

Dr hab. Agnieszka Jagoda, prof. UEW
Wrocław University of Economics and Business (Poland)
ORCID: 0000-0001-8560-031X
e-mail: agnieszka.jagoda@ue.wroc.pl

Dr Tomasz Kotalowski
Wrocław University of Economics and Business (Poland)
ORCID: 0000-0003-2507-4850
e-mail: tomasz.kotalowski@ue.wroc.pl

Dr Jakub Marcinkowski
Wrocław University of Economics and Business
(Poland)
ORCID: 0000-0002-6076-1552
e-mail: jakub.marcinkowski@ue.wroc.pl

Dr hab. Agnieszka Skowrońska,
prof. UEW
Wrocław University of Economics and Business
(Poland)
ORCID: 0000-0003-1543-7291
e-mail: agnieszka.skowronska@ue.wroc.pl

Teamwork in the supply chain – a systematic and bibliometric analysis (part 2)¹

*Praca zespołowa w łańcuchu dostaw – systematyczna i bibliometryczna
analiza literatury (cz. 2)*

Abstract

The success of supply chains depends primarily on integrating and coordinating the activities of network participants. Many supplier companies are shifting toward team-based structures to manage the boundaries with their customers. One of the possibilities of the operational implementation of cooperation in the supply chain is the appointment of teams in the network structure. The paper aims to orient researchers who are new to collaborative work in supply chain research. The study conducted by the authors used both a systematic literature review and bibliometric analysis. The second part of the paper includes in-depth analysis of clusters identified for the teamwork in the supply chain based on the analysis with the TreeCloud tool and VOSviewer software performed in the first part. Authors of the paper did the synthesis of both analyses with an in-depth reading of the seminal studies according to the identified clusters. The second part of this paper also contains summary with conclusions where trends in the field of supply chain collaboration by teamwork are identified. Following the research results, three main topics should be investigated in future research: the impact of cross-functional and cross-organizational teams on supply chain integration and performance and the ways of managing cross-functional and cross-organizational teams in the supply chain communication in cross-functional and cross-organizational teams.

Keywords:

teamwork, supply chain, collaboration, inter-organizational relations, team

Streszczenie

Sukces łańcuchów dostaw zależy przede wszystkim od integracji i koordynacji działań uczestników sieci. Wielu dostawców przechodzi na struktury oparte na zespołach, aby zarządzać granicami organizacji wraz ze swoimi klientami. Jedną z możliwości operacyjnej realizacji współpracy w łańcuchu dostaw jest powołanie zespołów w ramach struktury sieciowej. Artykuł ma na celu ukierunkowanie badaczy, dla których badania nad pracą zespołową w łańcuchu dostaw są pewnym novum. W badaniu przeprowadzonym przez autorów zastosowano zarówno systematyczny przegląd literatury, jak i analizę bibliometryczną. Część druga opracowania zawiera dogłębną analizę klastrową, jakie zostały wyznaczone dla tematyki pracy zespołowej w łańcuchach dostaw przy użyciu zaprezentowanego w pierwszej części artykułu narzędzia Treecloud i oprogramowania VOSviewer. Autorzy dokonali syntezy klastrow utworzonych za pomocą obu narzędzi w postaci dopasowania szerokiej perspektywy zidentyfikowanej narzędziem TreeCloud do węższych klastrow wskazanych w oprogramowaniu VOSviewer. W drugiej części artykułu zawarto również wnioski z przeprowadzonych badań. Wyniki badania sugerują, iż w przyszłych badaniach należy skupić się na trzech głównych tematach: wpływie zespołów międzyfunkcyjnych i międzyorganizacyjnych na integrację i wydajność łańcucha dostaw oraz na sposobach zarządzania tymi zespołami w komunikacji w łańcuchu dostaw w zespołach międzyfunkcyjnych i międzyorganizacyjnych.

Słowa kluczowe:

praca zespołowa, łańcuch dostaw, współdziałanie, relacje międzyorganizacyjne, zespół

JEL: J24, L14, M12, M54

In-depth cluster analysis

The bibliometric analyses carried out using two tools, i.e., TreeCloud and VOSviewer, which was presented in part 1 (Jagoda et al., 2023), show that it is legitimate to compare both analyses to identify the convergence of the clusters. The TreeCloud tool analysis identified four clusters determining a broad perspective on teamwork in the supply chain. On the other hand, VOSviewer software allowed for a narrower look at selecting clusters concerning strictly substantive threads. In connection with the above, the authors of this publication synthesized the clusters created with the use of both tools in the form of matching the broad perspective identified with the TreeCloud tool to the narrower clusters indicated in the VOSviewer software:

- The first cluster from the TreeCloud analysis is closely related to the subject of logistics and supply chain management indicated in the green cluster in the VOSviewer software analysis, especially concerning the place and role of teams in the supply chain structure, but also concerns production threads identified in the red cluster.
- The second cluster from the TreeCloud analysis is strictly methodological, and these threads were intentionally omitted from the analysis using VOSviewer software. Nevertheless, the subject of the industry sector is included in the red cluster in the VOSviewer analysis.
- The third cluster, which in the TreeCloud analysis refers to the creation and transfer of knowledge within teams, as well as topics related to project, service, and design management, is thematically consistent with two clusters identified using VOSviewer, i.e., the blue cluster concerning quality and development and the yellow cluster which is connected to service management.
- The fourth cluster created by TreeCloud deals with supply chain management and the impact of teamwork on its performance, including topics related to sustainability. Therefore, in the case of clusters identified using VOSviewer software, it is part of the green cluster (logistics and supply chain management), blue cluster (quality and development), and, in a middle part, of the red cluster (production and distribution).

Based on the above synthesis, which focuses on a narrower view of teamwork in the supply chain (and thus the clusters identified using VOSviewer software), the authors of this publication have made a detailed analysis of the seminal studies of the synthesis sample. As shown in Table 2 in the first part of this publication (Jagoda et al., 2023), the most frequently cited articles are publications

providing a theoretical review of literature and research in various areas of the thematic scope related to teamwork in supply chains, paying attention to the utilitarian dimension of the presented content. Later, the authors of this publication made a synthetic description of the articles listed and attempted to group the publications according to various aspects of the teamwork in supply chains, around which the discussion was conducted (main threads and side threads) and in terms of the citation index.

Aspects related to logistics and supply chain management, quality, and development, including improving the work efficiency of teams involved in teams creating supply chains, were clearly outlined in the publication of P. D. Cousins and B. Menguc (2006), who drew attention to the concept of joint buyer/supplier teams as an important attempt to increasing the efficiency of operation of both individual organizations and systems of several or a dozen interrelated links in the supply and sales chain. The relatively high citation rate of the article (317 citations), which proves the interest of the scientific community, may, in the authors' opinion, result from the fact that Cousins and Menguc (2006) conducted both a very detailed review of the literature and also embedded the problem in the relevant literature by presenting arguments, that socialization can be used to achieve improved supplier communication and operational performance, and therefore, to improve the buyer's perceived level of the suppliers' contractual conformance. An additional advantage of the publication is that Cousins and Menguc (2006), included practical goals to be achieved in the publication and proposed and validated a model facilitating the use of the concepts of supply chain integration and socialization to achieve improved supplier communication and operational performance. Moreover, this affects the buyer's perception of the service level and the compliance of the delivery with the standards and specifications in the order.

A publication whose complex subject and research area allow for the inclusion to the cluster related to logistics, supply chain management, quality, and development, but also production and distribution is the publication of F. E. A. Van Echtelt et al. (2008) (number of citations: 212). The authors of this article focused on presenting empirical research results of eight cases of cooperation between manufacturers and suppliers in supply chains in the copier and printer industry. The authors extended the research conducted and published earlier in the literature on the subject by strategic (long-term) and operational (short-term) cooperation. The authors singled out the strategic management area and the operational management

area. The strategic management area contains processes that provide long-term, strategic direction and operational support for project teams adopting supplier involvement. These processes also contribute to building up a supplier base that can meet current and future technology and capability needs. The operational management area contains processes aimed at planning, managing, and evaluating the actual collaborations in a specific development project. The publication shows that the involvement of suppliers in product development is very closely correlated with the company's ability to diagnose, consider, and use aspects related to the operational area and the strategic area. The authors showed that focusing attention only on short-term aspects and operational management, omitting strategic aspects, will make organizations – both in the set-up of a single link and the entire system of cooperating producers and suppliers – deprive themselves of the possibility of taking advantage of the implied opportunities. Van Echtelt et al. (2008) clearly and unequivocally highlighted the need to build a strategic partnership with key suppliers. They showed that only time, the attention devoted to managing suppliers' teams, and investing in their development would bring more significant commitment on the part of suppliers and, consequently, reap benefits for each of the companies making up the supply chain and the whole chain.

The publication of H. L. Lee and C. Billington (1995) (number of citations: 225) should be included in the area containing threads related to organizational solutions in inter-organizational teams in the supply chain. The article's subject crosses all levels of inter-organizational teams in the supply chain, which – based on the previously presented considerations – include: production and distribution, logistics and supply chain management, quality and development, service management. The publication's content refers to the evolution of cooperation in the Hewlett-Packard (HP) supply chain. The publication presents models and specific solutions related to them, which were developed by a specialized team of engineers and scientists from cooperating universities in response to the situation at the end of the 1980s at HP (freezing multi-billion dollar funds in inventories, alarmingly low customer satisfaction with the order fulfillment and deliveries). The team used an iterative process enriched by the interaction of model development and application. The authors pointed to the benefits of the implemented model solutions that go far beyond the production activities and include other logistics systems and processes of internal and external supply chains. The publication indicates the evolution of

organizational and technical solutions developed in the early 1990s, which eliminated or significantly reduced the diagnosed problems in cooperation between the teams involved in the links of the chain, including, among other things, planning, monitoring, and production of integrated circuits, board assembly, final assembly, deliveries and end customer service in the IT industry. The publication can also be classified as an area related to supply chain management and teamwork. The methods presented by Lee and Billington (1995) are among the tools and solutions that have significantly contributed to increasing the work efficiency of teams involved in the HP supply chain.

The 13 articles qualified to the seminal studies with over 200 citations also included an article by K. Birdi et al. (2008) (number of citations: 215). Due to the presented aspects, the paper can be classified as a publication in the field of logistics and supply chain management. The article's content directly touches upon the psychological aspects of strategic human resource management (human resource empowerment, planning, implementing, and monitoring an extensive training system, promoting teamwork using techniques and tools in the organization and management of human resources). The authors of the publication treat the aspects mentioned above as the key factors of a lasting competitive advantage. In addition to psychological factors, Birdi et al. (2008) also list management concepts related to integrated manufacturing, lean production, total quality management, just-in-time, supply-chain partnering and indicate them as determinants of organizational results, which, in an isolated manner, do not guarantee the maintenance of a lasting competitive advantage. In the publication, the authors confirmed their theoretical considerations with empirical research conducted on a sample of 308 companies. Referring to their results, they indicated that it is the empowerment of human resources and a comprehensive policy ensuring training and development – not only of employees but also of suppliers – that in the long term bring benefits related to the improvement of work efficiency. The authors also pointed out that strategic partnerships enhance the advantages and benefits implied by both aspects based on teamwork.

Another publication that the authors of this study have thoroughly analyzed is the paper by U. Bititci et al. (2012) (number of citations: 283). In the indicated work, an interdisciplinary team of authors, based on a review of the available literature in measuring the effectiveness and practice of management by objectives and results, analyzed the evolution of contemporary economic theory and practice in the indicated area. The

publication analyzes trends, tendencies, and changes in this area: cultural and multicultural aspects, dissemination of organizational networking, servicisation, sustainable development, open-source. Based on the analysis carried out in the field of measurement of effectiveness, an assessment was made, suggesting that a literature synthesis conducted by a team of multidisciplinary researchers charts the evolution of the performance measurement literature and identifies that the literature largely follows the emerging business and global trends.

Paper prepared by S. E. Fawcett et al. (2007) (number of citations: 275) is a publication that belongs to the logistics and supply chain management cluster with a leading technological aspect in the considerations. The article emphasizes the importance of collecting and processing, and sharing (transmitting) information because it is imperative from the point of view of both individual logistics systems and entire metalogistic systems related to the efficient functioning of supply chains and networks. The authors of the indicated publication used a large-scale survey and semi-structured interviews to examine the impact of information technology (IT) on improving the efficiency of supply chains. Two distinct dimensions of information sharing – connectivity and willingness – are identified and analyzed. Both dimensions are found to impact operational performance and are critical to developing an actual information-sharing capability. However, many companies have placed most of their emphasis on connectivity, often overlooking the willingness construct. The authors pointed out that this is why the complete integration and coordination of teams within supply chains is impossible. In addition to its cognitive values, the publication draws attention due to its application dimension. A roadmap is presented to guide IT development and investment decisions.

The publication of S. K. Vickery et al. (2003) (number of citations: 631) can be thematically assigned to the logistics and supply chain management cluster. The content of the article and the content of the publication of Fawcett et al. (2007) concerns the area of IT solutions. However, it presents them in a completely different context, identifying the direct and indirect impacts of an integrated supply chain strategy on customer service and financial results. The results of empirical research conducted by the authors of the indicated publication on a sample of 150 largest first-tier suppliers cooperating with the three most prominent automotive manufacturers in North America showed positive direct relationships between (1) integrated information technologies and supply chain integration, (2) supply chain

integration and customer service, and (3) customer service and firm performance. The relationship of supply chain integration to financial performance was indirect, through customer service; i.e., customer service was found to fully (as opposed to partially) mediate the relationship between supply chain integration and firm performance for first-tier suppliers in the automotive industry.

The publication of M. Tracey and C. L. Tan (2001) (number of citations: 216), due to the issues raised, can be treated as a publication penetrating the clusters: production and distribution, logistics and supply chain management, and quality and development. The authors of the publication presented the results of the analysis aimed at identifying and characterizing the dependencies between supplier selection criteria (the quality of delivery, product quality, price, and delivery costs). They also presented the involvement of suppliers in cooperation, the implementation of logistic activities and processes in project teams, and the participation of suppliers in programs of continuous development and improvement of suppliers. Their analysis also included the four levels of customer satisfaction determined by satisfaction with price, product quality, product range, additional services (accompanying deliveries), and the results of enterprises as links in supply chains and chains as a whole. As the publication exposes the direct impact of the described factors on customer service satisfaction, it can be considered indirectly correlating with the article by Vickery et al. (2003).

In the field of logistics and supply chain management, there is also the most frequently cited publication which is the one by S. Chopra and M. M. S. Sodhi (2004) (number of citations: 877). The article is primarily an academic and cognitive publication. The authors:

- identified risk factors in nine areas of supply chain operation and management;
- determined the impact of the identified risk factors on the relations in the external supply chain (suppliers, sub-suppliers, production partners, customers, entities, and financial institutions) and the internal supply chain (teams involved in the implementation of internal logistics processes at the level of logistics systems of entities forming the links in the supply chain);
- proposed integrated, balanced strategies that facilitate risk minimization and efficient functioning of teams within micro-and metalogistic systems.

Although the dominant thread is the one that allows assigning the article to the logistics and supply chain management cluster, the publication can be treated as penetrating and representative of areas related to production and distribution,

quality, and development. A holistic approach to risk management in the supply chain most likely implies a high level of citation.

The analysis of the content of the publication of K. J. Petersen et al. (2005) (number of citations: 625) allows for treating it as penetrating the areas of quality and development as well as logistics and supply chain management. The authors emphasize the issues of increasing the efficiency of suppliers' work in a way conducive to their integration and increasing involvement in works on the development of new products. An essential aspect of the analyzed article is identifying the best methods, tools, goals, and techniques used by managers to increase suppliers' work efficiency at various stages of project tasks. The authors also discussed the scope of suppliers' responsibilities at individual stages of process and product management in detail. Theoretical considerations and empirical research clearly show that suppliers' early involvement is crucial in integrating and coordinating supply chains and designing processes and products.

The article by G. L. Ragatz et al. (1997) (number of citations: 458) is also cited in a significant amount. The article is representative of the areas of logistics and supply chain management and quality and development. The authors, based on extensive empirical research on managerial practices (internal aspects) and external factors, the results of which they presented in their work, identified barriers that hinder the implementation of projects related to product development, the implementation of processes (including logistics) in the manufacturer-supplier, supplier-buyer, supplier-supplier relation. Studies have shown that cross-functional teams have been successful in meeting these challenges. Since teams of this type go beyond the boundaries of a single enterprise system, it is vital from management's perspective in the era of globalization and the development of the organization's network. The results of the research referred to by Ragatz et al. (1997) in their publication indicate that overcoming barriers depends on the "relationship structuring" in the supply chain, the essential elements of which are: a joint training and supplier development program; clear division of responsibilities, benefits, opportunities, risks, profits, costs, and losses; trust in the competences and knowledge of suppliers, which allows for a certain level of independence and delegation of powers by the leader in the supply chain; personnel exchange, e.g., in the field of supplier cooperation. The authors indicated that overcoming barriers also depends on the ability and willingness to share knowledge and information, which, in turn, is influenced not only by techniques and management tools but also by technical and

technological conditions and related infrastructure.

The publication of D. M. Lambert et al. (2005) (number of citations: 255) should be considered in relation to logistics and supply chain management. The authors, while reviewing the literature on various approaches (schools) to supply chain management, focused their considerations on the approach to supply chain management as relationship management, both between functions within the subsystems of the enterprise system and between the systems of various economic entities forming the links of the supply chain. Lambert et al. (2005), while identifying five frameworks/areas of supply chain management, selected two of them for the analysis. The selection criterion was the level of detail of the described areas, which was considered to facilitate implementation, monitoring, and evaluation. In making the assessment, the authors indicated the strengths and weaknesses of both selected approaches and indicated future development, research, and use opportunities.

The publication of S. C. Graves & S. P. Willems (2000) (number of citations: 242) can be included in the publications within the logistics and supply chain management cluster. In the paper which presents elements convergent and typical to the process management represented by Ragatz et al. (1997), there is a noticeable greater focus on the tool aspect. In the publication above, the main focus of theoretical considerations and the practical dimension was shifted towards the study of the framework for strategic modeling focused on inventory control (including the shaping of the safety margin), which is subject to the influence of a random factor, and the forecasts regarding the determined level in this respect are uncertain. The authors, developing an algorithm for shaping inventories and optimizing their formation along the entire supply chain while validating the model, drew attention to the work of teams responsible for implementing physical flows in the supply chain of Eastman Kodak.

All articles in seminal studies listed in Table 2 in the first part of the article (Jagoda et al., 2023) deal with aspects related to, among other things: the empowerment of human resources; planning, implementation, and monitoring of an extensive system of motivation, training, and supplier development; disseminating teamwork with the use of techniques and tools in the field of organization and human team management, trust in the knowledge and experience of suppliers, and thus leaving a particular scope of independence by the supply chain leader as key success factors favoring integration, coordination and strategic partnership in supply chains, which, in turn, facilitates investment in product development and process improvement (including logistics processes).

Also, the aspects related to the collection, processing, as well as the sharing of knowledge and information, as an important factor influencing the improvement of the work efficiency of teams involved in the implementation of logistics processes in supply chains, were highlighted in three out of 13 publications (Fawcett et al., 2007; Lee & Billington, 1995; Vickery et al., 2003). These aspects were signaled in all 13 publications included in Table 2, but only three of the papers elaborated and developed them in detail.

In the publication of Tracey & Tan (2001), as well as in the works of Vickery et al. (2003), a strong correlation can be observed between the commitment of suppliers to cooperation and the implementation of logistics activities and processes, product development and the level of customer satisfaction and the results of individual companies, as well as entire supply chains. Graves & Willems (2000), Ragatz et al. (1997), and indirectly Petersen et al. (2005) publications have clearly outlined themes in process management.

An article that only indirectly seems to affect human teams by exposing their role and significance in the evolution of managerial economic theory and practice is the publication of Bititci et al. (2012).

The highest citation rate (seminal studies) applies to publications in which:

- the factors increasing the effectiveness of teamwork (including the work of suppliers) are identified and thoroughly analyzed, and consequently increase the involvement in works on the development of new products and the efficiency of supply chains (Petersen et al., 2005 – number of citations: 625);
- the direct and indirect impact of IT on the teamwork of suppliers, sub-suppliers, and cooperators is analyzed, as well as the impact of the strategy of an integrated supply chain on customer service and financial results (Vickery et al., 2003 – number of citations: 631);
- a holistic and interdisciplinary view of the supply chain is adopted, making the publication representative of the following areas: logistics and supply chain management, production and distribution, quality and development, service management (Chopra & Sodhi, 2004 – number of citations: 877).

Conclusions, limitations, and future research direction

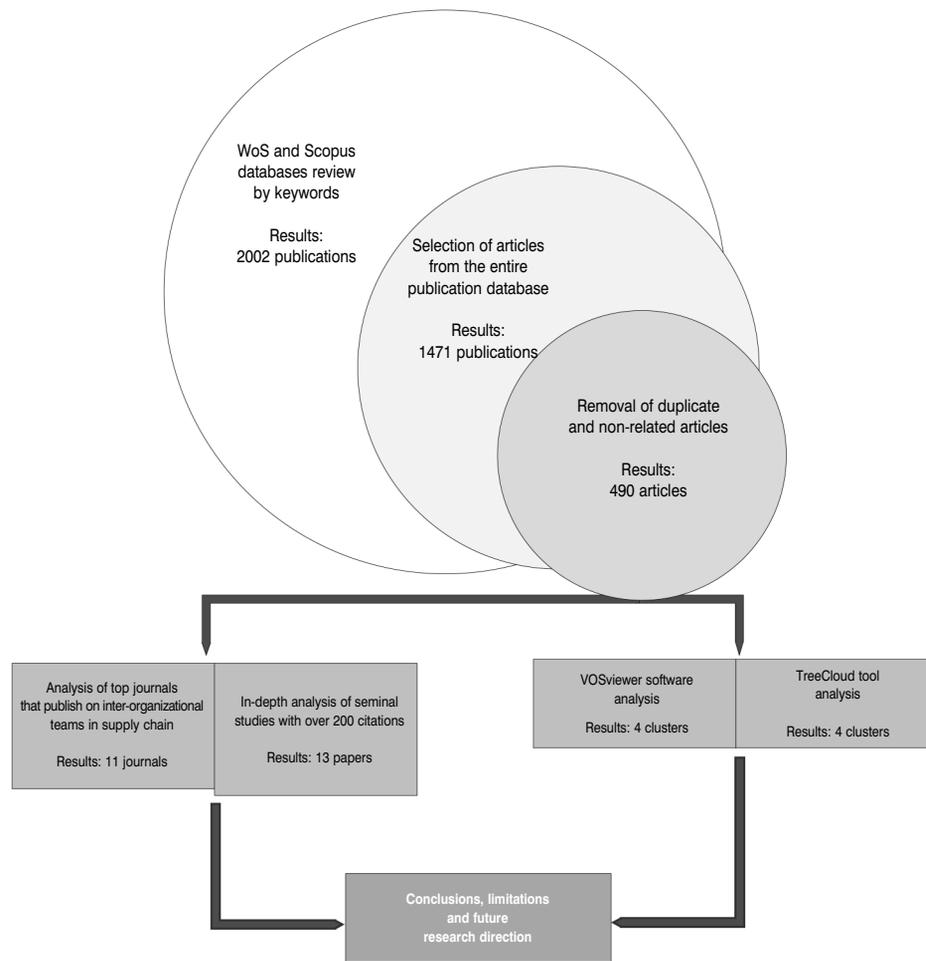
The results of the above analysis of the 490 research-related articles on teamwork in the supply chain provide a solid theoretical basis for a fuller understanding of this worldwide research field over

the last 15 years (i.e., from 1995 to 2020). In general, the publication of studies on this topic has increased in the last 15 years. This increase has been particularly noticeable in recent years, particularly in 2020. It is a period in which the global pandemic situation caused by COVID-19 forced a change in defining and functioning of supply chains, especially from a global perspective. It is also a moment of very dynamic development of work and cooperation in a remote environment, which impacted the functioning of teamwork in the supply chain. The summary of the conducted systematic bibliometric analysis of the literature has been presented in Figure 1.

The in-depth research and analysis of a group of selected articles and the journals in which they were published allow for the following conclusions:

1. The papers analyzed have appeared in periodicals of high quality in the field. The teamwork within supply chains was discussed in the largest number of journals, the IF of which is in the range from 4.220 to 4.744, with an average citation rate of approx. 535.
2. The subject was discussed mainly in trade magazines, very clearly focused on management, covering such areas as logistics on a micro-economic scale, metalogistics, process management, including those related to planning and organization of production and project management. It can therefore be concluded that the authors, while conducting scientific research or looking for solutions, models, concepts, and strategies useful for implementation in the area of teamwork within supply chains, most often used highly specialized journals dealing with topics related to various areas of supply chain management and broadly understood operational management.
3. Publications in the field of teamwork in supply chains most frequently cited (seminal studies with over 200 citations) were published in the most significant number in the years 1995–2012, i.e., in the period when the practice of economic life, both on the local and global level, began to evolve from transactional relationships towards partnership and long-term (strategic) cooperation within supply chains and networks.
4. Lexical analysis on the most frequently found words in titles (analysis of the keywords in the synthesis sample) was carried out based on the TreeCloud tool, allowing for identifying four clusters indicating the main threads raised in the field of teamwork in supply chains. These are the influence of teams on integrating the supply chain, methodical aspects of the functioning and cooperation of teams (case studies, quantitative research), micro perspective of teamwork in the supply chain and supply chain management and teamwork, especially on strategic and sustainable perspective.

Figure 1
Summary of the systematic and bibliometric analysis of literature



Source: own elaboration.

5. On the other hand, the analysis of the synthesis sample using the VOSviewer software resulted in identifying the coexistence of keywords and the designation of four thematic clusters, covering the main areas of locating the subject of teamwork in the supply chain. They are production and distribution, logistics and supply chain management, quality and development, and service management.
6. An in-depth analysis of the content of 13 articles qualified by the authors of this publication to the group of top papers with over 200 citations (seminal studies) indicates that the topic of teamwork in the supply chain is multi-threaded (see TreeCloud analysis) and concerns various areas of business activity (see VOSviewer analysis) both strategically and operationally. All articles in this group touched upon, to a greater or lesser extent, topics related to human resources empowerment, the development of the internal and external cooperation system, the promotion of teamwork using techniques and

tools (including IT) in the field of organization and management of human resources, and the improvement of the effectiveness of teams involved in the implementation of logistics processes in supply chains.

Finally, following the research results, we can suggest three main topics that should be investigated in future research: the impact of cross-functional and cross-organizational teams on supply chain integration and performance and the ways of managing cross-functional and cross-organizational teams in the supply chain communication in cross-functional and cross-organizational teams. These topics have not yet been sufficiently recognized and described, although they are important for supply chain management. In the following paragraphs, all these three research topics are debated.

The account showing the impact of inter-functional and inter-organizational teams on supply chain integration and performance has not been fully shown and described in the literature so far. Some research shows that teamwork is the most

important competence for successful supply chain integration (Prajago & Sohal, 2013). Research conducted by S. T. Menon (2012) determined the HR role in supply chain integration and performance (research based on the Delphi method). The experts indicated internal integration factors such as departmental teams to coordinate with other departments and cross-functional teams. Among the factors of external integration, there were teams to coordinate activities with supply chains partners, network teams with people from partner companies working on network goals, share resources (personnel, technology, R&D) with partners, partner involvement in new product development, and using external resources such as consultants for educating staff and putting new systems in place. Further research should analyze the impact of team interfunctionality and interorganizationality on supply chain integration and performance, considering knowledge creation and diffusion by these teams within the supply chain.

Considering the assumption about the significant impact of inter-functional and inter-organizational teams on supply chain integration and performance, one of the leading research challenges should be identifying and indicating ways of managing such teams. Their specificity of functioning differs from the classic team. We are dealing with managing a group of people representing various departments of enterprises or various economic units. How numerous should these teams be, how to evaluate and develop the skills and competencies of their members, how and by whom should these employees be motivated and rewarded for their work, who should be the leader of such a team, how are the members to deal with the phenomenon of heterarchy? These are examples of numerous questions important for management practice, to which the literature on the subject does not provide many answers.

The interesting question in this context considers communication in inter-functional and inter-

organizational teams located in supply chains. In the context of the COVID-19 pandemic and the distance that very often separates the members of these teams, attention should be paid to using indirect communication instead of direct contacts of team members. It seems reasonable to recognize the frequency and methods of communication and ICT tools used in teamwork to indicate their hierarchy in providing effective communication in the team.

In conclusion, we recognize that much has been identified in supply chain teamwork over the last fifteen years. Thanks to this analysis, we highlighted that it is a dynamic field of study. However, some limitations of our analysis should be recognized. The main limitation of the present paper is related to the fact that the nature of bibliometric analysis tends to simplify the complexity of a field of research in order to provide a simple and clear picture (Sasseti et al., 2018). However, we tried to overcome this issue by implementing SLR rules to be replicable, exclusive, aggregative and algorithmic (Denyer & Tranfield, 2009; Klimas et al., 2020), and reviewing the literature of articles with the highest citation rate (seminal studies) and indicating them as the prominent representatives of the selected and discussed clusters. A decision was also made to select articles from two scientific databases – Web of Science and Scopus. The limitation to these two bases is another limitation of the present paper – the authors realize that extending the research horizon to include other bases, e.g., EBSCO, could prove helpful and would more explicitly substantiate the conclusions made. As already indicated, even though the bibliometric analysis presented here focused on general threads related to teamwork in supply chains, the authors believe that the directions of future research indicated in the article may significantly enrich knowledge about supply chain management. However, this field of study requires extensive research, especially in new economic reality after COVID-19 pandemics.

Notes/Przypisy

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References/Bibliografia

- Birdi, K., Clegg, C., Patterson, M., Robinson, A., Stride, C. B., Wall, T. D., & Wood, S. J. (2008). The impact of human resource and operational management practices on company productivity: A longitudinal study. *Personnel Psychology*, *61*(3), 467–501. <https://doi.org/10.1111/j.1744-6570.2008.00136.x>
- Bititci, U., Garengo, P., Dörfler, V., & Nudurupati, S. (2012). Performance measurement: Challenges for tomorrow. *International Journal of Management Reviews*, *14*(3), 305–327. <https://doi.org/10.1111/j.1468-2370.2011.00318.x>
- Chopra, S., & Sodhi, M. M. S. (2004). Managing risk to avoid supply-chain breakdown. *MIT Sloan Management Review*, *46*(1), 53–61.
- Cousins, P. D., & Menguc, B. (2006). The implications of socialization and integration in supply chain management. *Journal of Operations Management*, *24*(5), 604–620. <https://doi.org/10.1016/j.jom.2005.09.001>

- Denyer, D., & Tranfield, D. (2009). Producing a systematic review. In: D. A. Buchanan & A. Bryman (Eds), *The Sage Handbook of Organizational Research Methods* (671–689). Sage Publications.
- Fawcett, S. E., Osterhaus, P., Magnan, G. M., Brau, J. C., & McCarter, M. W. (2007). Information sharing and supply chain performance: The role of connectivity and willingness. *Supply Chain Management*, 12(5), 358–368. <https://doi.org/10.1108/13598540710776935>
- Graves, S. C., & Willems, S. P. (2000). Optimizing strategic safety stock placement in supply chains. *Manufacturing and Service Operations Management*, 2(1), 68–83. <https://doi.org/10.1287/msom.2.1.68.23267>
- Jagoda, A., Kolakowski, T., Marcinkowski, J., & Skowrońska, A. (2023). Teamwork in the supply chain – a systematic and bibliometric analysis (part 2). *Gopodarka Materiałowa i Logistyka*, (1). <https://doi.org/10.33226/1231-2037.2023.1.3>
- Klimas, P., Stańczyk, S., & Sachpazidu-Wójcicka, K. (2020). Metodyka systematycznego przeglądu literatury – wyzwania selekcji a posteriori podczas tworzenia bazy literatury. In: A. Sopińska, & A. Modliński (Eds.), *Współczesne zarządzanie – koncepcje i wyzwania* (39–52). Oficyna Wydawnicza SGH.
- Lambert, D. M., García-Dastugue, S. J., & Croxton, K. L. (2005). An evaluation of process-oriented supply chain management frameworks. *Journal of Business Logistics*, 26(1), 25–51. <https://doi.org/10.1002/j.2158-1592.2005.tb00193.x>
- Lee, H. L., & Billington, C. (1995). The evolution of supply-chain-management models and practice at Hewlett-Packard. *Interfaces*, 25(5), 42–63.
- Menon, S. T. (2012). Human resource practices, supply chain performance, and wellbeing. *International Journal of Manpower*, 33(7), 769–785.
- Petersen, K. J., Handfield, R. B., & Ragatz, G. L. (2005). Supplier integration into new product development: Coordinating product, process and supply chain design. *Journal of Operations Management*, 23(3–4), 371–388. <https://doi.org/10.1016/j.jom.2004.07.009>
- Prajago, D., & Sohal, A. (2013). Supply chain professionals: A study of competencies, use of technologies, and future Challenges. *International Journal of Operations & Production Management*, 33(11/12), 1532–1554.
- Ragatz, G. L., Handfield, R. B., & Scannell, T. V. (1997). Success factors for integrating suppliers into new product development. *Journal of Product Innovation Management*, 14(3), 190–202. [https://doi.org/10.1016/S0737-6782\(97\)00007-6](https://doi.org/10.1016/S0737-6782(97)00007-6)
- Sassetti, S., Marzi, G., Cavaliere, V., & Ciappei, C. (2018). Entrepreneurial cognition and socially situated approach: A systematic and bibliometric analysis. *Scientometrics*, 116, 1675–1718.
- Tracey, M., & Tan, C. L. (2001). Empirical analysis of supplier selection and involvement, customer satisfaction, and firm performance. *Supply Chain Management*, 6(4), 174–188. <https://doi.org/10.1108/EUM000000005709>
- Van Echtelt, F. E. A., Wynstra, F., Van Weele, A. J., & Duysters, G. (2008). Managing supplier involvement in new product development: A multiple-case study. *Journal of Product Innovation Management*, 25(2), 180–201. <https://doi.org/10.1111/j.1540-5885.2008.00293.x>
- Vickery, S. K., Jayaram, J., Droge, C., & Calantone, R. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: An analysis of direct versus indirect relationships. *Journal of Operations Management*, 21, 523–539.

Dr hab. Agnieszka Jagoda, prof. UEW

PhD, associate professor at the Department of Strategic Management and Logistics at the Faculty of Business and Management at the Wrocław University of Economics and Business. She specializes in human resources in supply chain management and atypical solutions in supply chain's work organization.

Dr Tomasz Kofakowski

PhD, assistant professor at the Department of Strategic Management and Logistics at the Wrocław University of Economics and Business. His scientific research area focuses on project analysis and appraisal, especially in the field of logistics infrastructure, logistics projects management and logistics in untypical implementations (culture, touristic).

Dr Jakub Marcinkowski

PhD, assistant professor at the Department of Strategic Management and Logistics at the Wrocław University of Economics and Business. In his scientific activity, he deals mainly with the social type of logistics. His scientific curriculum includes areas of humanitarian logistics on macro level, sustainable last mile logistics and returns, reverse logistics (as part of the circular economy), and the organization of work in supply chain.

Dr hab. Agnieszka Jagoda, prof. UEW

Profesor w Katedrze Zarządzania Strategicznego i Logistyki na Wydziale Zarządzania Uniwersytetu Ekonomicznego we Wrocławiu. Specjalizuje się w zasobach ludzkich w zarządzaniu łańcuchami dostaw i atypowych rozwiązaniach w zakresie organizacji pracy w łańcuchach dostaw.

Dr Tomasz Kofakowski

Adiunkt w Katedrze Zarządzania Strategicznego i Logistyki Uniwersytetu Ekonomicznego we Wrocławiu. W działalności naukowej zajmuje się analizą i oceną projektów, głównie w obszarze infrastruktury logistycznej, zarządzaniem projektami logistycznymi oraz logistyką w nietypowych zastosowaniach (kultura, turystyka).

Dr Jakub Marcinkowski

Adiunkt w Katedrze Zarządzania Strategicznego i Logistyki Uniwersytetu Ekonomicznego we Wrocławiu. W działalności naukowej zajmuje się społeczną odmianą logistyki. Jego profil naukowy związany jest z logistyką humanitarną na poziomie makro, zrównoważonymi dostawami ostatniej mili i zwrotami, logistyką zwrotną (jako część gospodarki obiegu zamkniętego) oraz organizacją pracy w łańcuchu dostaw.

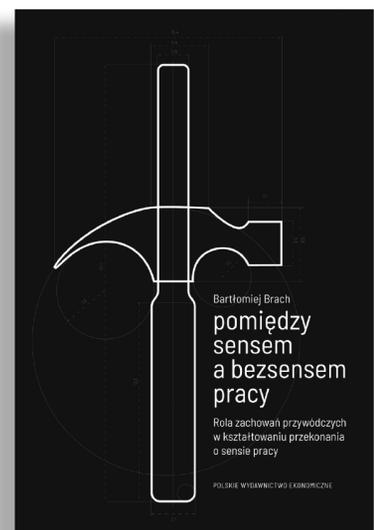
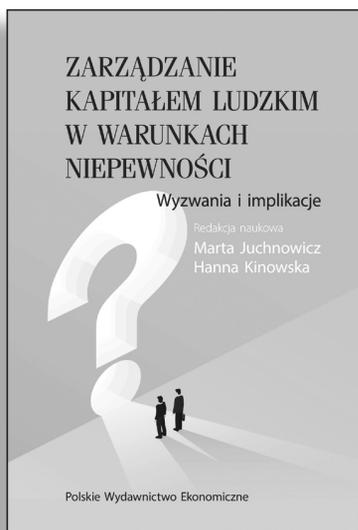
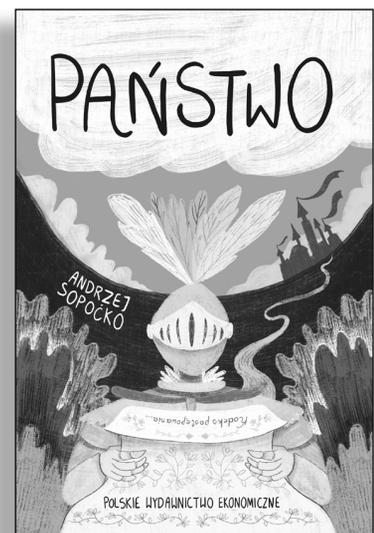
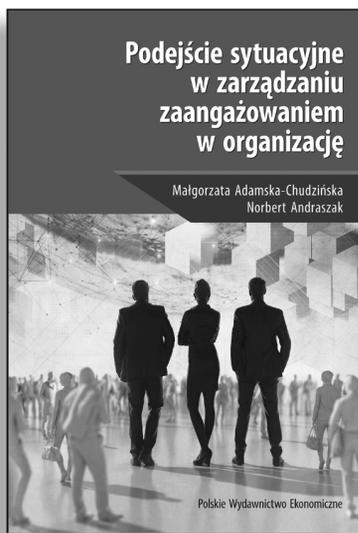
Dr hab. Agnieszka Skowrońska, prof. UEW

PhD, associate professor at the Department of Strategic Management and Logistics at the Faculty of Business and Management at the Wrocław University of Economics and Business. She specializes in logistics policy in Poland and in the world, transport and forwarding, logistics management, supply logistics, management of macrologistics in global economy, human resources in supply chain management, management of employees' competences in logistics chains.

Dr hab. Agnieszka Skowrońska, prof. UEW

Profesor w Katedrze Zarządzania Strategicznego i Logistyki na Wydziale Zarządzania Uniwersytetu Ekonomicznego we Wrocławiu. Specjalizuje się w polityce logistycznej w Polsce i na świecie, transporcie i spedycji, zarządzaniu logistycznym, logistyce zaopatrzenia, zarządzaniu makrologistyką w gospodarce globalnej, zasobach ludzkich w zarządzaniu łańcuchami dostaw, zarządzaniu kompetencjami pracowników w łańcuchach logistycznych.

Zapraszamy do zakupu książek



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