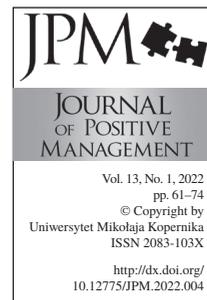


KNOWLEDGE AND RELATIONAL COMPETENCES IN VIRTUAL ORGANISATIONS

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Abstract

Purpose: The purpose is to identify the impact of knowledge and building relational competences on the process of creating virtual organizations (VOs).

Methodology: The study included companies operating in Poland. The data was collected through personal interviews. A personal interview questionnaire was used as a research tool. The questions about the value of knowledge in VOs were constructed in a way that reflected the nature of VOs. The study was conducted in 2018.

Findings: The study's findings indicate that one of the main drivers of collaboration inside a VO is the desire to learn new things through learning with partners. The growth of human resources, the exchange of experience, and the learning of new knowledge are the three most significant advantages of collaboration in a VO, in addition to the financial gains. In the process of developing a VO, relational competences are built with the use of appropriate knowledge resources, which also have an impact on the effectiveness of collaboration. Reflection on shared learning occurs in a company's future relationships with the environment. The competitive position is improved through expanded knowledge resources and improved relational competencies. The greatest enabling and restricting factors for the creation of VOs are knowledge and experience, respectively.

Originality/value: The study's empirical findings support the idea that having access to the right knowledge resources is essential for developing relational competences throughout the virtual organization of economic activity.

Keywords: virtual organisation, knowledge, cooperation, relational competences

Paper type: Research paper

1. Introduction

The value of knowledge and information, as well as ties between business organizations, has increased in today's management settings, causing changes in the way businesses operate. Possessing the appropriate knowledge resources and relational competencies is regarded as a major source of a competitive advantage that is difficult to match. Nowadays, a company's competitive edge is shaped

not just by internal resources, but also by the outcomes of its environmental collaboration (Shin and Kook, 2013; Luczak and Hauser, 2005).

A search for new, more efficient, and more adaptable ways to organize business activity has been sparked by phenomena like globalization processes, the rise of information societies, pressure on innovation, shortened product life cycles, increased significance of information and knowledge resources, as well as a fast pace of modern technology development. Given the inevitable nature of these changes, a virtual organization (VO) has emerged as an appealing mode of business operation, particularly for small and medium-sized businesses (Bremer *et al.*, 2001; Kasper-Fuehrer and Ashkanasy, 2003), which, among other things, have constrained resources and are free of onerous structures and benefit from greater operational flexibility.

A VO is made up of independent members who quickly establish a network of mutual relations in response to an emerging market opportunity by working together in a variety of ways. Participants use their key competencies to build the ideal organization (they function as one organization), assisted by contemporary information and communication technology (Kasper-Fuehrer and Ashkanasy, 2003). A VO becomes a response of today's businesses to market changes and is prepared to address the issue of the increasingly limited resources of single entities against the rising social expectations due to the key competencies of its participants, cooperative relationships, temporary work organization, decentralized authorizations, trust and free business associations, and the use of modern technologies (Mikhailov, 2002; Janicki *et al.*, 2015). A VO is an organisation that depends substantially on knowledge. During a company's development, internal knowledge in a VO is developed. The development of external knowledge depends on the maintenance of relationships with the environment and the development of relational competences, both of which have an impact on the competitiveness of VO participants.

The research aim has been formed as an effort to determine the impact of knowledge and developing relational competencies on the processes of establishing VOs as a result of the aforementioned aspects. There is no trace of empirical research in this field in the contemporary literature, so the research problem is very important.

The theoretical underpinnings of the paper include discussions of the nature of VO as well as of the role knowledge and the development of relational competencies play in the development and operation of VOs. A VO is a dynamic way of organizing collaboration between independent businesses (Camarinha-Matos and Afsarmanesh 2007; Reza Nami, 2008; Jin and Suntrayuth, 2022; Godziewska-Nowicka *et al.*, 2017). The empirical section of the paper is based on findings from a study carried out in 2018 that looked at businesses with operations in Poland. The study technique involved using personal interviews to gather data,

and the research tool was a personal interview questionnaire that was created using the body of relevant literature. Structural analysis was performed based on the data that was gathered during the study. The data were also compared to the outcomes of earlier research on virtual organizing and developing relational competences. Finally, important inferences were made.

2. Background Theoretical

A dynamic business growth more and more often relies on the creation of structures, where borders of individual enterprises are becoming effaced for the sake of network structures. However, as a form of business activity organisation, networks require implementation of new rules to counterbalance the opposing processes which are taking place at the same time, such as cooperation and competition, dependence and autonomy, hierarchy and partnership. Co-existence of these phenomena would not be possible but for the employment of concepts based on innovative and self-organising network structures (Banassi *et al.*, 1999), such as a VO.

A VO is a temporary network organization made up of independent members that swiftly establish a system of mutual relations in response to an emergent market opportunity by working together in a variety of ways. Utilizing cutting-edge information and communication technology, individual participants draw on their key competencies to build the ideal organization (they function as one organization) (Kasper-Fuehrer and Ashkanasy, 2003). A VO is similarly defined by: Burn *et al.* (2002), Lethbridge (2001), Janicki *et al.* (2015). Thus, a VO is a special case of network organisation where horizontal relations based on partnership between organisation participants take dominance over vertical ones which reflect a hierarchical structure with formalised procedures (Blecker, 1994). 'VOs are created in response to temporary needs, and bring profits to each member by increasing the degree of efficiency of available production resources. (...) The main feature of VOs is the dynamic, variable operational pattern, which depends on the current number of network participants, the duration of collaboration between them, and the specificity of the production order to execute' (Krenczyk, *et al.*, 2017).

A flexible and dynamic combination of the key competences of individual VO participants allows for the creation of and participation in a unique chain of values, and provides an opportunity to gain a competitive advantage thanks to the virtual increases in resources and know-how (Bauer *et al.*, 2003; Goździewska-Nowicka *et al.*, 2017). According to P. Siebier, upon identification of a market opportunity, there is not enough time to gather the necessary resources, key competences and knowledge in a single company. Then, the potential which is prerequisite to taking advantage of the market opportunity should be built through cooperation with other companies by creating an optimal combination of VO components.

Some of the required resources and skills may be available in the market through simple exchange mechanisms, while others may be created only through close cooperation between partners – all depends on the character, quantity and quality of those resources and skills (Sieber, 1998). Once the market opportunity has been exploited, the VO is dissolved. The profits are shared among individual partners in the organisation. Additionally, each partner returning to a dynamic network is richer in knowledge and experience gained in the cooperation within the VO. The knowledge and experience acquired in such collaboration may contribute to the development of individual companies and may be used to create further cooperative relations. As a result, the power of the dynamic network increases, which boosts the competitive advantages of a new VO which will be created for utilisation of yet another market opportunity (Saabeel *et al.*, 2002). Therefore, the relational competences built in such a way by cooperating partners within VOs are the source of a long-lasting and hardly inimitable competitive edge.

Relational competences involve measures taken for the sake of joint completion of ventures and are focused on a particular partner. Thanks to the skill to create cooperation based on partnership and the ability to build relational competences, it is easier to use the existent competences, share knowledge and risk, create unique solutions, and raise innovativeness (Yang and Lai, 2012; Dyer and Hatch, 2006). Relational competences enable enterprises to shape their relational capital. Relational capital is the worth of a company's relationships with other people, groups, and organizations that it works with (Hormiga *et al.*, 2011). The competitive potential of the business is linked to (and shaped by) the relational capital. This potential is shaped by the enterprise's relational skills. An operational model learned by the business that describes resource acquisition and shared exploitation, the implementation of a purposefully created institutional framework, and partner targeting is referred to as a relational competency. It is recognized as one of the sources of long-lasting and challenging to copy competitive edge (Drewniak *et al.*, 2020). Another definition of relational capital is knowledge that is deeply rooted in relationships with stakeholders who have an impact on a company's life (Garcia-Merino *et al.*, 2014). Enterprises should strengthen their relational capital. Incorporating the development and improvement of relational competencies and skills into business strategy development is quickly emerging as a major trend (Drewniak *et al.*, 2020)

Undoubtedly, a VO is an organisation that depends substantially on knowledge. What is meant by knowledge here is the so-called internal knowledge of the organisation and external knowledge. The former is the knowledge gained during many years of company development and involves the established standards, behavioural and operational patterns, as well as owned patents, licences, inventions and improvements. The latter is found on the borderline between the company and its environment. It comes from the forging of relational competences, as VO

partners share their knowledge and learn from each other during the life of a VO (Wulan *et al.*, 2010).

Additionally, Warner and Witzem write that knowledge is an indispensable element of VOs, which finds reflection in other operational areas of VOs. Almost all activities undertaken by VOs involve creating, transferring or using knowledge. It is people in VOs that generate, transfer or use knowledge. The operation of a VO rests on the key skills of its participants, namely knowledgeable, well-educated, imaginative specialists who are capable of team work and who are co-authors of the organisation's intellectual capital. Therefore, in those VOs where people work remotely or acquire products from distant places around the world, the effectiveness of knowledge transfer is crucial. What facilitates the operation of VOs is technology; it also guarantees an efficient flow of knowledge (Warner and Witzem, 2004). In fact, one of the biggest impediments to the adoption of knowledge management in organizations is a lack of technology infrastructure (Singh and Kant, 2008). When it comes to VOs, knowledge would be useless without technology and technology would not deliver without knowledge. Technology and knowledge are two building blocks of VOs. Yet, neither will activate without an additional ingredient – people. With the process of knowledge transformation being a VO drive, its maintenance for undisrupted operation is of key importance for VO management due to the fact that knowledge acquisition, transfer and use happen here continually (Warner and Witzem, 2004).

Summarising, it should be concluded that the VO concept has evolved into a desirable mode of business operation, particularly for smaller enterprises but is not failure-proof (Alawamleh and Popplewell, 2010) and its employment is not an easy recipe for success, but – with all certainty – it is a response of contemporary enterprises to changes occurring in their environments (Goździewska-Nowicka *et al.*, 2017). It allows for provision of resources globally. Furthermore, it enables companies to deal with projects which otherwise would be beyond the competences of individual enterprises, to enter global markets without local presence, and reduce significantly the costs of business activity. Virtualisation creates the possibility to expand a business. Thus, virtual organisation participants additionally gain more flexibility thanks to a dynamic structure and shared knowledge and other resources (Sieber, 1998). Additionally, knowledge and properly formed relational competences of the companies participating in cooperation of VOs play a significant part in the process of VO creation: they contribute to such cooperation, enhance its effectiveness, improve measurable benefits, and make up the competitive capacity of enterprises. The above will be presented in the paper based on empirical evidence.

3. Research Methodology

The study was carried out in 2018. It covered Polish-based micro and small businesses. According to the guidelines set forth by the European Commission, an organization's size was determined by the number of employees. It was built on the carefully chosen businesses. Based on the available information on the specifics of the approach to the running of business activity, cooperation and experience gained from previous studies, ninety-six potential enterprises were selected for this research. First, they were asked about the frequency of relations involving cooperation with other business entities, detailed description of the method of building relational competences and if they had entered into any VO cooperation during the last three years. Twenty-eight companies responded and upon the analysis of the initial information twenty-two were ultimately selected for the research; they had a strong potential for developing relational competencies and had collaborated with other business entities within a VO over the last three years.

Data were gathered through personal interviews. A personal interview questionnaire that served as the research tool was created using subject literature. The research tool was validated based on literature studies. The VO-related questions were created in a way that reflected the characteristics of VOs that were discussed in the theoretical section of the paper. Direct communication with the respondents allowed for the provision of further definitions of the terminology employed as well as the collection of thorough research data. Personal (face-to-face) interviews made it possible to clarify the researcher's point of view on an ongoing basis and eliminate any doubts. Owners of businesses made up the respondents.

Literary sources abound in conclusions that one of the most important components of creating relational capital is that knowledge resources enable enterprises to build their competitive edge. So far, however, it has not been verified if they also have a key impact on virtual organisation of business activity. There are no empirical studies within this field. The research gap exists and the research problem is still relevant.

A structural analysis of the data gathered during the research allowed for the identification of the key components of virtual organising of a business, as perceived by the respondents. The structure analysis was based on structure indicators expressed in percentages.

The nature of the research, however, precludes the generalization of the found patterns or their applicability to the total SME community, among other reasons, due to an inadequate study sample. The usage of interview questionnaires is also naturally linked to the subjectivity of answers and opinions.

The findings of the research conducted were compared to those of earlier studies on the development of VOs as well as studies on the contribution of relational competencies to the development of firm value.

4. Results

Micro enterprises were the majority of the studied enterprises (82%) whereas small enterprises made up 18% of all the companies interviewed. The majority (86%) of businesses were service providers, with trading enterprises making up the remaining 14%. Additionally, the majority of the businesses (77%) had a regional clientele. 23% of the respondents mentioned the scope of operations performed on a national level. In the preceding three years, all of the analysed firms had collaborated with other business entities within a VO. Table 1 presents the characteristics of the research sample.

Characteristics of the enterprises		The size of an enterprise	
		Number of micro enterprises	Number of small enterprises
Type of enterprise	service providing companies	17	2
	trading companies	1	2
Scale of business	regional business range	16	1
	nationwide business range	2	3
Cooperation within a VO	frequent	12	3
	occasional	6	1

Table 1.
Characteristics of the
research sample
Source: ownwork.

In the first place, the respondents were asked how frequently they undertook cooperation within a VO. It turned out that most of the studied enterprises often participate in VOs (68%). While 32% of the respondents admitted to only occasional participation in VOs, because they still prefer more formalised forms of cooperation.

Next, the respondents were asked about their motivation for choosing this form of cooperation. In the most general terms, it can be assumed that the main reason is the desire to take advantage of a market opportunity in order to increase profits. With the wish for bigger profits being the driving motif of the majority of businesses, that issue was brought for closer inspection. The respondents were asked to name three (out of eight suggestions) most common ones for beginning cooperation within a VO because the reason for creating a VO may vary each time. There were 66 indications in total. According to the carried out analysis of the data, the respondents' most frequently cited justifications for creating a VO were the following: the inability to accomplish a goal on one's own due

to a lack of suitable resources, including knowledge resources (20%); a better competitive position/increased competitiveness (18%); the acquisition of new knowledge through partnerships based on learning from each other (18%); and higher profits than those that would be attained on one's own (17%). It follows that the availability of enough knowledge resources incentivizes businesses to create VOs. Figure 1 presents the motives for choosing a VO as a form of cooperation.

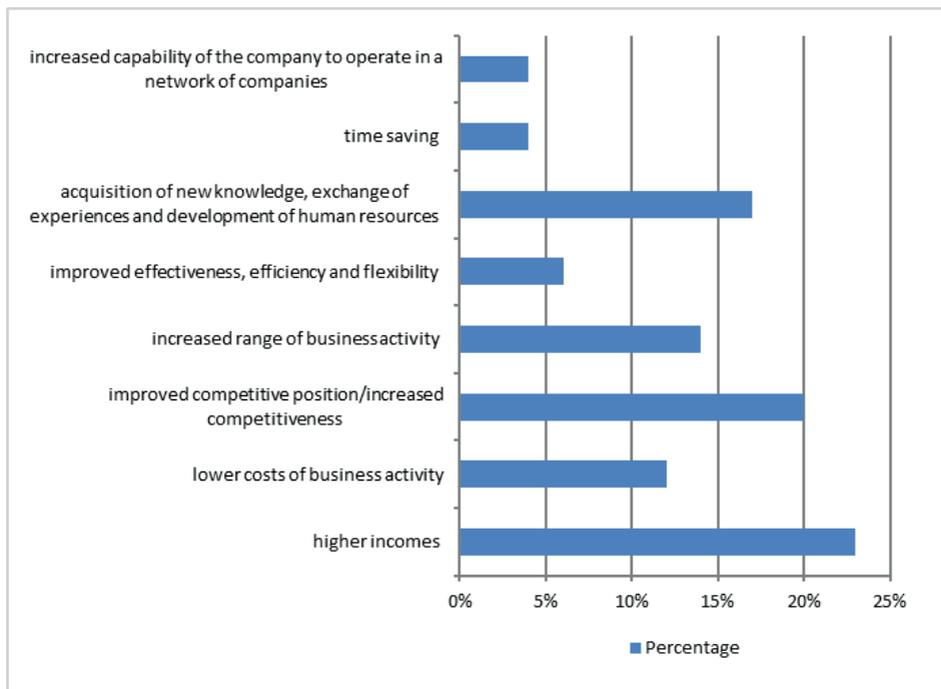


Figure 1. Motives for choosing a VO as a form of cooperation

Source: own work.

The responders were then questioned regarding the advantages of collaboration with other entities within a VO. They selected the top three benefits from the provided list of eight advantages for their company. There were 66 indications in total. The benefits listed most frequently by respondents were greater salaries (23%), improved competitive position/increased competitiveness (20%), knowledge acquisition, experience sharing, and human resource development (17%). Therefore, the investigated firms see new knowledge as a quantifiable benefit of collaboration inside VOs in addition to the financial gains. Figure 2 presents the benefits from cooperation with other entities within a VO.

The respondents were also asked what they thought about the function of knowledge in the virtual organizing process. Closed-ended questions were employed at this phase. Respondents were asked to choose whether they agreed or disagreed with each of the four statements. The results are presented in Table 2.

Statements analysed by the enterprises investigated	Number of enterprises		Percentage	
	YES	NO	YES	NO
Suitable knowledge resources play a decisive role in building relational competences in the process of creating a VO	17	5	77%	23%
One's knowledge, skills and experience bear on the selection of methods of seizing a market opportunity and on the outcomes; they also affect the efficiency of cooperation within a VO	21	1	95%	5%
Acquisition of new knowledge through partnership based on learning from each other finds reflection in future relational bonds of the enterprise with its environment (including other VOs)	18	4	82%	18%
The relational competences built during the cooperation within a VO translate into the building of a competitive position in the market	19	3	86%	14%

Table 2. The role of knowledge in the process of virtual organising

Source: own work.

It came out that most of the respondents chose to agree with all four statements. It is interesting to note that none of the comments received 100% positive feedback. It could imply that other factors play a larger role in virtual organizing for some of the investigated firms. However, the majority of the respondents admitted that suitable knowledge resources play a decisive role in building relational competences in the process of creating a VO. One's knowledge, skills and experience bear on the selection of methods of seizing a market opportunity and on the outcomes; they also affect the efficiency of cooperation within a VO. Moreover, acquisition of new knowledge through partnership based on learning from each other finds reflection in future relational bonds of the enterprise with its environment (including other VOs). Also, the relational competences built during cooperation within a VO translate into the building of a competitive position in the market. Thus, it can be said that the examined firms provide empirical evidence that knowledge is crucial in establishing VOs' relationship competencies.

The respondents were also questioned about favourable and limiting factors influencing the process of creating VOs. The respondents were presented with open questions at this point and had no restrictions placed on their options. The search for competitive advantages, appropriate knowledge resources and experience, development of information technology, development of the electronic market, as well as the growing importance of relational bonds between enterprises, were the favorable factors most frequently mentioned by the businesses. Lack of knowledge and experience, lack of trust in potential partners, a lack of legislative restrictions on this kind of cooperation, as well as financial concerns, were some of the most obvious barriers to the process of creating VOs. Knowledge thus plays a crucial role in the creation of VOs, whereas a significant barrier to that process is lack of knowledge.

5. Discussion

One reason for the formation of VOs is the lack of sufficient resources, including expertise. On the other hand, however, a gain in knowledge resources due to cooperation within a VO is a significant benefit for individual participants. Enterprises can shape their relational competencies in its connections with the environment and may increase their competitiveness by using the knowledge and experience they have gathered. Furthermore, the examined enterprises demonstrate that having the necessary skills and expertise undoubtedly promotes cooperative actions within VOs, but lacking them restricts the creation of VOs.

Studies carried out in 2009 on Polish SMEs showed that knowledge played a less significant role in the creation of VOs. Possibly it was so because the studies were conducted on larger research samples, which may have included medium-sized businesses, or perhaps the conclusions were influenced by the economic crisis, which had an impact on how businesses operated. At the time, respondents listed the following as the primary justifications for cooperating within a VO: lower business activity costs; acquisition of new markets; higher profits than those that would result from goal implementation alone; impossibility to achieve an objective alone due to a lack of suitable resources (including knowledge); and better competitive position. Surprisingly, acquiring new knowledge through collaboration based on mutual learning was ranked far lower. Higher incomes, a stronger competitive position, the ability to access new markets, and cheaper costs of economic activity were a few advantages of cooperation within a VO. Only a small percentage of the surveyed firms at the time recognized the growth of human resources and the acquisition of new knowledge as advantages of collaboration within a VO (Słupska, 2012).

However, irrespective of the differences between the studies, the awareness of Polish entrepreneurs about the role of knowledge in the running of business activity (and VOs by the same token) has grown in the recent years (Drewniak and Karaszewski, 2020).

It is also important to mention the findings of a study on the role of relational competencies in generating corporate value. The study focused on a collection of sizable Polish businesses that have a strong potential for innovation and are recognized as industry leaders (project implementation time frame: 2018-2020). In the 2018 and 2019 studies of 10 businesses questions concerning developing relationships within a VO with other companies was one of many topics covered. It turned out that only one of the ten large businesses that had significantly increased their relational competencies in interactions with the environment had mentioned establishing relationships within the VO.

Thus, it supports the theoretical considerations that cooperation within a VO appeals more to SMEs as a mode of conducting business (Mahmood *et al.*, 2018). With the Internet's quick growth, businesses can create VOs for better cooperation

and communication. Nowadays, the sharing of knowledge is crucial for business growth (access to knowledge resources and value). VOs have the potential to share information more effectively and freely than conventional organizations (Jin and Suntrayuth, 2022; Huang and Lu, 2017). In addition, cognitive and social expected benefits are the key factors influencing knowledge sharing intention in VOs (Liao, 2017). In VOs where information is exchanged more frequently, the cognitive ability and knowledge sharing behaviour have enabled employees to show passion and challenge for their work. As a result, these employees are more innovative to find a variety of solutions, exhibiting high creativity (Jin and Suntrayuth, 2022). In virtual organizations, knowledge exchange is found to be moderated by self-efficacy, according to Sun (Sun, *et al.*, 2017). The innovation and competitive of complex knowledge products depend heavily on the rapid exchange and transformation of knowledge between organizations using network information technology, like VOs. Knowledge sharing motivation encourages knowledge sharing behavior, which is also essential for innovation and building of a competitive position in the market (Jin and Suntrayuth, 2022).

6. Conclusion

The aim of this paper was to identify the impact of knowledge and building relational competences on the process of creating VOs. The research provided empirical proofs that knowledge and relational competences are the essential elements in the virtual organising of business activity. There are two main justifications for cooperation within a VO, both of which are based on the availability of knowledge resources: the inability to accomplish a goal on one's own due to a lack of adequate resources (including knowledge), and the acquisition of new knowledge through partnerships based on mutual learning. The businesses noted additional quantifiable benefits of collaboration within a VO, in addition to financial gains, including the development of human resources, the sharing of knowledge, expertise, and experience, and the acquisition of new knowledge. The overwhelming majority of companies confirmed that having access to the right knowledge resources is essential for developing relational skills when developing a VO. The efficiency of cooperation within a VO is influenced by one's knowledge, abilities, and experience. These factors also have an impact on the methods chosen to capitalize on market opportunities and the results. The relationship between the enterprise and its environment in the future will be influenced by the acquisition of new knowledge through partnerships founded on mutual learning. The relationship skills developed through collaboration within a VO translate into the development of a competitive place in the market. Additionally, the examined businesses show that when the required knowledge and abilities are available, the development of VOs proceeds more quickly than when they are lacking.

The findings backed up the teoretical considerations. The qualitative research carried out has made it possible to collect information of a descriptive nature and to obtain a description of a narrow fragment of the functioning of the VO. However, the study does not conclude the topic of the function of knowledge in the development of relational competencies in VOs. It serves as inspiration for future research on a bigger sample of businesses and for a deeper examination of the effect of knowledge on the process of virtual organising.

Furthermore, because a VO is an appealing form of generating relational capital for smaller businesses, today's entrepreneurs with limited own resources should be aware of the significance of this type of collaboration in the context of changes in their environment.

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