Organizational network models – proposal for typology[1]

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Abstract: The aim of the article is to present the author's proposition of typology of organizational network models. The considerations were based on the analysis of the literature on the subject of the described organizational network models and their typology, and the main part of the article is a proposal of the typology of organizational network models. The starting point was the assumption that typologies play an important role in building theory, and the concept of network is ambiguously defined and described in network theory. The multitude of features and parameters describing organizational networks indicates a large diversity of their models. The article reviews the criteria for the division and types of organizational networks in light of the literature on the subject, and presents the characteristics of organizational network models by their origin, the main mechanism explaining the functioning of the network, the method of network coordination, and the author's typology of organizational network models due to the criterion of nature and complexity of relationships appearing in them.

Key words: organizational network, typology, model

1. Introduction

Organizational networks have become a way of describing a new reality resulting from comprehensive social, economic and technological changes. The main premise for creating inter-organizational networks is the development of the global economy, affecting changes in communication, competition and cooperation between various types of institutions, market entities or individuals. The web-based economy is one of the important distinguishing features of today's entities. As a result of networking, enterprises achieve their goals more effectively. Diversified entities in the conditions of network society create networks of connections that affect the efficiency

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of their operation. Therefore, one can be tempted to say that nowadays network organization is a key concept, which is associated with forms of cooperation of various entities (Barczak, 2016).

The specificity of the network approach in management is the diversity of research and the network models used in it. In the ongoing discussion in literature on network theory, it strongly refers to the use of various network models in management sciences (Borgatti, 2011; Krzakiewicz and Cyfert, 2013). In most cases, the authors take the position that there is no universal network theory in management, and which theory is the basis for the research of networks defined by researchers as determined by the purpose and selected network model (Światowiec-Szczepańska and Kawa, 2018). The diversity of organizational network models is determined by their interdisciplinary character and the multitude of approaches to organizational networks and their features existing in the literature. Despite the fact that there are many typologies of types of networks in the literature, a research gap can be seen related to the ordering and systematization of organizational network models. The research problem raised in the article is related to the lack of comprehensive approach to organizational network models and their ordering. The research problem is therefore implied by the existing cognitive gap. It is related to the issue of distinguishing the basic categories of organizational network models, and, as a consequence, a comprehensive approach to the organizational network models described in the literature and functioning in economic practice in the form of a developed typology of these models.

Given the existing cognitive gap, the purpose of this article is to develop an original proposition of typology of organizational network models. The considerations were based on the analysis of the literature on the subject, and the main part of the article is a typology proposal[2] of organizational network models. The starting point was the assumption that typologies play an important role in building theory, and the concept of network is ambiguously defined and described in network theory. The multitude of features and parameters describing organizational networks indicates a large diversity of their models.

2. The concept of organizational network and network approach

The concept of "networks" has become more common in social sciences, colloquial language, the world of economy or technology (Czakon, 2012). These issues are constantly evolving in both the Polish and international scientific community, and the networks have been and are heterogeneously captured by various groups of researchers.

According to the most general definition, a network consists of a set of nodes and set of ties representing some relationship (Brass, Galaskiewicz, Greve and Tsai, 2004). It is a system of connections between people or organizational units, created to exchange information, notions (ideas) and resources. Nowadays, the concept of network has penetrated and effectively

[2] Typology is the division of certain types into groups, characterized by a common feature or group of features constituting a certain type. The typological division does not have to be exhaustive and disjoint. The division of objects into certain types is usually applied in a situation where the use of classification would be difficult to read in the analysis due to too extensive class structure and a small number of observations assigned to individual classes. It is nothing more than systematization, which mainly focuses on grouping, ordering and dividing specific categories (Kisielnicki, 2009).

rooted itself in Polish and foreign literature. The issues of network are covered in relatively many publications, and in the work devoted to the research of the network one can find various definitions of this concept. The magnitude of the problem of the network in the modern world may be evidenced by the fact that in the first decade of the twenty-first century almost 1 million papers have been published on the subject of the network (Czakon, 2012).

In the literature in the field of management sciences, one can notice huge terminological diversity related to networks, probably resulting from the interdisciplinary nature mentioned above. According to many authors (Niemczyk, Stańczyk-Hugiet and Jasiński, 2012; Światowiec-Szczepańska and Kawa, 2018), the heterogeneity in perception and explanation of this issue is due to the fact that network ontology, not to mention epistemology and methodology, is only at the stage of incubation and development. One may be tempted to say that the concept of network is still an amorphous concept, not fully explored and poorly structured. This heterogeneity in the perception of networks is reflected in the multitude of definitions of organizational networks. A review of the literature in this area indicates great cognitive value, while confirming the multiplicity of views on organizational networks. Most authors (Delporte-Vermeiren, 2004; Dworzecki and Żłobińska, 2002; Łobos, 2005) definitely perceive networks from the perspective of external relations, i.e. as inter-organizational networks. An example would be the approach of Peter F. Ducker (1998), who understands the organizational network as both network of institutions (or parts thereof), companies, teams and people located in different places, organized in loosely connected opaque structures that share a common goal—work (providing services or selling products) for the same client. Numerous authors point to the features of organizational networks, such as: cooperation of entities, a common goal, full or high autonomy of individuals (Nogalski and Dwojacki, 1998; Miles and Snow, 1992) and market mechanisms of network operation (Łobos 2005). When defining networks it is quite common to emphasize the fact that networking is based on a shared value system (Dworzecki and Żłobińska, 2002; Hatch, 2002; Sydow, 1999). It is pointed out that networks are a characteristic, polycentric organizational form of activity, which is based on cooperation and division of labour between enterprises (Dworzecki and Żłobińska, 2002). In some definitions (Drucker, 1998; Brilman, 2002), the authors also point to intra-organizational relationships, defining as networks practically all the systems of relations, both with the internal units of the organization and its environment (Witkowski, 2004). Some approaches (Witkowski, 2004) emphasize the evolutionary nature of the network. While defining a network organization, some authors emphasize the importance of information technology and information flow and communication processes (Castells, 2008). The presented review confirms that it is impossible to clearly define the organizational network. A certain attempt to put into order various views and definitions of the network is the one proposed by Justyna Światowiec-Szczepańska and Arkadiusz Kawa (2018), who point out that three main approaches can be observed in the understanding of the network by researchers:

– metaphorical—the term *network* is used as a metaphor for new organizational phenomena, associated primarily with the change in the orientation of theorists from dyadic relations to a constellation, portfolio or system of relationships maintained by an organization (including an enterprise);

– graphic—refers to an attempt to faithfully reflect the structure of relationships within the enterprise or enterprises with other external entities. The aim here is a kind of "mapping" or "imaging" of the network[3] (Abrahamsen, Henneberg and Huemer, 2017; Czakon, 2017);
– mathematical—refers to treating networks in mathematical categories, which focuses on the use of graph theory and mathematical tools for analyzing network structures, often considered more important than the network context itself. An example is research in the field of complex networks, including small world models or scale-free networks.

Along with the development of the network concept, the so-called network approach, in which the importance of the company's overall contacts with the environment, which form an extensive network of connections, is emphasized. Network approach is characterized by the adoption of a network metaphor that is suitable for analyzing any organization, because organizations have multiple interactions with the environment. Therefore, the network approach defines the way of describing and analyzing reality (organizations, institutions, phenomena).

Modern research indicates a wide field of possibilities for exploring the network approach in the field of management. The change towards ever more networked business environments, in which organizations simultaneously compete and cooperate, are forced to constantly reorganize their resources, their boundaries are blurred, is reflected in the increasingly strongly accepted in economic practice paradigm of the network economy or the economy of sharing. Today we are in fact talking about a network society (Castells, 2008; Kadushin, 2012; Arsenault, 2011). The development of the global economy, affecting changes in communication, competition and cooperation between various types of institutions, market entities or individuals is undoubtedly one of the main reasons for creating organizational networks. The accelerator in this process are technological factors taking the form of the fourth industrial revolution (German Industry 4.0).

The network approach is used inter alia in fields of research and practice such as: strategic management (competition, cooperation and coopetition relations), project management, logistics management (supply and distribution chains), entrepreneurship, knowledge and innovation management, and relationship marketing.

The above considerations show that the possibilities of exploring network theory are very large. This applies to many disciplines, including management sciences. The research areas presented are interdisciplinary and amorphous. Many concepts are emerging, which proves that the coming years will be associated with the further development of the network approach.

[3] A pioneer of this approach in the management science was the Swedish school of industrial marketing centred around the scientific association IMP (Industrial Marketing and Purchasing Group). At the same time, the network's research trend was developing, using IT support over time, enabling graphical presentation of the examined networks.

3. Review of research in the field of typology of organizational network models

The presented approach to definitions and features of organizational networks influence the wide variety of forms of such organizations. The diversity associated with the definition of the concept of the network itself, the characteristic features and parameters of the description and forms of organizational networks means that there are many typologies of organizational networks, considered from the point of view of various criteria. In practice, attempts to develop typologies in this area face many difficulties. In the case of many classifications, a vague division can be seen, some classifications are not separable, others take into account only the selected aspects determining the type of network.

Analysis of the literature on the subject allows to state that there are numerous achievements in the field of different typologies of organizational networks. The studies present various criteria on the basis of which types of networks are distinguished. A synthetic review of the literature in this area is presented in Table 1.

Table 1. Review of criteria for the division and types of organizational networks in light of the literature on the subject

Criterion	Network type
Level of dependence and formalization of relationships (Brilman, 2002)	integrated networks, contractual networks, federated networks, direct relations networks
Relations between participants of cooperation (Cygler, 2002)	dominated networks, peer-to-peer networks, social networks, bureaucratic networks, property rights-based networks
Network structure (Dolińska, 2002)	ring network, ring network with coordinating organization, ring network with conductive organization
Management structures and sustainability of relationships (Domański and Marciniak, 2003)	ring network, ring network with coordinating organization, ring network with conductive organization
The nature of relationships between partners (Castells, 2008)	supplier networks, client networks, standard coalitions, technology cooperation networks
Features of the network structure (Korenik, 2003)	star networks with a leading company, temporary networks, regional networks
Nature of the network system (Koźmiński, 2004)	alliances and joint ventures, supplier-recipient systems, branches of enterprises, strategic business units
Type of links between network participants and the frequency of occurrence of a given type of cooperation (Niemczyk, Stańczyk-Hugiet and Jasiński, 2012)	cooperative networks, outsourcing networks, franchise and agency networks, clusters, strategic alliances, holding networks, public-legal partnerships
Form of cooperation (Camarinha-Matos and Adu-Kankam, 2018; Graça and Camarinha-Matos, 2017)	ad hoc cooperation, organization network cooperation, long-term strategic network, goal-oriented network, virtual enterprises, virtual teams, virtual organization (VO)

S o u r c e: Author's own elaboration based on Brilman, 2002; Cygler, 2002; Dolińska, 2002; Domański and Marciniak, 2003; Castells, 2008; Korenik, 2003; Koźmiński, 2004; Niemczyk, Stańczyk-Hugiet and Jasiński, 2012; Camarinha-Matos and Adu-Kankam, 2018; Graça and Camarinha-Matos, 2017.

An interesting typology of organizational network models due to reconfiguration dynamics is presented by T. Ortega (2010). Depending on the dynamics of the reconfiguration of participating partners, the mentioned researcher identified the following three types of networks:

- static network organization. It is a network in which the leader selects the market, sets strategic goals, selects technologies, organizes a network enterprise and optimizes value chain creation. Most often it has a relatively long-term network connection between the creator and other partners;
- dynamic network organization, characterized by unstable relationships between partners and the lack of a dominant partner. The configuration of participants in this type of network varies depending on market needs;
- temporary network organization focused on the rapid implementation of short-term and specific market opportunities, followed by the process of network decomposition. In this type of relationship, we have a large independence of its members, cooperating with each other on the basis of informal connections.

Currently, the network structure crosses national borders, and their spatial range is very diverse. Companies and other entities operate in networks because they find better conditions for effective operation in them: loss prevention, or increased profitability.

Research from recent years has significantly expanded knowledge towards a network approach to some phenomena. They allowed researchers to see that despite the growing dependence of human and other organisms' behaviour as well as technology on the topological properties of complex networks, we still do not fully understand the principles governing the evolution and dynamics of these systems. It turned out that in the enormity of network systems one can distinguish characteristic groups of structures that can constitute separate types of networks. These include small world and scale-free networks (Barabási and Bonabeau, 2003).

The selected typologies of organizational networks show the great wealth and variety of forms that fall into this category. The variety of approaches to the essence of the network is the reason for ambiguous conceptualization of the network resulting in various network models. This is related to the polymorphism and multidimensionality of networks emphasized in literature (Czakon, 2012), as well as the unclear ontological status of the networks studied.

4. Division of networks by origin—emergent or intentional?

One of the most important criteria for distinguishing network models is the mechanism explaining the functioning of the network and the origin of the network (Światowiec-Szczepańska and Kawa, 2018). Taking into account the source determining its network structure or functioning, one can basically talk about endogenously or exogenously determined networks. The first type is usually associated with networks intentionally coordinated by one or more network participants. This approach is related to the dichotomous perspective of the network, in which emergent and orchestrated networks are distinguished (Provan and Kenis, 2008). Emergent networks are described in terms of changes in the environment that lead individuals to perceive interdependence in achieving similar goals. Despite various sources determining networks, there are attempts, which can be seen in literature of the subject, to connect intentional and emergent networks based on the evolution of the network and the related dynamics affecting the transformation of emergent networks into inten-

tional networks (Dagnino, Levant, Mocciaro and Destri, 2016; Światowiec-Szczepańska and Kawa, 2018). An important criterion is also the main network mechanism, which explains the situation of units participating in the network. Stephen P. Borgatti, Ajay Mehra, Daniel J. Bras and Giuseppe Labianca (2009) indicate two main network models: network flow models and network architecture models. The main criterion differentiating these models is the way ties are treated, and especially their function. The characteristics of these organizational network models are presented in Table 2.

Table 2. Characteristics of organizational network models due to selected division criteria

Criterion	Organizational network model			
	Network flow models		Network architecture models	
	The flow model applies to networks in which ties are treated like channels through which various types of resources flow. In networks considered as flow models, indirect ties and the length of so-called paths are significant. This issue is particularly emphasized in the tradition of social capital research, according to which social position in the network depends on access to resources, including mainly information.		The model is focused on the structure of the network or on the configuration of the ties. This approach (also called topological) overlooks the aspect of the content of the ties, while it focuses on the pattern of connections. In this type of network model, the focus is on relationships that align or coordinate the actions of specific nodes with those of another single node, most often with higher capabilities.	
	heterogeneous flow models	homogeneous flow models	heterogeneous architecture models	homogeneous architecture models
A mechanism explaining the functioning of the network (Borgatti, Mehra, Bras and Labianca, 2009)	– they are based on the assumption that actor is successful because they can acquire resources controlled by other actors – they use the theory of strength of weak ties, the theory of social resources and the theory of structural gaps providing benefits and information advantages	– they relate to the process of diffusion or adaptation and spread of phenomena (opinions, cultures, practices, innovations) – contamination (social homogeneity) treats nodes in the network as mutually influencing and adapting specific features from others – actors influence each other and participate in the flow process, which increases the homogeneity of the whole group	– they explain the success of an individual through the structure of the network and its position in it – in a topological approach, the actor is often seen as a rational agent who uses network positions to maximize benefits – at the level of entire networks, a relationship is sought between the structure of the network and its results	– they explain the process of convergence of units in the network – they pertain to the so-called structural equivalence, in which the nodes are assumed to adapt to their surroundings, resulting in nodes showing similarities in behaviour resulting from similarities in the structural surroundings

Source of origin	Network models endogenously determined (intentional)	Network models exogenously determined (emergent)
	Network models coordinated intentionally by one or more network participants, which means conscious, deliberate and purposeful action to improve individual performance as well as the entire network.	Models are described in terms of changes in the environment that prompt individuals to perceive interdependence in achieving similar goals. Such networks, often self-organizing, create structures characteristic of the small world.
Method of network coordination (Grandori and Soda, 1995)	Symmetrical network models	Asymmetrical network models
	The strategy is jointly formulated and coordination is based on mutual agreements. A network is then created in the form of a specific group or modular organization. Depending on the specific impact factors, the asymmetrical network takes the form of a social, bureaucratic or property rights-based network.	Networks are dominated by a central entity that formulates a strategy and coordinates the activities of the entire system. Depending on the specific impact factors, the asymmetrical network takes the form of a social, bureaucratic or property rights-based network.

S o u r c e: Author's own elaboration.

As mentioned earlier, the diversity of research and the network models used in them become a specificity of the network approach in management. The ongoing literature discussion on network theory also refers to the use of various network models in management sciences (Borgatti, 2011; Krzakiewicz and Cyfert, 2013). In most cases, the authors take the position that there is no universal network theory in management, and which theory is the basis for the research of networks defined by researchers, determined by the purpose and selected network model (Światowiec-Szczepańska and Kawa, 2018).

5. Typology of organizational network models

When ordering organizational network models, a division based on the criterion of the nature and complexity of relationships occurring in them can be taken as a starting point. From this point of view, four internally diverse categories of models can be identified: business networks, franchise and agency networks, public networks and contemporary models of organizational networks (knowledge networks and complex networks).

Business networks are systems created voluntarily by a group of business actors of enterprises dealing in a similar field of activity, institutions of the public and private sphere, which support their activity—related relationships, interacting with the environment and established to achieve common goals. Characteristic for the functioning of business networks is the combination of competition with cooperation, while maintaining both individual (competitive) and common (convergent) goals of entities.

There is no consensus in the literature on key features of business networks (Jarillo, 1993; Ratajczak-Mrozek, 2011; Rosińska-Bukowska, 2012). Individual authors present their own concepts (Jarillo, 1993; Ratajczak-Mrozek, 2011; Rosińska-Bukowska, 2012). For example, Milena

Ratajczak-Mrozek (2011) presents three basic features of network connections (at the same time they are features of the entire business network):

– continuous interaction;
– interdependence (in terms of resources, entities and activities);
– infinity (lack of clear boundaries and structures).

Continuous interaction is the central idea of the network approach and is at the same time a general indicator of how companies operate. It is connected with the coexistence of formal and informal connections and to the long term, which means the expectation of continuation of relations and determines the many benefits of cooperation. The interdependence in terms of resources, entities, also called network actors and activities, results from the fact that there are practically no self-sufficient entities in the economy. The infinity of connections and networks means that you cannot unambiguously and clearly define the boundaries or structure of a business network.

The highest stage in the evolution of network-type solutions, i.e. a form of network thinking adapted to the requirements of corporate globalization, is the global business network. It is definitely a regulatory model, not just a typical organizational structure. It usually has a hybrid structure, which means diversifying the internal structures of global business networks due to the combination of many types of organizations into one regulatory system. Magdalena Rosińska-Bukowska (2012) presents features that can be considered as distinguishing features of global business networks against the background of classic network concepts. They are a combination of attributes: stratification, cooperation, synergy and innovative attitude related to creating added value to globally applicable standards.

The starting point for the characteristic of franchise and agency networks is an indication of the basic differences between the franchise system, agency system and partner system. Franchise networks are defined ambiguously and relate to various relationships between the donor and recipient of the franchise. Franchise means therefore (Podkorska, 2004):

– method of conducting business activities;
– form of distribution of goods and services;
– method supporting starting and conducting business activities;
– an alternative form of financing business ventures;
– the right to set up and run an enterprise in accordance with the idea, knowledge and technology of the franchise donor, transferred to the franchisee.

The franchise expansion of the company is based on the unique concept of doing business with elements of innovation or originality (knowhow) as well as the brand and reputation of the company, distinguishing it from other entities. Agency system means the concept of organizing trade or service points, run by agents who sell goods owned by the principal or provide services for and on behalf of the principal. Partnership agreements, on the other hand, usually constitute commercial cooperation agreements—distribution of products or services for resale by the partner on their own account. Often, the partnership is a transitional form for agency or franchise cooperation, because for a longer period of time such a loose agreement is not enough for either side.

Public networks are defined as cooperation between government and self-government administration units (public administration) and other entities (including private entities). In the context of network theory, local government as an independent (legally, economically, organizationally) entity is a participant in various types of inter-organizational networks. In this case, the network is a conglomerate of relations (exchanges) between local government units and entrepreneurs, non-governmental organizations, scientific organizations and institutions of the European Union.

A public network can be defined by distinguishing its characteristic features (Niemczyk, Stańczyk-Hugiet and Jasiński, 2012):

– it is formed by relations occurring between at least two independent entities, one of which always remains a public law entity;
– the purpose of the cooperation is to implement the public interest;
– the network is a space for organizational learning;
– the legal autonomy (independence) of the network participants finds expression in the formalized decision to join the network (contract);
– the existence of a relational rent is a source of efficiency in the implementation of public tasks.

Modern models of complex networks are a category of models related to research from recent years, which significantly expanded knowledge towards the network approach to some phenomena. This research is related to the revolution that took place in the late 1990s, and was largely caused by the Internet. The analyses carried out at that time allowed to see that despite the increasing dependence of people and other organisms, as well as technology on the topological properties of complex networks, we do not yet fully understand the principles governing the evolution and dynamics of these systems. Until recently, science mainly focused on research on regular and random networks, pulling many networks of complex structure into the category of the latter. However, it turned out that in the vastness of network systems one can distinguish characteristic groups of structures that can constitute separate types of networks. These include knowledge networks, small world networks and scale-free networks.[4] Figure 1 presents the author's proposed typology of organizational network models.

[4] The concept of scale-free networks has generated considerable interest in recent years, offering a unified description tool for a wide class of graphs whose organizational mechanisms are associated with a certain degree of randomness (Barabási and Bonabeau, 2003). Extensive empirical results seem to indicate that scale-free may be a desirable feature for information processing networks. Currently, there are many models of network construction that produce scale-free networks as random results. A large part of these constructions is derived from the Albert-László Barabási model based on growth and preferential attachment. The scale-free nature of the network results, among others, from the need to protect the centres (a prerequisite for the existence of the entire network and its proper functioning), and the preference for connections for nodes located in the zone of influence of several main centres.

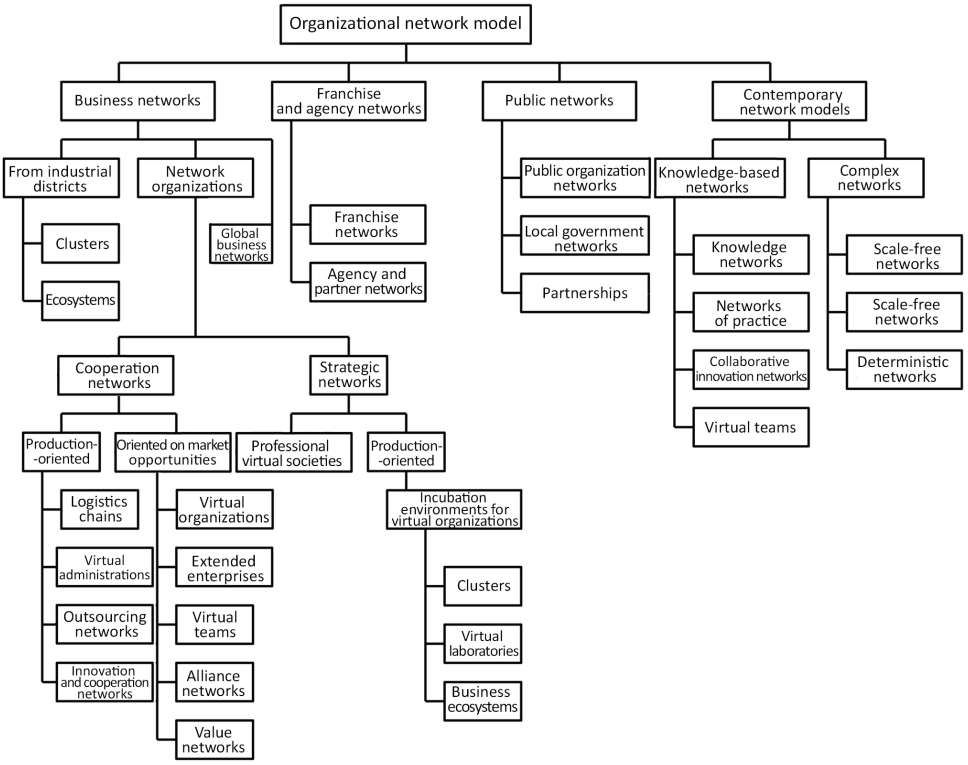

Figure 1. Typology of organizational network models

S o u r c e: Author's own elaboration.

The typology presented mainly refers to inter-organizational networks, but in certain categories of network models one can also speak of intra-organizational networks, assuming that the interior of the organization creates a network structure of connections between elements of the organization. An example of this type of network may be based on teams of employee knowledge networks, Collaborative Innovation Networks—COINs Network of Practice—NoPs or virtual task teams.

It should also be noted that the spatial range of the identified network models is very diverse. In addition to local, regional and national networks, dispersed networks in larger spaces, i.e. those with supranational and global coverage, play an important role.

In the proposed typology, the adopted division into four categories of network models is not disjoint, which especially applies to intra-organizational and inter-organizational networks. Knowledge networks, networks of practice, collaborative innovation networks, and virtual teams can be talked about both in the context of intra-organizational and inter-organizational networks.

6. Conclusion

The article presents considerations on organizational network models, reviewing the research described in the literature in this area, as well as proposes a typology of organizational network models, divided into four main, internally diverse categories of organizational network models: business networks, franchise and agency networks, public networks and contemporary models of complex networks. Within each category, different types of networks were presented. The presented typology of organizational network models was developed taking as a starting point the division due to the criterion of nature and complexity of relations occurring in them. It indicates a large variety of studies and the network models used in them.

Analysis of the literature on the subject showed that many authors strongly refer to the use of various network models in management sciences. Most of them take the position that there is no universal network theory in management, and the purpose and selected model of the network determine the theory of the network research defined by researchers. In this context, the ordering of the various types of networks described in the literature seems to be the most reasonable. The developed typology is only a proposal to order the organizational network models described in the literature, it is also an attempt to present their diversity in a comprehensive perspective.

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Modele sieci organizacyjnych – propozycja typologii

Abstrakt: Celem artykułu jest przedstawienie autorskiej propozycji typologii modeli sieci organizacyjnych. Rozważania oparto na analizie literatury przedmiotu w zakresie opisywanych modeli sieci organizacyjnych i ich typologii, a zasadnicza część artykułu to propozycja typologii modeli sieci organizacyjnych. Punktem wyjścia było przyjęcie założenia, iż typologie odgrywają ważną rolę w budowaniu teorii, a w teorii sieci niejednoznacznie definiuje się i opisuje samo pojęcie sieci. Wielość cech i parametrów opisujących sieci organizacyjne wskazuje na duże zróżnicowanie ich modeli. W artykule dokonano przeglądu kryteriów podziału i rodzajów sieci organizacyjnych w świetle literatury przedmiotu, a także przedstawiono charakterystykę modeli sieci organizacyjnych ze względu na pochodzenie, główny mechanizm wyjaśniający funkcjonowanie sieci, sposób koordynacji sieci oraz autorską typologię modeli sieci organizacyjnych ze względu na kryterium charakter i złożoność relacji w nich występujących. Opracowana typologia wskazuje na cztery główne kategorie modeli sieci organizacyjnych: sieci biznesowe, sieci franczyzowe i agencyjne, sieci publiczne i współczesne modele sieci złożonych.

Słowa kluczowe: sieć organizacyjna, typologia, model