

The Concept and the Level of Virtualization in Contemporary Companies (Based on the Example of Polish Firms)

Šiuolaikinių kompanijų virtualizacijos koncepcija ir lygmuo: Lenkijos kompanijų atvejis

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This article addresses the phenomenon of virtualization of economic activity. It is considered in the article in the context of the concept of virtual organizations that is already recognised in the subject literature. The theoretical basis of the publication is therefore a reflection on the essence of a virtual organization, its characteristics and the ability to analyse the profile and the level of the virtualization of today's companies. A virtual organization is seen here as a specific form of organizing cooperation among independent companies in the contemporary business world. The practical part of the article is based on the results of research that allowed empirical verification of the theoretical considerations. The study covered companies operating within the territory of the Republic of Poland. The outcome of the research conducted allowed determining the level of virtualization in the surveyed companies. The characteristics of the virtualization process of the surveyed companies was created.

KEYWORDS: a virtual organization, cooperation of companies, virtualization of economic activity.

The dynamic changes in the area of human economic activity is expanding into new areas. The emergence and improvement of new methods and management instruments were under scrutiny, new concepts of managing organizations were developed and implemented, new organizational structures were modified and/or created. The reasons were many, however, one and probably most important proved to be globalization and the need to compete with companies located in distant geographical areas. One can probably say that globalization is an objective process. In fact, the build-up (strengthening) of globalization processes has been visible for a long time and it has been determined by the effects of the innovative activity of man, particularly in the area of the broadly understood information technology. As a result, the company was released from the ties of its location. The competitor of the company is no lon-

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Abstract

Introduction



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ger only the closest economic organization but it is also a company with a similar profile from another continent. It is hard to predict how things will change in the processes of globalization and what the consequences of these changes will be. This already compels and will continue to compel entrepreneurs to change their behaviours while adapting to these rules that are deeply rooted in globalization. With so shaped reality business are facing the need for adapting to the new competitive environment. The response to the new competition rules is a relatively new and until recently unfamiliar organizational form of entrepreneurship, namely, its virtualization. It is no longer viewed in terms of the phenomenon which until recently fascinated observers and participants in economic activity, since it is increasingly evident in various areas of human activity. Virtualization activities would not be possible if it were not for computerization and any resulting events. Therefore, one may note that virtualization should not come as a surprise, but should be considered as a logical and expected in some sense consequence of the broadly understood computerization process. Agreeing with the objectively formed new reality, it is necessary to make it the subject of research so as to identify and try to understand the processes occurring in it as well as describe and explain the rules governing them. The outcome of the research presented in this paper is intended to emphasise these issues.

In relation to the above, the fundamental research problem undertaken by the authors of this article is the following: redefining the phenomenon of the virtualization of business activity, identifying the level of knowledge of this phenomenon among Polish entrepreneurs, and determining the level of scope of virtualization as well as the conditions for the involvement in the mainstream action.

Even though there is abundant literature on the virtualization of economic activity, research in the area of the virtual organization is limited. Most authors end up on theoretical considerations, and, therefore, there is a vast unexplored space. We need to remember that ideal virtual organizations are difficult to grasp in the contemporary economic reality. Some authors as Bauer, Köszegi and Wlokerstorfer (2003) present a case study on specific items. An interesting research on virtual organization was presented by Camarinha-Matos (2003) who used the opinion of experts (the Delphic method) and prepared the recommendations for further research. In Poland several authors have tried to assess the degree of preparation to virtualization of Polish enterprises (Kwiatkowska, 2005; Najda, 2007; Sankowska, 2009; Brzozowski, 2010), but their studies were carried out in different contexts. The authors of this article have decided to go further and determine the level and profile of the virtualization in some surveyed Polish enterprises.

This article consists of a theoretical part and a practical part. Drawing on the research literature, the authors propose a definition of a virtual organization, determine the scope of the research and develop the research instrument.

The essence of a virtual organization

The issue of the virtualization of entrepreneurial activity has been present in the world literature since the 90s of the last century. Therefore, in the times of the rapid development and improvement of the Internet and related communication tools Byrne and Brandt (1993) in their article drew attention to the emerging new form of cooperation, calling it a 'virtual corporation'. It was one of the first publications so clearly determining the problem of the virtualization of entrepreneurial activities. Next publications of other authors show that the knowledge of this phenomenon continued to extend and this growth was accompanied by an increase in the number of businesses using the new form of cooperation. The issue was considered by, for instance, Katzy (1998), Donlon (1997), Kasper - Freucher and Ashkenasy (2001), Wang (2000), M. Steven (2001). These publications were based on the research already undertaken by the authors. The significance of these publications consisted in attempting to identify the phenomenon of the virtualization in commercial activities, and on this basis also to define

this phenomenon. Other publications indicate that virtualization is not just commercial activity but also the phenomenon that is social, sociological and cultural in nature. This thread is discussed in the works by Wilson (1999), Grudzewski et al. (2007), Anthony et al., (1999), Talukder (2011). Most publications have, however, the form of theoretical considerations, based on the knowledge of their authors and the observations of the changes occurring in the world of business and driven by the development of information technology (see, for example, Kisielnicki (2006), (2013), Lethbridge (2001). They were undoubtedly valuable and useful publications, indicating the significance of the virtualization of entrepreneurial activity. However, they lacked the empirical confirmation of the posed theses and formulated generalizations. The scarcity of research in this field occurs also in Poland, even though it must be noted that a number of works based on empirical research have already been published. The first ones included Kwiatkowska (1995, 2005), Sroka (2002) and Słupska (2010). This is not a lot considering the relevance and the growing importance of virtualization in business operations. This article is an attempt to fill in this gap and increase the knowledge concerning the understanding and scope of this new form of cooperation between enterprises in Poland. However, due to financial constraints, the study was conducted only in one region. Despite this, some interesting results were obtained and the research method, which, perhaps, will be used in other studies on the problem of virtualization in enterprises, was tested.

The concept of a virtual organization is undoubtedly a consequence of the reconfiguration of business made possible due to advances in information and communication technologies used in network business (Kubiak and Korowicki, 1998; Bauer, Köszegi and Wlokerstorfer, 2003). It is a consequence of the development towards an economic entity which will be extremely flexible and efficient in its operations. A virtual organization 'is constantly changing and keeps forming alliances with other organizations; it is very flexible, depending on the situation it changes its form of functioning and interests' (Kisielnicki, 2006).

Regarding the essence of a virtual organization, researchers have not developed any unambiguous definition of this form of business activity. There are a number of different explanations of a virtual organization. However, none of these explanations encompasses fully its essence. Generally, the world literature proposes a division of the definition of virtual organizations into two groups. The first group consists of definitions regarding virtual organizations in terms of the process, the second group are definitions regarding a virtual organization in structural terms. In short, the structural approach to a virtual organization defines it as a form of cooperation, where the most important are the structural components of the organization and the relationships occurring between them, while the process approach focuses on the behaviours and actions related to changes occurring in the environment (Saabeel, Verduijn, Hagdorn and Kumar, 2002). Since the authors of this article focus on virtual organizations regarded in their structural dimension, an exemplary definition of this approach is provided: 'A virtual organization is created on a voluntary basis by organizations that come together in various compounds to achieve the target, which is to give them greater benefits than in the situation when they worked in a traditional way. Conducting a cooperative activity does not require concluding any civil law contracts. The duration of this relationship is determined by the organization which first considers that its existence is to its disadvantage. Other organizations, if they deem it beneficial, may continue this virtual relationship without the organization which resigned from the cooperation, or may tie up with other organizations' (Kisielnicki, 1997; Kisielnicki, 2013). Similar views are presented by other authors (Byrne and Brandt, 1993; Sparrow and Daniels, 1999; Wilson, 1999; Burn, Marshall and Barnett, 2002; Donlon 1997; Brzozowski, 2010; Lethbridge, 2001; Talukder, 2011).

Within the structural approach, virtual compounds concern cooperation between enterprises that are combined by the idea of joint action. Individual participants in a virtual organization

bring their core competencies which combined allow achieving a synergy effect. Network relationships cannot be undermined here since they allow searching for potential partners (Porębska-Miąc, 2002; Katzy, 1998; Wang, 2000; Anthony, Perrewe and Kacmar, 1999; Gibson, Ivancevich, Donnelly and Konopaske, 2012).

For the purposes of this article the following reference definition of a virtual organization was formulated: *A virtual organization is a form of organizing cooperation among independent companies that does not require the conclusion of a formal contract. This cooperation is undertaken with a view to achieving a common goal and greater benefits than if working independently. Partners are selected depending on needs, and each of them contributes to the cooperation what they are recognised for.*

The characteristics of a virtual organization

A virtual organization is focused around cooperation networks that are geared towards specific undertakings. Therefore, the sheer aspect of cooperation of economic entities in such organizations is very important. The features of virtual organizations facilitating effective collaboration of economic entities include adaptability, flexibility, responsiveness to changing needs and conditions, efficiency in use of resources, forming partnerships, increasing the importance of human and intellectual capital, reducing the level of bureaucracy, acceptance of changes and uncertainty, and the use of information technology to support management processes (Sroka, 2002; Steven, 2001). However, the following can be distinguished (Bogdanienko, Haffer and Popławski, 2004) as the most fundamental characteristics of a virtual organization: the use of the opportunity (companies merge to take advantage of the emerging market opportunity), diffused identity (roles of individual partners in such organizations are not as well defined as in the traditional organization), technology (spontaneity, speed and cooperation of virtual organization units is ensured by the use of modern information and communication systems), excellence (a virtual organization is a collection of companies who are specialists in a specific task and due to their combination in one organization it is possible to achieve synergies), and globalization (a virtual organization has no geographical limits).

A more complete picture of the virtual organization is provided by means of analysis of the characteristics of an ideal virtual organization which does not exist in economic reality, but allows assessing the advancement of the process of the virtualization of businesses. With a set of characteristics of an ideal virtual organization one can determine the degree of their intensity, that is the level of the virtualization and the profile of the virtualization of the organization under examination. The features of an ideal virtual organization include (Grudzewski, Hejduk, Sankowska and Wańtuchowicz, 2007): focus on core competencies of participants in a virtual organization, the advancement in the use of the network, flat structures, fuzzy boundaries, temporariness, flexibility, a low level of formalization, a common goal, sharing resources, knowledge and risk, confidence, time and spatial dispersion, using tools of information technology, customer focus, modularity, heterogeneity, frequent change of participants, one virtual identity, the ability to reconfigure, sensitivity to opportunities.

Cooperation within the virtual organization is started in order to seize the emerging market opportunity.

The characteristics of a virtual organization can also be looked at through the prism of a comparative analysis of such an organization and of an organization functioning in the traditional manner. Both the traditional and virtual organizations are created by people. Both types of organizations are set up to achieve a specific purpose and are characterized by division of labour, functions and roles. Traditional organizations have a determined internal structure, while the internal structure of virtual organizations remains unknown (Kisielnicki, 2006). Tangible assets in virtual organizations are usually dispersed. Therefore, in such organiza-

tions physical internal structure is replaced by communication links. Although a virtual organization is not geared towards creating structures in the traditional sense, it performs actual functions as a traditional enterprise does – research and development, purchasing, manufacturing, logistics, marketing, sales, finance, accounting, human resource management, operational management (Kijoch, 2007). In traditional organizations there exists a characteristic management element which is responsible for planning, organizing, motivating and controlling. In virtual organizations, in turn, each unit forming part of the organization has its own control system, which is not known to the other members (Kisielnicki, 2006). In virtual organizations trust plays the role of a substitute for hierarchical control of a conventional organization. It also plays a significant role due to the lack of legal regulations related to the creation, operation and dissolving of virtual organizations (Kasper-Fuehrer and Ashkanasy, 2001; Crossman and Lee-Kelley, 2004). Traditional organizations are able to independently define and modify goals and ways to achieve these goals. For virtual organizations it is only possible to implement self-modifications of the manner of goals achievement, however, it is not possible to modify individually the set goals. What is common to both types of organizations is that they seek to maximize their profits. A traditional organization maximizes its benefits in the long-run, while a virtual one in the short-run (Kisielnicki, 2006). Individual partners in a virtual organization combine to achieve a synergy effect which should benefit each partner. It is about more than a high total effect and what counts here is higher effects for each partner relative to the effects that would have been obtained through a traditional way of functioning (Kisielnicki, 2008; Clegg, Hermens and Porras, 2006). Activities of virtual organizations are connected with several risk factors which are the same as in the case of a traditional organization but with the difference that the risk in a virtual organization can migrate between its members. (Grabowski, Ayyalasomayajula, Merrick, Harald and Roberts, 2007). Virtual organizations similar to traditional organizations offer products and services to their customers. They also require funding and skilful management. In virtual organizations, however, in addition to traditional management skills, gaining skills such as communication, learning and evaluation of knowledge is increasingly important (Warner and Witzem, 2004; Antczak and Kołodziejczyk, 2013).

In this case, virtuality is not a new type of structure but a characteristics which to a lesser or greater degree can be related to any organization in its connections with other entities (Sankowska, 2009). The subject literature can boast of some attempts to create tools that would allow measuring the level of virtualization. Although these tools are not free from drawbacks, they represent interesting instruments of studying the phenomenon of virtualization in today's business.

For instance, according to Najda (2007), virtualization of an organization consists of the following activities: identifying key competencies of the company, shaping the new configuration processes around the key and complementary competencies, defining the value added created in the network, and dissolving or reconfiguring the organization. Moreover, the effects of two extremely important factors which are trust and information and communication technology lead to the intensification of the process of virtualization. Trust functions here as a substitute for the traditional mechanisms of coordination and control. Information and communication technology, in turn, allows the transfer of information and remote coordination of activities implemented by partners of the virtual organization. Virtuality is a gradable factor and its level is determined by means of the following three parameters: relationships with customers, configuration of assets, and knowledge. On this basis, the three levels of vir-

The level of virtualisation in companies

tualization can be distinguished: the level of specific individual tasks, the organizational level determining the coordination of activities in order to create above-average added value, and the inter-organizational level allowing designing and supporting the development of diverse networks and of mutually interdependent enterprises (Najda, 2007).

The level of organization virtualization can also be measured by determining the degree of the intensification of the organization's particular characteristics relative to the characteristics of the ideal virtual organization. On this basis one can outline the profile of the studied organization's virtualization using selected dimensions. The choice of dimensions is made out of the list of characteristics describing the ideal virtual organization (Grudzewski, Hejduk, Sankowska, Wańtuchowicz, 2007). An attempt to make such an analysis is a model developed by P. Weiss in which the author for the need of classifying the types of virtual organizations distinguished the following dimensions: flexibility, integration, markets, network structures, the degree of dependence on other companies in the network, the time horizon of cooperation, and confidence level. This model, however, has some shortcomings, as it does not consider communication, customer orientation, or concentration on core competencies. In business practice, however, economic organizations which possess all characteristics of the ideal virtual organization to the full extent are extremely rare. Usually one can meet organizations that demonstrate a certain level of virtualization which is a specific step in transition from a traditional organization to a highly advanced virtual organization.

Virtualization of Polish companies: research methodology

Attempts to identify and measure the virtualization process in contemporary companies were made using the proprietary study conducted in late May and June 2015. The study covered companies pursuing their activities within the territory of Poland. All companies from a specially acquired for this purpose base of Polish companies were invited to participate in the study. The invitation was submitted twice. Eventually 78 companies accepted the invitation. The data collection method applied was an online survey where the research tool was an electronic questionnaire. The subject scope of the research concerned obviously the issues related to a virtual organization.

The research instrument was constructed drawing on the knowledge contained in literature and research mentioned in the theoretical part of this article. The research instrument contained questions about the functioning of the surveyed enterprises and a table with 15 characteristics in the substantive part. The respondents were asked to determine the degree of the occurrence of each characteristic.

It turned out that out of the companies that participated in the study most are based in the kujawsko-pomorskie province. The majority of respondents were micro-enterprises, small or medium-sized and these were companies mainly providing services understood in the broad meaning. The operating reach of the surveyed enterprises is very diversified – regional, national, international, and in some cases even global. Moreover, the majority of these companies are companies without foreign capital.

Research results

When analysing the characteristics of a virtual organization, a list of 15 characteristics was developed drawing on literature studies. They reflect the characteristics of the ideal virtual organization listed in the theoretical part of the article. The respondents participating in the study were asked to determine the degree of the occurrence of each characteristic. The determination of the extent of the occurrence of a given characteristics in the company had to be made on a four-level scale (*i.e.*, lack of occurrence, a low, medium, or high degree of the occurrence of a given characteristic). The structure of the responses regarding the examined characteristics is presented in Table 1.

As follows from the data contained in Table 1, most of the surveyed companies (69%) admit that the establishment of cooperation with other companies in order to seize an emerging market opportunity is carried out in their companies at a moderate level (45%) or at a high level (24%). This may mean that the majority of respondents might be willing to undertake such cooperation when the opportunity to do so arises. An equally significant proportion of respondents declared that during the realisation of business tasks they focus on core competencies and undertake cooperation with companies which bring in complementary skills on at least a medium level. It is much different when it comes to the creation of networking with a view to performing a specific task. Here the respondents' opinions are divided and their answers were split almost evenly between all levels of occurrence. This may suggest that the network cooperation is not something used willingly (or maybe not yet).

As regards another characteristic concerning the resignation from building hierarchical relationships while cooperating, the majority (65%) of respondents admitted that they resign from building such relationships when working with other entities on a high or medium level. However, opinions on dissolving cooperation networks after the completion of the task, or its reconfiguration according to new ventures are varied. This confirms the earlier presumption about the likely advantage of traditional forms of cooperation over the network one. Creating a common potential with business partners, due to which quicker and more flexible responses to changes in the environment are possible, is a phenomenon that for 35% of the respondents occurs at a medium level, while for 28% at a high level.

As many as 81% of the respondents declared that their business partners are treated on a partnership basis to a high or medium degree. This is 16% more than in the case of the previous characteristic concerning the resignation from building hierarchical relationships. The vast majority of respondents also recognizes that they undertake cooperation in order to implement a specific project which is expected to benefit them more than in the case they realised it by themselves (here one can point to the compatibility with the knowledge contained in the subject literature). However, somewhat surprising is the situation related to the sharing of investment outlays, risks and benefits relative to the performed tasks and roles. Despite the fact that 57% of the surveyed companies realise this characteristic at a moderate or high level, as many as 43% of respondents admit that they lack this trait, or if it occurs it is at a low level. This situation is more evident when compared with the answers given regarding another characteristic where as many as 90% of respondents admit that are trying to build an atmosphere of trust in relations with business partners at a high (as many as 78% of respondents) or a medium (12%) level.

With regard to a further characteristic, *i.e.*, cooperating across borders and searching for competence, 68% of respondents indicated lack of its occurrence, or occurrence at a low level. Most of the respondents operate on the local or domestic markets and perhaps therefore they have no need to establish cooperation with foreign companies as they are able to find appropriate partners in close proximity. In the vast majority of the surveyed companies the use of modern communication technologies was at a high (or medium) level.

Moving further in the interpretation of the results of the study, it was observed that 69% of respondents showed a clear customer orientation during the implementation of cooperative projects and at a high level. At the middle level of the phenomenon of the composition of our co-operators depending on market opportunities. The resulting distribution of answers corresponds with the distribution obtained for the first characteristic contained in the table and related to the establishment of cooperation in order to exploit a market opportunity. Display-

Table 1

The degree of the occurrence of specific characteristics of a virtual organization in the companies participating in the study

Characteristic behaviours of a virtual organization	The degree of occurrence	The number of responses among respondents	The percentage of respondents
We undertake cooperation with other companies to seize new market opportunities	No occurrence	4	5%
	Low	20	26%
	Medium	35	45%
	High	19	24%
	TOTAL	78	100%
During the performance of business tasks (economic activity) we focus on our core skills and cooperate with companies with which we mutually complement competencies	No occurrence	5	6%
	Low	16	21%
	Medium	31	40%
	High	26	33%
	TOTAL	78	100%
When cooperating with other companies we create a network of independent entities that join together to perform a specific task (cooperation network)	No occurrence	19	24%
	Low	17	22%
	Medium	24	31%
	High	18	23%
	TOTAL	78	100%
When cooperating with other companies we do not build hierarchical relationships or leader-contractor relationships. Each partner is responsible for the final result of the entrusted tasks and takes autonomous decisions regarding their implementation.	No occurrence	16	21%
	Low	11	14%
	Medium	23	29%
	High	28	36%
	TOTAL	78	100%
After the realization of the purpose for which we started cooperating with other companies, the created network of cooperation is terminated or its composition changes relative to the challenges of the new venture	No occurrence	17	22%
	Low	20	26%
	Medium	23	29%
	High	18	23%
	TOTAL	78	100%
Due to the effective cooperation with other companies (creating common potential) we adapt to changes in the environment quicker and respond to changes flexibly	No occurrence	10	13%
	Low	19	24%
	Medium	27	35%
	High	22	28%
	TOTAL	78	100%
We treat our business partners on a partnership basis (we build less formal relations)	No occurrence	3	4%
	Low	12	15%
	Medium	26	33%
	High	37	48%
	TOTAL	78	100%
We undertake cooperation with other companies in order to carry out a specific project, which is expected to benefit us more than if we realised it by ourselves	No occurrence	6	8%
	Low	15	19%
	Medium	23	29%
	High	34	44%
	TOTAL	78	100%

By working with the co-operators we share investment outlays, risks and benefits relative to the performed tasks and roles played	No occurrence	15	19%
	Low	19	24%
	Medium	27	35%
	High	17	22%
	TOTAL	78	100%
We are trying to build an atmosphere of trust in relations with co-operators, we keep our oral agreements	No occurrence	3	4%
	Low	5	6%
	Medium	9	12%
	High	61	78%
	TOTAL	78	100%
We cooperate with companies from all over the world, borders do not matter to us, what counts is competences	No occurrence	34	44%
	Low	19	24%
	Medium	14	18%
	High	11	14%
	TOTAL	78	100%
While developing contacts with our co-operators we use modern communication technologies such as, for instance, the Internet, video conferencing, etc.	No occurrence	3	4%
	Low	13	17%
	Medium	28	36%
	High	34	43%
	TOTAL	78	100%
When cooperating with other companies to carry out a specific project, we strive to meet our customers' needs best (we maximise our joint efforts on meeting their expectations)	No occurrence	4	5%
	Low	2	3%
	Medium	18	23%
	High	54	69%
	TOTAL	78	100%
We change the composition of our co-operators depending on the market opportunities/demand	No occurrence	9	12%
	Low	14	18%
	Medium	36	46%
	High	19	24%
	TOTAL	78	100%
By creating products/services cooperatively with other companies, we try to act so that these products/services were perceived as being produced by a single company	No occurrence	12	15%
	Low	12	15%
	Medium	30	39%
	High	24	31%
	TOTAL	78	100%

ing one identity to the client was declared on an average (39%) or high (31%) level. In addition, as follow from the data contained in the table, out of 15 characteristics only in the case of one the dominant response was 'no occurrence'; nine characteristics obtained 'an average level of occurrence' most frequently, and in the case of the remaining five characteristics it was 'a high level of occurrence'.

Based on the data obtained from the research, we can also describe the level and profile of the virtualization of companies. By calculating the average of all ratings for individual characteristics, we obtained the results as shown in Table 2.

Table 2

The average level of virtualization among the companies participating in the study

STATEMENTS	The average level of occurrence
We cooperate with other companies to seize new market opportunities	1.88
During the performance of business tasks (economic activity) we focus on our core skills, cooperate with companies with which we mutually complement competencies	2.00
When cooperating with other companies we create a network of independent entities that join together to perform a specific task (cooperation network)	1.53
When cooperating with other companies we do not build hierarchical relationships or leader-contractor relationships. Each partner is responsible for the final result of the entrusted tasks and takes autonomous decisions regarding their implementation.	1.81
After the realization of the purpose for which we started cooperating with other companies, the created network of cooperation is terminated or its composition changes relative to the challenges of the new venture	1.54
Due to the effective cooperation with other companies (creating common potential) we adapt to changes occurring in the environment quicker and respond to changes flexibly	1.78
We treat our business partners on a partnership basis (we build less formal relations)	2.24
We undertake cooperation with other companies in order to carry out a specific project, which is expected to benefit us more than if we realised it ourselves	2.09
By working with the co-operators we share investment outlays, risks and benefits relative to the performed tasks and roles played	1.59
We are trying to build an atmosphere of trust in relations with co-operators, we keep our oral agreements	2.64
We cooperate with companies from all over the world, borders do not matter to us, what counts is competences	1.03
While developing contacts with our co-operators we use modern communication technologies such as, for instance, the Internet, video conferencing, etc.	2.19
When cooperating with other companies to carry out a specific project, we strive to meet our customers' needs best (we maximise our joint efforts on meeting his expectations)	2.56
We change the composition of our co-operators depending on market opportunities/demand	1.83
By creating products/services cooperatively with other companies, we try to act so that these products/services were perceived as being produced by a single company	1.85

On the basis of this information it can be noted that in 5 aspects out of the total of 15 the researched companies have a degree of incidence higher than the average, with the highest rate for their preparations for virtualization (the profile of their virtualization). This takes place in relation to building the atmosphere of trust when working with co-operators, customer orientation and treating co-operators on a partnership basis. However, in as many as 9 aspects the average ratings identified in the surveyed companies were below the overall average. Among those the lowest rankings had the following characteristics: undertaking cooperation with companies from all over the world; the insignificant impact of geographical borders on the undertaken cooperation; the importance of competence; creating a network of independent entities that join together to perform a specific task (a cooperation network)

and after the realisation of the purpose for which the cooperation was initiated continuing it with other companies; the created network of cooperation is terminated, or its composition changes according to the challenges of the new venture.

Assessing eventually the level of virtualization in the researched companies and using the accepted scale, it must be admitted that the companies have a relatively high level of virtualization, constituting a certain stage on their way from the traditional to the virtual organization. This, in turn, is consistent with the theoretical considerations that virtuality is a certain characteristics, which to some extent may be referred to each economic entity in its relations with other market participants, and that in fact economic organizations which have all the characteristics of an ideal virtual organization to a full degree are extremely rare and difficult to identify.

This research contribution is expanding the knowledge about conditioning of the cooperation between enterprises. It will facilitate creating virtual structures and showing interested enterprises fundamentals of realization of this process. It will also reduce the risk of the failure of undertakings about virtual character. In the light of the acquired knowledge, next research should pay special attention to all benefits and threats of applying virtual structures.

Conclusions

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- Tomasz Janicki, Wojciech Poptawski, Urszula Stupska

Tomasz Janicki, Wojciech Popławski Urszula Słupska. Šiuolaikinių kompanijų virtualizacijos koncepcija ir lygmuo: Lenkijos kompanijų atvejais

Santrauka

Straipsnyje nagrinėjamas ekonominės veiklos virtualizacijos fenomenas. Virtualizacija nebūtų įmanoma be kompiuterizacijos ir jos pasekmių. Virtualizacija neturėtų būti tapti staigmena, bet turėtų būti traktuojama kaip logiškas ir tam tikra prasme lauktas kompiuterizacijos proceso rezultatas. Todėl susitaikant su objektyviai susiformavusia nauja realybe yra būtina į ją pažiūrėti kaip į tyrimo objektą tam, kad būtų galima apibrėžti ir pabandyti suprasti joje vykstančius procesus, apibūdinti ir paaiškinti juos lemiančius dėsnius. Ekonominės veiklos virtualizacija šiame straipsnyje vertinama virtualių organizacijų koncepcijos kontekste. Straipsnio teorinį pagrindą sudaro refleksija apie virtualios organizacijos esmę, jos charakteristikas ir galimybę analizuoti šiandienos organizacijų profilius ir virtualizacijos lygmenį. Virtualios organizacijos esmė pristatoma remiantis apibrėžtimis, kurios paaiškina virtualios organizacijos esmę ekonominės veiklos požiūriu. Šiame straipsnyje laikomasi struktūrinio virtualios organizacijos apibrėžimo, akcentuojant į tikslą orientuotą tarpusavyje susijusių elementų sistemą. Virtuali organizacija traktuojama kaip specifinė nepriklausomų kompanijų bendradarbiavimo organizavimo šiuolaikiniame verslo pasaulyje forma. Virtualios organizacijos profilis pristatomas pagal specifinių tokių organizacijų charakteristikų sąrašą, o galimybė analizuoti virtualizacijos lygmenį atskleista remiantis dviem mokslinėje literatūroje pateiktais modeliais. Pagrindinėje straipsnio dalyje pristatomi tyrimo rezultatai, kurie leido verifikuoti mokslinėje literatūroje atspindinčią diskusiją. Tyrimo imtis – Lenkijos Respublikos teritorijoje veiklą vykdančios kompanijos. Remiantis mokslinės literatūros analize, buvo sudarytas 15 specifinių charakteristikų, kurios, autorių nuomone, geriausiai apibūdina virtualią organizaciją, sąrašas. Tyrime dalyvaujančių respondentų buvo paprašyta nustatyti kiekvienos charakteristikos raiškos laipsnį pagal numatytą skalę. Tyrimo rezultatai padėjo nustatyti, kurios charakteristikos rodo, ar tyrime dalyvavusių organizacijų pasirengimas virtualizacijai labiausiai ir mažiausiai pažengęs. Didžioji respondentų dalis pripažįsta, kad jie pradeda bendradarbiauti tam, kad įgyvendintų specifinius projektus, tikėdamiesi, kad tokiu būdu gaus daugiau naudos, nei įgyvendindami vieni. Galima teigti, kad šis rezultatas dera su mokslinėje literatūroje išdėstytais žiniomis. Tačiau kiek stebina situacija, susijusi su dalinimusi investicijų sąnaudomis, rizikomis ir nauda, tenkančiomis atliekant užduotis ir numatytus vaidmenis. Ja remiantis buvo apibrėžtas tirtų kompanijų virtualizacijos profilis. Be to, buvo nustatytas kompanijų virtualizacijos lygis ir paaiškėjo, kad kompanijoms būdingas gana aukštas virtualizacijos lygmuo, atspindintis pereinamąją stadiją nuo nevirtualių prie visiškai virtualių organizacijų. Tai atitinka teorines nuostatas, kad virtualumo charakteristika, kuri tam tikru (didesniu ar mažesniu) laipsniu gali būti siejama su kiekvienu ekonominiu subjektu ir jo ryšiais su kitais rinkos dalyviais; ekonominę veiklą vykdančios organizacijos, visiškai pasižyminčios idealios virtualios organizacijos charakteristikomis, yra labai retos ir sunkiai aptinkamos.

REIKŠMINIAI ŽODŽIAI: virtuali kompanija, kompanijų bendradarbiavimas, ekonominės veiklos virtualizacija.

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