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Specifics of Collaboration in the Service Economy: Orientation to Multisided Platform-Based Networking

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8.1 The Increasing Role of Collaboration in the Service Economy

Collaboration has always existed, but major aims, content, and methods of collaboration management in the agrarian, industrial, and post-industrial eras have been different. In an agrarian era, the key task of collaboration managers was to generate more power through joint economic activities. Participation of agricultural community members in collaborative initiatives was voluntary. Working together in the sowing and harvesting of crops or in other agricultural and housekeeping work peasants were able: (1) to make jobs where big muscle power is needed; (2) reorganize the work process by collective actions in order to increase labour productivity and/or finish seasonal agricultural or work of house building and keeping on time.

In the industrial era, new tasks for collaboration management emerged as the majority of economic activities shifted from households to specialized business entities. Most of the population withdraws from the agricultural sector to participate in specialized occupations associated with trade and manufacturing. The role of commercial activities relating

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to the buying and selling of goods has grown steadily. The commercial character of the industrial economic system required focusing on new goals and methods of collaboration. The owners of a business entity needed to develop new management skills because the simplistic methods of working together they had learned in the agrarian era no longer worked in many situations.

As stated in transaction cost theory, the goal of any actor in the specialized economic system is to minimize costs associated with transactions. To reduce transaction costs, institutions (sets of rules that humans impose on their dealings with each other) are created (North, 1984). Therefore, individuals will either choose to manage these resources themselves or collectively, depending on transaction costs. If markets operated in a perfect world, a collaboration between actors of a business ecosystem would not be needed, as market forces would provide the coordination and incentives needed for production activities. However, in a real market, the costs of conducting business transactions occur. They include costs incurred in the search for information on the price, quality, and availability of goods and services, search for potential buyers and sellers, and the relevant information about their behaviour and reliability, bargaining, making contracts, monitoring contractual partners, contract enforcement and the collection of damages for the violation of the terms of a contract, protection of property rights against third-party encroachment are all transaction costs. Collaboration is economically advantageous inside business entities and other organizations since institutionalized relationships limit individual freedom of action. The behaviour of market participants becomes better predictable and allows for significant reductions in transaction costs compared to the relationships that arise spontaneously in a free market. According to the theory of institutional economics, the creation of economic institutions as collective entities was a solution to challenges that arose in the uncertain business environment of the industrial era. Economic institutions became the key players in organizing the production, exchange, distribution, and consumption of goods, i.e., the industrial economic system matured into a complex of interrelated economic institutions through which economic activity is organized. In the industrial era, those who

wanted to be a member of the collaborative group joined the institutions. The task of managers was to formalize collaboration between people or organizations with similar interests. The collaboration was organized and managed according to agreements that legalized the rules of communication and collaboration.

Since a certain degree of agricultural industrialization was reached, new incentives emerged to generate more power through joint economic activities, and the goals for collaboration defined in the agrarian era have also been realized by new methods. First, a lack of capital encouraged the establishment of collective economic institutions in the form of agricultural cooperatives, as it was the most convenient way to include a large number of farmers in the capital accumulation process. By consolidating their small physical and financial capital and establishing a formal united organization, members of the collective institutions conceived a scale effect as market players and producers.

Second, small farmers were motivated to cooperate with each other as a response to changes that occurred in the labour market and market of agricultural products. Oligopoly or monopsony appeared more frequently in rural labour markets since agricultural mechanization resulted in fewer employers being willing to employ agricultural workers. Because of the large number of small farmers but only one or a few agricultural product collectors and processors, oligopoly or monopsony also often appeared in the market of agricultural products. Oligopoly or monopsony also resulted in distortions of competition. These processes and growing uncertainty in the business environment, along with increasing transactional costs, were a considerable incentive for farmers to cooperate and take collective action (Milford, 2004; Novkovic, 2006, 2008). Cooperative institutions became important tools for increasing farmers' bargaining power in oligopolistic markets of agricultural products. Rural people also used consumer cooperatives to increase their bargaining power in oligopolistic input markets. Hence, cooperative institutions offered farmers and other rural people the option of forming blocks with increased bargaining power and pooled resources to counter the ingrained imbalance in the market. Alongside traditional cooperatives, later collaboration has evolved through other forms of

economic institutions that join a group of people having a common economic interest, such as associations, clusters, strategic alliances, etc.

There exists a considerable body of literature on cooperative organizations joining farmers and other rural people. The literature review on agricultural cooperatives shows that it presents two strands: the cooperative as an extension of individual farms and the cooperative as a firm (Candemir et al., 2021). The second strand is oriented to the paradigm of the industrial era, and the first strand explores the cooperatives established according to the mental model of the agrarian era. However, cooperative studies still pay little attention to the influence of the post-industrial economy on the needs of rural people and new forms of economic collaboration. Collaboration inside agricultural companies remains briefly addressed in the literature, especially in the context of risk management in the dynamic business environment by reducing transaction costs. There exists a considerable body of literature on the agri-food supply chain that examines collaborative organization models in the agri-food sector (Ammirato et al., 2021). However, the agri-food sector has experienced profound transformations in recent years, and studying the agri-food supply chain is based on a more complex approach than collaboration at the institutional level.

The rise of the post-industrial economy has created new possibilities and needs for joint economic activities. Transitioning from an economy of goods to an economy of services suggests that more people must become engaged in their communities to address the challenges of the new evolutionary stage. In contrast to previous stages, the key drivers of regional economic performance do not come from territorial specialization as in the industrial era or from the pure quantitative agglomeration of farms in a particular region as in the agrarian era. In the service economy, the level of entrepreneurial activity in regions mainly depends on the interconnections and complementarities of geographically proximate groups of firms and institutions (Boix & Vaillant, 2010; Rocha & Sternberg, 2005). Many individuals must work collectively to make progress on complex issues (Ospina & Foldy, 2016). Management as a tool for organizing collective actions became one of the key factors of production together with land, labour, and capital, as the effectiveness of business processes is to a significant extent determined by the

managerial resources of a business entity. Business entities need not only specialized expertise but also a collaborative capability that unlocks the value of underused assets. As economic activities are changing from dominantly stand-alone to networked, an increasing number of scholars argue that new perspectives are needed to study collaborative relationships (Anggraeni et al., 2007; Batt & Purchase, 2004; Cullen-Lester & Yammarino, 2016; Kniffin & Patterson, 2019; Sorenson et al., 2008). Because of the growing importance of collaboration, the post-industrial economy is often referred to as a 'collaborative economy'. "The Collaborative Economy is an economic model where ownership and access are shared between corporations, startups, and people. This results in market efficiencies that bear new products, services, and business growth" (Owyang et al., 2013, p. 4). Sometimes the collaborative economy is called the sharing economy. It is defined as the movement towards peer-to-peer sharing. However, peer-to-peer collaborative consumption covers only a small part of post-industrial collaborative activities. The last research in the collaborative economy field focuses on the impacts of collaboration on corporations and, more importantly, on ways of collaboration in a service-driven economic system.

According to proponents of collaborative approaches, in the service economy, the ability to collaborate with customers and other participants of a business system, including competitors, has become not one of the many success factors in all economic processes but a mandatory component of business skills (Botsman, 2015; Botsman & Rogers, 2010; Greer & Lei, 2012; Lang et al., 2019; Ritala & Hallikas, 2011; Vazquez-Brust et al., 2020). However, the success of collaborative activities is not necessarily predictable, and when it is achieved is often not as anticipated. According to the first studies in the field of collaborative advantage, the synergy that can be created through joint working—collaborations are more likely to reach collaborative inertia than collaborative advantage (Vangen & Huxham, 2013). Powerful barriers to reversing the trend for collaborative activities to be frustratingly slow to produce output or uncomfortably conflict-ridden are dealing with specifics of collaboration in the service economy.

The latest scientific literature emphasizes that collaboration in a servitized economic system is (or should be) fundamentally different from

collaboration in the industrial era (De Noni et al., 2018; Ertz & Leblanc-Proulx, 2018; Fehrer Fu et al., 2018; Ramezani & Camarinha-Matos, 2020). Consequently, it is important not only to increase the scale of collaboration but also to use new methods of collaboration that meet the needs of a service-oriented economic system. Important characteristics of the post-industrial era dealing with radical changes in collaborative activities can be defined as several paradigm innovations ("paradigm innovations are changes in the underlying mental models which frame what the organization does" [Bessant & Tidd, 2007, p. 13]). A systematic literature review on the new characteristics of the service economy identifies the following paradigm innovations related to the changes in the role and nature of collaboration: (1) the pursuit of competitive advantage is shifting to the creation of mutualistic symbiosis between participants of the business ecosystem; (2) institutionalized collaboration is replaced by network relations; (3) the collaboration between actors with similar interests is shifting to multiactor partnerships; and (4) the market economy is replaced by the platform economy. The first paradigm innovation explains why collaboration is extremely important in the post-industrial era. It emphasizes the importance of collaborative advantage and presents a new approach to collaborative relations building through the concepts of the 'business ecosystem' and 'symbiotic relationships'. The second paradigm innovation introduces networks as a new organizational form of collaborative relationships that evolved from institutional models. The third paradigm innovation emphasizes the need to involve a diversity of actors in collaborative activities to address complex problems together. The fourth paradigm innovation discusses why and how the invisible mechanism of the market is replaced step-by-step by the visible mechanism of network platforms (see Fig. 8.1). All mentioned paradigm innovations are interwoven and complement each other.

Each of the listed paradigm innovations requires a radical change in the models of 'good management' and rural development policies and instruments formed in the industrial era. The next subchapters briefly present the essence of the mentioned paradigm innovations.

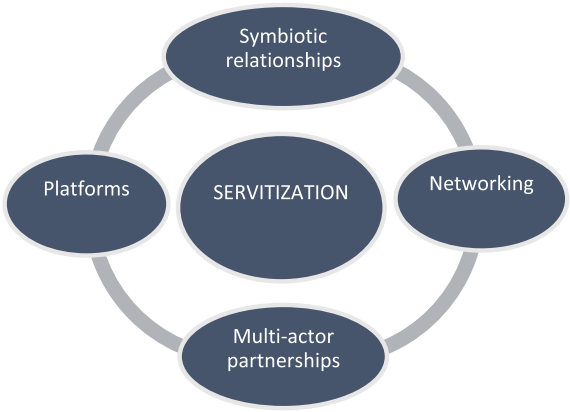

Fig. 8.1 Specifics of collaboration in the service economy (*Source* Created by the author)

8.2 Competition Replaced by the Pursuit of Symbiosis Between Participants of the Business Ecosystem

The first mentioned paradigm innovation, emphasizing that competition is replaced by the pursuit of symbiosis between participants of the business ecosystem, has received attention from academics and entrepreneurs only in the first decade of the twenty-first century. In the industrial era, the transactional perspective of business relationships has been popular. People have seen companies as rivals that are focused on their resources and capabilities to compete and survive in the market (Verna, 2016). This attitude was determined by the focus on supply chain management. In an industrial economic system characterized by overproduction, the competitive struggle for who would be able to obtain a greater share of the newly created value took place not only between companies but also between companies and consumers of their products. Since the processes of product value creation and product use were separated (the business was responsible for creating and delivering the product value to the consumer, while the consumer was responsible for making the most

efficient use of the value of the purchased product), the transactional relationship between the producer and consumer of a product was focused on sharing the value of the product, with each party seeking to obtain the largest share for itself. As business relationships were considered competitive, the main efforts of economic theorists and economic policymakers were focused on how to improve business competitiveness.

In the twenty-first century, the situation is changing radically. As noted by Mukhopadhyay and Bouwman (2018), conceptualizing firms as autonomous, independent entities struggling for competitive advantage does not adequately explain the present-day reality. The rise of the service economy changes how people view reciprocal relationships between companies and related business environments. Post-industrial paradigm requires organizations to transform their business models and shift from a transactional to a collaborative relationship mindset. Scientific and professional business literature increasingly emphasizes that "those who know how to collaborate win in the competitive battle" (e.g., Dutta & Crossan, 2005; Marinucci & Vergote, 2011; Mauleon et al., 2014; Vergote & Grandjean, 2015). This rule, which sounded paradoxical in the past, is already considered a key driver of the service economy. Servitization has changed the competitive landscape in the market by increasing the necessity of collaboration with other participants in business processes as cocreators of value. The new business term 'coopetition' emerged, which means 'cooperative competition' whereby competitors share costs and work together on parts of their businesses in which they do not compete (Combs & Davis, 2010).

Service relationships are about the activities between a service provider and a service consumer to ensure continual cocreation of value. The provision of a service and its use usually coincide in time, so in the relationship between the service provider and its client, attention should be primarily focused not on the price negotiations, but on the joint creative process. Since the post-industrial economy shifted from the production of things and their exchange to the provision of services, an increasing number of researchers have said that servitization can be successful only if there is close collaboration between the entrepreneur and client (Green et al., 2017). With the expansion of services, more attention should be given to the use of the client's experience and knowledge in improving

business processes and introducing innovations (Brandon & Lu, 2009; Keiningham et al., 2020; Kokins et al., 2021; Lindblad & Guerrero, 2020; Romero & Molina, 2011). The success of cocreation activities depends on how much a service provider understands the client's needs and whether a client understands the service provider's capabilities. If the service provider is able to fulfil the client's wishes, the price negotiations usually end in favour of the service provider. In this way, servitization helps to replace the strategic orientation to transactional buyer–supplier relationships formed by the 'product-driven' business model with a new type of relationship specific to the service delivery process. Instead of competing for price and market share, a new type of relationship building is focused on collaboration as a way to create the highest possible value in use. In practice, service relationships focus on the shared creative process and the sharing of input and require collaboration in defining roles, responsibilities, process activities/tasks, and implementing supporting tools to support collaboration between the service provider and consumers.

Despite recognition that the servitization process is collaborative and innovative by nature and needs extensive and close collaboration for value cocreation (Perks et al., 2017), the current state of the servitization literature is focused either on the seller or on the customer perspective, providing few answers on multiactor collaborative processes in developing novel servitization solutions (Polova & Thomas, 2020; Raddats et al., 2019; Roehrich et al., 2019). However, successful servitization of the economic system, which is perceived as a gradual transition from a 'product-oriented' business model to a 'service-oriented' business model, depends to a large degree on the relationships with many economic agents. To increase knowledge on how to effectively collaborate with a large number of external partners, researchers are looking for analogies with biological ecosystems created by nature. Regarding a business environment as an ecosystem, the concept of the business ecosystem emerged. It opens a new way of looking at collaboration and examining complex adaptive business environments. J. F. Moore (1996, p. 26), who first introduced the concept of a business ecosystem, defined it as "an economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. The

economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders". This and later proposed definitions of business ecosystems mainly stress the interconnectedness of economic agents and the fact that they depend on each other for their success and survival (Den Hartigh & Van Asseldonk, 2004; Peltoniemi, 2005).

The concept of the business ecosystem provides new theoretical and managerial implications for (1) the role of business environment participants and (2) the character of their relations. First, the business ecosystem perspective extends the traditional strategic management (core products and services) approach in the sense that a company should be considered not as a member of a single industry but as part of a business ecosystem that crosses a variety of industries. Second, as economic activity is changing from a stand-alone to an ecosystem of interconnected economic agents, the paradigm of atomistic actors competing against each other in an impersonal marketplace is becoming less adequate (Anggraeni et al., 2007). In the theory of the business ecosystem, collaboration is increasingly described as a symbiotic relationship. The term symbiosis, originating from biology, describes relationships between participants in a business ecosystem (Wei et al., 2020). According to the symbiotic approach, the collaboration between participants of the business ecosystem is understood as the coordination of actions and communications that bring benefits to all interacting parties. The emerging concept of symbiosis in business ecosystems aims to explain the higher-order architecture of real complex business environments and introduces the art of living together in the service economy. Even the concept of a 'symbiotic economy' has already been created, offering an alternative paradigm to the industrial economic system (Delannoy, 2017; Garcia-Olivares & Solé, 2015; Uchihashi, 2011).

Several researchers have highlighted symbiosis in business ecosystems with three types of symbiotic relationships: mutualism, commensalism, and parasitism (Manikas & Hansen, 2013; Sun et al., 2020; Yao & Zhou, 2016; Yoon et al., 2022). These three types are classified based on the distribution of benefits between the participants in such a relationship (Sun et al., 2020). The key challenge is to find a way to

create symbiotic relationships that benefit all actors in the business ecosystem (Gummesson, 2015). Therefore, the most interesting for the development of theory on collaborative relations building is mutualistic symbiosis. Nature is filled with examples of mutualistic symbiosis—a relationship in which dissimilar species benefit from the association. However, research regarding symbiotic relationships in business ecosystems is still at an early stage of development. Extant studies have mainly discussed business ecosystems at a conceptual level, such as the features and roles of business ecosystems, and have not paid much attention to the relationships between ecosystem participants and new ways of their organization (Karhiniemi, 2009; Peltoniemi & Vuori, 2004; Tsujimoto et al., 2018; Yoon et al., 2022). Considering that participants in a business ecosystem can benefit from coevolution, it is essential to examine and understand the relationships between participants in a business ecosystem (Yoon et al., 2022). Expanding the existing theoretical basis should provide more answers on who, how, and why symbiotic relationships are created and managed in business ecosystems. The business ecosystem concept visualizes firms as part of a network of collaborating and competing entities with a high level of interdependence and interconnectedness. Hence, collaborative leadership is shifting from institutions to networks.

8.3 Institutionalized Collaboration Replaced by Network Relations

According to Castells (2010), in the twenty-first century, humanity has entered the era of networking, where many functions and processes are implemented through networks. Networks become the main tool for management and public administration, which contributes to the achievement of new knowledge, exchange of information, and experience. The term ‘network’ is currently a central issue in many research fields and disciplines. From computer science, it shifted to social sciences, and researchers started to investigate the ‘soft computing’ area for modelling aspects related to collaborative human behaviour (Camarinha-Matos & Afsarmanesh, 2005). Currently, networks are

already recognized in society as a very important collaborative instrument in a period of turbulent post-industrial reality. Networks manifest in a large variety of types and organizational forms. As collaborative networks scholars identify clusters, extended enterprises, strategic alliances, dynamic supply chains, virtual enterprises and organizations, professional virtual communities, collaborative virtual laboratories, policy networks, etc. (Camarinha-Matos & Afsarmanesh, 2005; Cristofoli et al., 2017; Di Gregorio et al., 2019; Shuman & Twombly, 2010). Growing literature on collaborative networks as a dominating type of collaborative activity shows that recently, there has been an increasing tendency to replace the ties established within the framework of a formal institution with networking ties. Post-industrial society is even often referred to as a 'network society' (Castells, 1996, 2000a, 2000b), i.e., collaboration through networking is considered one of the main differences between industrial and post-industrial societies.

The phenomenon of collaborative networks is being described and interpreted in many different ways, depending on the background of the researcher, but scientists and businesses are just beginning to understand the principles of network building. The first organizational studies were oriented to the old industrial paradigm and tended to imply stability and linearity within the network (Müller-Seitz, 2012). When the service business began to dominate, the conventional linear supply chain approach was no longer appropriate for collaboration in the service economy. The relationships are nonlinear, as the final effect of service provision is obtained through the parallel implementation of many economic processes. Therefore, when undertaking business servitization, it is necessary to reorganize the old-established linear relationships of the supply chain. The relationships are also no longer stable. Service providers have very short life-cycles based on fashionability, as well as different cultures and practices (Mukhopadhyay & Bouwman, 2018). Consequently, we should examine and manage collaborative networks as dynamic nonlinear configurations.

According to recent studies, collaborative networks show high potential as drivers of value creation (Ammirato et al., 2021; Camarinha-Matos & Afsarmanesh, 2005). The materialization of this potential,

however, requires further progress in understanding their organizational forms and the underlying principles of the new form of collaboration, as fundamental differences exist between network-powered problem-solving and traditional organizational models. Network exposes a problem to participants with varied skills, experience, and perspectives. It can operate at a scale that exceeds even that of the largest and most complex global corporation, bringing in many more individuals to focus on a given challenge. Collaborative networks, with their unique characteristics, require fresh leadership skills (Mandell & Keast, 2009). Cullen-Lester and Yammarino (2016) explain that "a paradigm shift has occurred within the field – many scholars now view leadership as a property of the collective, not the individual" (p. 174), thus naming the collective as the focus of the new paradigm. Collaborative networks change the management tasks and the nature of competition. As pointed out Shuman and Twombly (2010, p. 3), "No longer is competition defined by products and services. Rather, it is defined by the ability of the people within an organization to build networks of relationships and work across boundaries in furtherance of delivering value to its customers and members". However, researchers are still in the early days of acknowledging networks as a new organizational form of collaborative human relations.

A huge barrier to the development of collaborative network discipline is the lack of an evolutionary approach. According to the evolutionary approach, networks as post-industrial collaborative systems represent a more complex organizational structure that offers additional advantages to the participants. The theoretical lens of the research in the industrial network field is oriented to a sectoral approach that does not cover general goals and all types and purposes of relationships in service-driven business ecosystems. The evolutionary approach to collaboration is very helpful, as the context of evolutionary pathways gives many fresh perceptions in the collaborative network research field. The most productive way to do so is to conduct an evolutionary analysis of collaborative systems in the context of the evolution of economic systems from the agrarian to the industrial stage and from the industrial to the post-industrial stage. The post-industrial perspective offers guidelines on how to transform the collaborative system because it is based

on an integrated multidisciplinary view and provides higher-order information on key characteristics of collaborative systems in the previous stages of human socioeconomic evolution. and helps to identify major general attributes of a new stage. Moreover, the transition towards an evolutionary perspective removes several mental barriers of the industrial era regarding the organizational structures of collaborative systems that hinder the transition to a new post-industrial paradigm.

The institutions as hierarchical and closed organizational structures were the hallmark of the earlier era. Many studies define the organizational structure of networks as the opposite of two key characteristics of traditional institutions in the industrial era. The main differences between old-style collaborative systems and modern collaborative networks are the following characteristics of their organizational structure:

- Transition to a nonhierarchical bottom-up approach.
- Openness of access to network activities.

According to the first characteristic, in the industrial era, the relations between the members of the institution were usually based on a hierarchical top-down model of collaboration, i.e., members of the business and social institution had unequal rights when making decisions on how to organize joint activities and share earnings. There were also collaborative groups offering members equal rights and privileges within the organization (cooperatives, associations, etc.). They were designed according to the mental model of the agrarian era with the aim of using a collaborative community for the generation of scale effects in production and commercial activities. This type of collaboration was prevalent in rural areas. Rural development literature has mostly examined collaboration manifested through farmers' cooperative organizations.

According to the second characteristic, networks are divided into closed and open networks. In the competition-driven industrial era, a closed model of collaboration was a customary risk management strategy. Businesses protected their trade secrets from competitors and therefore had no interest in involving outsiders. The research and development

division of a business is also a closed system. The traditional closed-door partnership model was initially widely applied to network organizations as the only learned organizational routine. From the perspective of the first network theorist, they sought to understand the degree to which closed or open networks could be appropriately regarded as the normative ideal (Ahuja & Carley, 1998; Burt, 1992; Coleman, 1988; Walker et al., 1997). The development of information technology has led to the emergence of open-access networks. Their organizational structure allows anyone to participate in the network. Research shows that this way of organizing collaboration has a number of advantages (Forzati et al., 2010; Ter Wal et al., 2016; Ye & Kankanhalli, 2013). Open collaboration is particularly useful for the development of innovations because it generates a continuous innovation process by harnessing the ideas of network participants for product, process, and technological improvements. In contrast to the industrial economic system based on standardized solutions, the post-industrial service economy is driven by individualized approaches. Social scientists do not see eco-innovation as 'the solution' or 'means to an end' but rather as emerging experimental transformative processes (Loorbach et al., 2020; Sangiorgi, 2011). Open collaboration networks are organizations where not only regular network members but also those with a casual interest in the problem have an opportunity to propose new modifications to an existing solution or a replacement based on a paradigm shift (Bigliardi & Galati, 2018; Bigliardi et al., 2021; Schweisfurth et al., 2011; Torchia & Calabrò, 2019).

Conceptualization of the openness and nonhierarchical bottom-up approach as major differences between networks and institutions encouraged the emergence of networks that (1) are without guidance from a key network actor and (2) offer an open membership model. However, according to the evolutionary approach, networked structures should include the best organizational principles learned in the agrarian and industrial eras. As the networks evolved as a more complex form than institutions, the differences between the institutions and networks should not be characterized by the opposite attributes of organizational structure, i.e., as bottom-up vs top-up management approaches and open vs closed management systems. Nevertheless, this dualistic thinking

continues to fuel research in the network field, and the key challenges inherent to organizational structure transitions are defined in the literature as the shift to an open and bottom-up oriented nonhierarchical organizational structure. Such a simplistic conceptualization of the post-industrial organizational structure of collaborative networks does not work. It addresses the two-dimensional perception of reality, which creates a theoretical barrier in the development of knowledge on collaborative networks.

The nature of the service economy requires a turn to higher-order level theorization. A series of recent studies have indicated that dyadic approaches are not adequate to grasp the elements of service relationships (Cova & Salle, 2008; Ford & Håkansson, 2013; Nätti et al., 2014; Salo et al., 2009; Smith & Laage-Hellman, 1992). Rather than replacing the conventional industrial organizational structure with the opposite characteristic, we should pursue a merger of the two modes. The last research in the network field presents an innovative view in which the two mentioned opposite attributes are fundamentally interdependent and mutually enabling. This view is based on the evolutionary approach and revisits several myths about the best organizational structure of collaborative networks as a shift to characteristics that are opposite to traditional ones. According to the evolutionary approach, network structures must follow the principles of freedom with responsibility, autonomy with accountability, and openness with cohesion and coherence. A network as a more complex collaborative entity should integrate all methods of collaboration learned at the previous stages of evolution but apply them as higher-order resources.

8.4 The Collaboration Between Actors with Similar Interests Is Shifting to Multiactor Partnerships

The first insights of network theory were based on empirical research on the situation (Ammirato et al., 2021). According to the findings, connections between network nodes mostly occur among nodes with homogenous characteristics. This property is called homophily. Homophily refers to the tendency of actors who share a specific similarity to interact more closely compared to actors that do not (McPherson et al., 2001). Later, it became clear that the first collaborative networks were designed according to the collaborative model of the industrial era, which is focused on collaboration between people or organizations with similar interests. The tendency for actors to form ties with similar others was among the most widely observed social phenomena (Ertug et al., 2022), as understanding the consequences of homophily was of great importance for management theory and practice. According to empirical and theoretical findings, a relationship between actors, based on similarity, is a key mechanism predictive of tie formation among organizations in civil society networks (Snijders & Lomi, 2019; Sommerfeldt et al., 2022). The obvious homophily effects also played a significant role in the supply processes of the industrial era. Management models have been designed according to a linear scheme, as the product-driven business model is oriented to linear supply chain logic, which describes a straight path from raw materials to production and finally to disposal. Each chain of the supply process has been managed as a separate building block, and the efforts of managers have been concentrated on the collaboration of actors with similar interests inside each chain.

Value is not created by the service provider alone in the service business. Value extends beyond value in exchange embedded in products or services delivered to a customer to include value in use, defined as a customer's outcome, purpose, or objective that is achieved through a service (Vargo & Lusch, 2004, 2008). Academic research initially explored customer engagement and engagement behaviour within the firm–customer dyad (Brodie et al., 2019). However, today, it is widely

accepted that service businesses involve a diversity of actors to address complex problems together. Moving the focus from one centred on dyadic firm–customer relationships emerged as an actor-to-actor orientation (Vargo & Lusch, 2011). An actor-to-actor orientation recognizes that regardless of their roles, all these actors—including the customer—are resource-integrating, service-providing "enterprises" (Vargo & Lusch, 2011, 2017) that engage in various contexts. The service provider cocreates value using and experiencing the service with the help of a range of network actors contributing to the process (Aarikka-Stenroos & Jaakkola, 2012; Grönroos, 2006, 2008; Nätti et al., 2014). Organizations open themselves to a variety of stakeholders, and collaboration happens in a network. Multiple types of actors beyond just customers, such as business partners, employees, local governments, NGOs, etc., participate in collaborative activities Harnessing the strength of contributors, the network benefits and connects all parties in different and innovative ways. Consequently, multiactor partnerships have gained increasing importance during the last two decades. Therefore, suggestions on the reorganization of network management emphasize a need to move beyond homophily (Liang et al., 2016; Rhodes & Butler, 2010; Snijders & Lomi, 2019). According to the literature, homophily constitutes a limitation for actors who belong to service systems and presents an obstacle to shared understanding. The higher the level of homophily in a network, the more important it becomes to identify actors who are heterophilous and play a bridging role across groups (Ammirato et al., 2021; Di Gregorio et al., 2019; Li & Mostafavi, 2021).

Developing ideas on networks beyond homophily, a theory on two-sided networks emerged. The two-sided network (market) concept is rather novel: the first publications in the business management field on the organizational structure of two-sided networks and their effects appeared in the first decade of the twenty-first century (Eisenmann et al., 2009; Hagiu, 2006; Rochet & Tirole, 2003, 2004). In the industrial era, most networks generated a one-sided networking effect because they consisted of participants with similar interests and pursuing the same goal. To achieve a two-sided networking effect, the network must connect participants pursuing different goals. For example, a multisided network created for business improvement purposes may connect

farmers as producers of innovative agricultural products (side 1) and consumers (side 2). Although some interests of the farmers and the consumers differ, and when negotiating the price, they are competing, there are a number of aspects of business organization where the interests of both network sides coincide, for example, increasing the variety of distribution channels or improving the quality of the products. Well-organized two-sided networks have an advantage over one-sided networks because each participant benefits in a two-sided network from two types of effects.

Recent actor engagement research reflecting multiactor network structures emphasizes the collective nature of engagement beyond a dyadic interaction. The role of network actors' diversity is growing in the service economy because, as pointed out by Vargo and Lusch, (2016, p. 8), we should distinguish between coproduction, referring to the creation of the value proposition—essentially, design, definition, production, etc.—and value cocreation—the actions of multiple actors, often unaware of each other, that contribute to each other's well-being. Recent studies on how servitization is reconfiguring a company's or a region's business ecosystem also reveal a large-scale collaboration involving many actors with different interests (Huikkola et al., 2020; Kohtamäki et al., 2022; Zhang et al., 2021). Collaborative networks can be not only two-sided but also multisided, as a diversity of participants breeds complementarity and is more in line with the specifics of the service economy. The development of the concepts of one-sided, two-sided, and multisided networks presents new opportunities for management patterns and organizational forms of collaborative networks. The literature suggests a need to broaden the conceptual domain of customer engagement from the focal subject of customers/consumers to a general actor-to-actor perspective (). However, an emerging stream of engagement literature addressing versatile actors in networks is still fragmented and needs an interdisciplinary view. In particular, there is a lack of knowledge on how the complexity of different identity categories, inequalities, and their intersections impact diversity management practices (Dennissen et al., 2020). Recent developments in networks beyond homophily turn from the firm/customer dyad to relationships among multiple actors in service ecosystems, which are regarded from the perspective of service-dominant

(S-D) logic (Alexander et al., 2018; Chandler & Vargo, 2011; Fehrer et al., 2018; Lusch et al., 2016; Sharma et al., 2020; Vargo & Lusch, 2017).

With the growing realization that most service ecosystems consist of interactions among multiple participants, two new research challenges are emerging. First, according to post-industrialism theory, a network as a more complex organizational structure should focus on activities that bring benefits to all network participants. Influenced by the stereotypes of the industrial era researchers and managers concentrate on homophily effects and often forget that collaborative networks can generate mutual effects. Their task is to go beyond homophily and find a way to create symbiotic relationships between network participants with different and often conflicting interests. However, partnerships between actors with similar interests still dominate in collaborative practices. The names currently used in the academic literature for network effects demonstrate how deeply rooted this pattern is in mental models. It is interesting to note that the total network effect is called 'indirect', but effects that generate the same sides of a multisided network are named 'direct' effects. Collaborative networks such as ecosystems exist to create a higher level of value collectively than the members can create individually considering available resources, management skills, market access, and other constraints. A new challenge is to develop an understanding of the network as a whole and how the interactions between the network sides happen. Management of collaborative networks requires a holistic approach based on higher-order goals (Vidickienė & Gedminaitė-Raudonė, 2018, 2019; Vidickienė et al., 2021). A holistic view allows for a higher level of abstraction and makes it possible to coordinate network activities for mutual benefit to network participants. As pointed out by Vargo and Lusch (2017, p. 50), "one cannot fully understand the activity at one level without viewing it from another". Considering the higher-order goals can help us understand and predict the dynamic behaviour of business ecosystems and enhance our competence in collaborative network management.

Second, there are increasing calls for more research exploring the diversity of network relationships. The conceptualizations of network relationships based on the reality of the industrial era where the nature

of relationships was dominantly transactional implied a view that the relationship occurs between two or more pairs and should be examined as a pairwise relationship. Dyadic thinking, however, does not cover the multitude of interactions that occur among actors in service ecosystems within interrelated network structures on micro, meso-, and macrolevels. An extended view of the service ecosystem highlights the interdependent role of different participants engaged in multiple coexisting processes, indicating a many-to-many service experience (Vargo & Lusch, 2016). As the concept of business ecosystems is gradually evolving, it is becoming clear that collaborative relationships do not necessarily take place between two actors in an ecosystem, i.e., functions as interacting pairs. Business ecosystems demonstrate the richness of the interactions among their participants, and it gradually becomes obvious that a network is a set of relationships that are not decomposable to an aggregation of bilateral interactions. First, interactions can occur in groups of three or more participants and cannot be described in terms of dyads. Second, research on two-sided networks between businesses and consumers has shown that the sphere of collaboration of each network participant cannot be defined straightforwardly, as network participants may play different roles and simultaneously represent different sides of a network. For example, the same network participant may be a consumer of several products or services and represent a supplier of the resources used to produce the following goods or services. As a result, it is not always possible for the coordinators of multisided networks to unambiguously categorize their participants into certain groups (sides). Third, many interactions in ecosystems take place simultaneously (Battiston et al., 2020). Therefore, it is important to analyse not only the pairwise relationship that prevailed in the industrial era and can be characterized as a one-to-one relationship.

Recent theoretical developments have revealed that the behaviour of business ecosystems in the post-industrial economy depends at least on the following types of relationships:

- One-to-one relationship.
- One-to-many relationship.
- Many-to-one relationship.

- Many-to-many relationships.

The biggest challenge of the post-industrial era is the need to understand 'many'. It requires higher-order thinking, especially in the management of many-to-many relationships. According to Gummesson (2004, p. 3), "to see and think many-to-many has two distinctive advantages:

1. It recognizes complexity. Networks show that everything is related, that everything influences everything. Networks are scale-free meaning that in principle their size is not limited. That can make it difficult – but it also offers opportunities and challenges. And who said marketing should be easy?
2. It offers a context. When newspapers print an interview statement out of context and make it a headline, the statement may be perceived as something else than was originally intended. In the same sense, loose statements, concepts, strategies, and models in marketing need a context."

The insight on the need to move away from optimizing pairwise relationships towards a common goal becomes crucial for an effective collaborative network in today's multiactor and dynamic business environment, as it has already been proven many times that optimizing the effects of a one-to-one relationship does not necessarily lead to the optimal performance of the whole organization. Considering that research regarding symbiotic relationships in multisided networks and business ecosystems is still at an early stage, a great perspective has a field of study on collaborative platforms.

8.5 Market Economy Replaced by the Platform Economy

Research on multisided networks has revealed that they function much more effectively if they are coordinated by a so-called 'platform' (Aarikka-Stenroos & Ritala, 2017; Eloranta & Turunen, 2016; Muzellec et al., 2015; Ritala et al., 2014; Schmidlechner et al., 2017). According to

the last research on multisided networks, platforms not only determine how actors in a multisided network interact with each other but also promote integration by creating interfaces that integrate diverse and semi-independent activities into an interacting system (Ansell & Gash, 2018; Ardolino et al., 2020). Moreover, platform managers have the task of generating synergy through the coordination of collaborative activities. They do this by promoting parallel and semiautonomous organizing, on the one hand, and aggregating or coordinating these organizing efforts, on the other.

The concept of a network platform is rapidly evolving. In the early days of platform-based network theory development, the network platform was imagined only as a technical solution enabling the low-cost exchange of data among actors through information technology capabilities. The rise of the platforms was regarded as one of the three iconic events of the 'digital revolution' (McAfee & Brynjolfsson, 2017). Computer algorithm-based services of digital platforms have been focused on the provision and use of data applied in many spheres of people's lives. Many commercial digital platforms have been set up on private initiatives. Platform owners seek to exploit the potential of data for their own benefit or, in some cases, to monetize these data by selling them to third parties (Loebbecke & Picot, 2015). Currently, public data spaces are emerging as a new form of digital platform, changing the rules of the game for organizations seeking to create data-driven innovations and shape digital transformation (European Commission, 2018). The emergence of public data spaces helps solve complex societal problems and adds an ecosystem perspective to the digital platform research field (Beverungen et al., 2022).

Initially, the post-industrial economy was called the 'information economy', as information has been recognized as a key economic resource. Hence, the research on the first-generation platforms was focused on the technological capacity of the platform for the management of information. Somewhat later, second-generation digital platforms focused on transaction management emerged. They were partly a strategic response to intense price-based competition among manufacturers of relatively similar products (Kenney & Zysman, 2016) by

increased capacity to drive business value with widespread digital technology solutions. Developers of second-generation digital platforms shifted their focus from automated information management to creating an infrastructure that helps manage transactions. Online digital platforms were widely used to facilitate the interaction and exchange of goods and services. Developing digital platforms helps increase trading profit as the platform improves transaction frequency and efficiency by reducing search costs, low replication, and verification costs. Through zero-cost replication, the platform enables application providers to quickly provide services for a large number of customers with interoperability (Xue et al., 2020).

The research on second-generation platforms complements the knowledge of the platform's technological profile by market profile. Markets and platforms have been considered the same item (Rochet & Tirole, 2003). The term 'two-/multisided market' was often used as a synonym for 'two-/multisided network'. Management theory has focused on the impact of network platforms on the minimization of transaction costs between market sides. The new insights explain how the platforms act as an intermediary between the buyer and the seller (Nocke et al., 2007) and provide a new structure to quickly and effectively match with low search costs (Julien, 2012). Later, scholars concentrated on examining the difference in pricing between multisided markets and one-sided markets (Sanchez-Cartas & Leon, 2021).

In 1999, Möller and Halinen (p. 413) predicted that "The competitive environment of firms is undergoing a fundamental change. Traditional markets are being rapidly replaced by networks". Today, the business world is witnessing the realization of this prediction as it becomes obvious that the market economy is replaced by the platform economy. Long-time common perceptions of managers on their ability to change the market were based on the popular statement of Adam Smith that the economy "is controlled by an invisible hand". Thanks to the new knowledge on how to generate two-/multiside network effects today, the economic systems are controlled by a visible hand. The emergence of purposefully created and consciously managed platform-based networks is changing the way people think about their ability to

manage business ecosystems for the beneficial coexistence of participants. First, platform-based networks fulfil the traditional functions of product markets to balance supply and demand, suggesting new ways to affect price and output. Second, platforms help to transform many organizational models developed in the industrial era. The research acknowledged the economic importance of transactional platforms in building and promoting new consumption patterns (Guaita Martínez et al., 2023; Łobejko & Bartczak, 2021; Yeganeh, 2019), transforming existing competition (Inoue & Tsujimoto, 2018), and offering new ways of coordinating sharing practices (Frenken & Schor, 2019; Sutherland & Jarrahi, 2018; Wirtz et al., 2019) according to the rules of the service economy. Together, platform-based networks (markets) are provoking reorganization of a wide variety of markets, work arrangements, and ultimately value creation and capture (Kenney & Zysman, 2016).

At the beginning of the twenty-first century, multisided platforms provide the basis for new business models that unite partners, customers, and suppliers and serve the goals of several target groups (Eisenmann et al., 2009; Hagiu & Wright, 2015; Müller et al., 2018). The use of platforms for economic purposes has become global and dominant in terms of market value. The new evolutionary stage of socioeconomic development is often named the 'platform economy' (Andersson Schwarz, 2017; Evans et al., 2011; Fu et al., 2021; Gössling & Michael Hall, 2019; Kiesling, 2020; Nooren et al., 2018; Saberian et al., 2020), as "the platform owners are seemingly developing power that may be even more formidable than was that of the factory owners in the early industrial revolution" (Kenney & Zysman, 2016).

Currently, third-generation platform-based networks have emerged with a broader approach to the role of platforms. It states that the network platform is important not only as a technical means of communication and data sharing or as a tool for transaction cost management. Platforms can also serve as an organizational infrastructure that influences the achievements of individual businesses and the regional business ecosystem (Aarikka-Stenroos & Ritala, 2017). The research on third-generation platform-based networks tries to enrich and extend existing theory on the platform's competitive identity domain and emphasizes

a need to shift from the transactional product-centric model to relational service-oriented engagement (Kamalaldin et al., 2020; Reim et al., 2018; Sousa & da Silveira, 2017). Hence, recent platform research is focusing on two new types of networks that emerged in the post-industrial era—(1) collaborative and (2) innovation networks—and their platforms.

Examination of the collaborative networks gives an understanding of how the relational power of networks, with its emphasis on a mutualistic symbiosis between participants, integrates previously dispersed and even competitive entities focused on one-to-one relationships into a collective venture oriented mainly to many-to-many relationships (Agranoff, 2003; Agranoff & McGuire, 2003; Gummesson, 2004; Mandell & Harrington, 1999). As pointed out by Keast and Mandell (2013, p. 33), "All networks are focused on accomplishing tasks by working with others. However, in collaborative networks, this aspect, while important, is not the critical emphasis. Instead, collaborative networks are centered on changing the way people are accustomed to working in their individual organizations".

Examination of innovation networks provides an understanding of innovation as a nonlinear, evolutionary, interactive learning process with a social nature (Dahesh et al., 2020). The importance of multiactor partnerships for the development of the region's innovation system has also been demonstrated empirically by studying the influence of the triple and later the quadruple or quintuple helix model (Carayannis & Campbell, 2010). An innovation platform allows for new activities and unpredicted synergetic effects that might disturb the existing markets and transform business models and value-creation processes.

The emergent collaborative innovation network concept oriented to the ecosystem approach proved to be successful in leveraging the combined competence of heterogeneous actors for the cocreation of value in the service economy. The creation of a multisided collaborative network is particularly useful for the shift to an innovative service-driven business model, as it helps to reorganize ties between actors of the ecosystem. Several studies have already appeared in the scientific literature on the subject of servitization, claiming that the success of servitization is largely determined by close collaboration between

different partners (Desmarchelier et al., 2019; Kapoor et al., 2021; Polova & Thomas, 2020). However, in the context of servitization, platform-based networks have been little studied thus far, and many questions remain to be answered in the literature. Academic literature has thus far traditionally focused on the benefits of servitization in enhancing the competitive advantages of servitized firms (Kamal et al., 2020) rather than on strengthening their collaborative relationships with customers and other actors in the business ecosystem and generating network effects. Some new insights provide digital servitization case studies as illustrative examples of how digitalization combined with servitization significantly transforms provider–customer relationships. Researchers report that digital servitization tends to create closer provider–customer relationships characterized by cocreation logic, long-term commitment, and greater investment in the relationship (Kamalaldin et al., 2020).

The most promising direction for future research could be considered the examination of multisided network coordination strategies and mechanisms through collaboration in the triadic perspective. Past studies have analysed collaborative activities, particularly in dyads between suppliers and client firms. However, according to the last studies in this field, service relationships are more active if the intermediary exists. To better benefit from service, customers should be involved in the design, marketing, delivery, and other value-creation processes initiated and managed by the supplier. Several researchers aim to investigate collaboration patterns with a triadic view and provide new insights for understanding capability development through collaboration from the triadic perspective (Mena et al., 2013; Nätti et al., 2014; Nimmy et al., 2019). As pointed out by Choi and Wu (2009, p. 263), "a dyad shows how a node affects another node, but it is not able to address how a link may affect another link… the triad that captures the basic essence of a network and allows us to study the behavior of a network". New research avenues are focused on examining the triad, or three-party relationship, as the unit of analysis and the most elementary building block of networks (Choi & Wu, 2009; Nätti et al., 2014; Patrucco et al., 2022). Significant progress in triadic relationship research has been achieved by examining 'collaborative consumption' and multisided networks. Research on collaborative consumption delineated it from

other, more traditional forms of exchange and explained why an intermediary is needed in the service business. A growing interest in studying triads emerged in the operations and supply chain management literature (Demirel et al., 2019; Ta et al., 2018; Wynstra et al., 2015; Zhang et al., 2015). Scholars also aim to explain how collective triadic relationships produce superior performance to dyadic-diffused relationships because they can capture the most benefits because of their greater bargaining power (Lanier et al., 2010; Nimmy et al., 2019).

However, the mentioned new research strands do not cover all challenges of servitization, and it is a question of future research to investigate how collaborative platforms facilitate, enable, and regulate many-to-many, one-to-many, and many-to-one relationships between multisided network participants. Therefore, the qualitative structure theory offers a totally new approach to relational diversity in the collaborative context.

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