slavishly) downstream suppliers (Selwyn, Musiolek, Ijarja, 2019, pp. 5-6).

4. Compare and evaluate the approach of international supply chains and the approach of global value chains

The comparative analysis will be carried out on the basis of the following criteria: genesis, goals and problems, subject scope and research methodology.

Obviously, it is difficult to pinpoint the origins of the supply chain concept. Nevertheless, many researchers point out the importance of the work of Forrester (Witkowski, 2003, pp. 2-5; Szymczak, 2015, pp. 15-16), who is the creator of the concept of systems dynamics. Forrester succeeded in transferring a reasoning typical for engineers into the field of management sciences. Thanks to the dynamics of systems, it became possible, as Forrester put it, "to find the management principles and organizational structures that lead to greater success", which initiated the research trend called Industrial Dynamics (Lane, Sterman, 2011, p. 368). In terms of logistics, the idea of the bullwhip has been proven particularly popular². Industrial Dynamics is an approach to understanding the nonlinear time behavior of complex systems using states, flows, internal feedback loops, table functions, and time delays. Forrester pointed out that the decision-maker's mental model is of significant importance (Lane, Sterman, 2011, pp. 368-369).

Initially, chain management was reduced first to the flow of goods, and then to the coordination of transport and warehouse processes. The configuration of the flow of goods is strongly related to the achievements of marketing research. This applies to issues relating to the shaping of distribution channels and the principles of physical distribution of goods.

² The phenomenon of excessively increasing inventories moving up the supply chain as a result of distorting information about effective demand.

From a logistical point of view, Alderson's achievements in terms of the benefits of deferring services and inventory management at subsequent levels of goods distribution are usually appreciated (Szymczak 2015, p. 16). For this reason, inspiration for research on supply chains can also be found in the so-called business economics. It is a science that describes the economic activity of enterprises, in particular the conditions of this activity and the directions of making rational managerial decisions that shape this activity (Ekonomika, 2021). Internationally, inspiration for the study of supply chains was also drawn from the achievements of the Industrial Economics because (Howe, 1978, pp. 2-3): a) taking into account the benefits of the experience effect, the reasoning typical in microeconomics for the company's optimum, when the marginal costs equal the marginal revenue, it ceases to be a management guideline - diversification, growth or mergers, as well as outsourcing and offshoring become more important, b) modeling activity of an abstract economic unit loses its importance for the study of the institutional conditions of this activity and the importance of the behavior of people who make important managerial decisions.

With time, the importance of the quality of logistic service to the buyer began to be emphasized due to the customer's satisfaction. This approach resulted directly from the theory of consumer choice and was related to the issues of competitiveness. The focus is on the value in use of the product, which can be increased thanks to the logistics service. The rationale behind this assessment is Porter's value chain and the observation that adding value takes place through many operations carried out in the course of business activity. The perspective of shaping the utility value can, however, also be derived from the so-called resource concepts. In particular, the provisions that each company should develop its key competences, and the basic or peripheral competences should be reduced mainly thanks to outsourcing, is the directive of creating a supply chain. Therefore, the genesis of the supply chain concept can also be found within the theory of the company's competitiveness.

The concept of global value chains, however, has other roots. The first inspirations are based on the discussion between classical economists and representatives of the marginalist school, and they concern factors creating value. The contradiction between market views (value depends on the relationship between supply and demand) and labor views (value depends on labor cost) was resolved by the marginalists by pointing to the importance of the relationship between consumer preferences and the state of production technology. By introducing the concepts of consumer utility and production function, they proved that the marginal cost of production and the marginal utility of the consumer determine the exchange value of any good. (Rodrik, 2019, pp. 107-108) The concept of global value chains was inspired by an observation that whoever controls production costs, and in particular who uses the possibility of substituting physical and human capital, and who determines the level of consumer utility, can capture a large part of the value generated. Porter's achievements also had an impact. His concept of the value chain helped with realizing that having certain intellectual and financial capital, thanks to outsourcing functions performed effectively by others, one can leverage the achieved

productivity. On the one hand, outsourcing and offshoring in the era of globalization makes it possible to geographically disperse production in order to reduce its costs, and on the other hand - thanks to taking the position of a leading company, it is possible to guarantee a larger part of the value generated.

A special feature of the global value chain approach is the international nature of the research. This guarantees scientific explorations close to the theories of international trade and development economics. An important cognitive contribution was made by Krugman, whose new theory of international trade clearly indicated that classical theories are not adequate to the changed economic reality because they explain the regularities of inter-state trade and do not take into account the increasing trade at the level of transnational and intra-industry corporations (Krugman, 1981, pp. 959-973). This reasoning is continued by the creators of the new theory of international trade, who note the importance of intra-sector differentiation of firms, i.e. the inability to make realistic explanations using the idea of a representative enterprise (Serwach, 2011, p. 50). On the other hand, the development economy that studies the causes of the division of the world into poor and rich countries and the possibilities of overcoming poverty, made it possible to highlight the existence of countries with an underdeveloped economy with relatively cheap resources, be it labor or raw materials (Piasecki, 2008, p. 225). The allocation of production units in these regions by leading companies facilitated the implementation of such coordination mechanisms and management systems that inhibited local economic and social modernization and ensured the possibility of capturing a large part of the surplus value generated.

Sometimes it is also pointed out that the genesis of research on global value chains has also arisen from the scientific exploration of clusters understood as a way of organizing the industry and internal management, which imply the so-called collective efficiency. An important factor was also the problems formulated by the International Labor Research Institute at the International Labor Organization consisting in an attempt to understand why the liberalization of international economic relations and privatization are not sufficient for economic and social modernization in economically underdeveloped countries (Werner, Bair, Fernandez, 2014, pp. 1234-1236). The approach of global value chains developed the concept of collective efficiency internationally and explained the reasons why such modernization was not possible.

Finally, it is worth mentioning the conceptual sources that arose from the idea of managing cultural differences. Undoubtedly, the most influential are the achievements of Hofstede, who defined culture as a way of programming the mind and defined the dimensions of national cultures and organizational cultures, which made it possible to realize the different behavior of employees coming from different national cultures and organizational cultures determined by them (Hofstede, 2000). Researchers of global value chains pay attention to the so-called institutional embeddedness, which is closely related to the local cultures.

The universal goal of any scientific discipline is, of course, to discover the truth by identifying the regularities that explain the observed events and processes. When it comes to researching international supply chains, this goal can be interpreted as getting to know the regularities governing the cooperation of enterprises connected by cooperative relations. The practical result is the formulation of rules and methods for shaping this cooperation in order to achieve collective efficiency, which is measured by their competitiveness in relation to supply chains. The internationalization of the supply chain does not change the essence of research intentions, at best it increases the list of obstacles in building this competitiveness. The purpose of researching global value chains is to reveal regularities related to the capture of the created surplus value. Coordination mechanisms and management systems are explored to reveal the principles and methods of this interception. The international dimension is important here, as it allows us to learn about previously unnoticed reasons for the permanent poverty of some countries. With regard to international supply chains, the main research problem is to look for an answer to the question - how to rationalize the cooperation of enterprises forming the supply chain, so that its competitiveness is as high as possible. In the case of global value chains, the research question is - why is it possible to appropriate the added value created by the so-called leading companies at the expense of suppliers located further down the value chain.

The subject scope of the research on international supply chains is: a) from the content point of view - the mechanisms and conditions of economic cooperation of enterprises in the areas of movement of tangible goods, information exchange and financing of trade in goods and infrastructure investments, b) from the object point of view - collective sets of enterprises connected by ties of economic cooperation, c) from the time-spatial point of view - contemporary mechanisms and conditions in the international dimension.

The subject scope of the research on global value chains is: a) from the content point of view - leading companies' taking over methods of a large part of the added value a large part of the added value generated by the chain enterprises and the mechanisms of economic and social modernization of enterprises from the "tail" of the chain, b) from the object point of view - collective collections of enterprises connected by the bonds of global economic cooperation and the transition of companies from one industry to another, c) from the time and space point of view, these are contemporary methods and mechanisms of global coordination and management.

Both the international supply chain approach and the global value chain approach can be qualified as empirical applied disciplines. Scientific research is carried out in them on the basis of data collected with various techniques in order to formulate utilitarian assessments and practical directives addressed to managers and politicians. According to Craighead and co-authors, logistics studies of supply chains can mostly be regarded as characteristic of logical empiricism, i.e. they result from the collected facts. These, in turn, are independent of theories built through deduction. The inductive research strategy allows for the isolation of observations

considered important, and on this basis, hypotheses are formulated, which are then empirically tested (Craighead et al., 2007, pp. 22-40) This neo-positivist nature of the research is also emphasized by Gammelgaard, who emphasizes that it guarantees the objectivity of the results and the possibility of identifying cause-effect relationships (Gammelgaard, 2004, p. 480). On the other hand, research on global value chains is more closely related to economics than to management science. It can be argued that they look for the causes of the enrichment of nations and individual people. A very important role is played by the methodology of sectoral analyzes, which, according to Werner and co-authors, allows to link macroeconomic issues, such as international trade and investments, with microeconomic issues, such as employment, wage dynamics and livelihoods. (Werner, Bair, Fernandez, 2014, pp. 1224) In addition, this approach is characterized by institutional and territorial anchoring, which reveals the way in which the forces exogenous to the chain affect the activities of enterprises (Campling, Selwyn, 2018, pp. 419-420). Such approaches allow the use of modeling methodology typical in economics. The proposed models require verification of internal coherence and external validity (Rodrik, 2019, pp. 87-103), i.e. they are specific hypotheses confronted with the realities, which determines the use of a methodology typical of empirical positivism.

It is also worth noting that both approaches also use a methodology derived from an interpretative research strategy, which often uses case studies and is primarily focused on the analysis and assessment of human behavior, which behavior is reconstructed from participant observations and research on the statements of the main actors (Craighead et al., 2007, p. 26). The international supply chain approach often uses case studies to empirically illustrate its concepts (empirical examples that were typical of Peter Drucker's research) or to treat these cases as sources of historical generalizations that may inspire new hypotheses. The Global Value Chains approach also relies on qualitative field research due to data constraints on business operations (Dallas, 2015). Many researchers using this approach, however, have limited confidence in this method, highlighting the errors resulting from the wrong selection of the analyzed cases and the resulting generalization errors (Dallas, 2015).

5. Final remarks

Both approaches can be assessed as a great contribution to the understanding of both the management of collective collections of economically related enterprises and the importance of the globalization process in the context of the international exchange of goods and services and the economy of development. These two approaches should be treated as complementary to a large extent.

A positive assessment also applies to the research methodology used. As indicated above, the general methodological strategy is similar and is based on the assumptions of empirical positivism and in part on interpretative research. Thanks to this, the source of primary data is always empirical, and the proposed scientific theories are the result of the intellectual courage and ingenuity of researchers who formulate hypotheses explaining the observed facts and then test them in accordance with the methodological regime. However, also, to some extent, the use of both approaches allows for the triangulation of research, because the approach of international supply chains usually uses either the survey technique or a multiple case study of a representative sample of companies. On the other hand, the global value chain approach mostly uses both quantitative and qualitative modeling techniques. Research findings on the international behavior of cooperating companies are therefore bilaterally justified.

The common denominator of the research results of both approaches are the arrangements for the management of cooperating enterprises in the international setting. The supply chain approach additionally formulates clarifications and directives regarding the economization of the flow and storage processes on the supply side and increasing the satisfaction of buyers on the demand side. The approach of global value chains allows us to understand the impact of globalization on international trade and the reasons for inhibiting economic and social modernization of economically underdeveloped countries.

Together, therefore, both approaches significantly contribute to the enrichment of contemporary economic knowledge and contribute to the expansion of the scope of contemporary economic sciences.

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