

VIRTUAL ENTERPRISES AS FUTURE CORPORATION FORMS IN THE INDUSTRIAL ENVIRONMENT OR JUST OLD WINE IN NEW SKINS

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Abstract: *This article is examining and determining the phenomenon of virtual cooperation in the industrial environment. Its goal is to research and find insights into whether virtual corporations are a viable alternative to classical and more traditional cooperation forms such as alliances, joint ventures and others. Virtual Enterprises (VEs) are and could be therefore a new organizational business concept to cope with actual and future challenges for companies in the globalization phases. This approach is based on merging all core competencies of a company in a network like organization. This seems to be a necessary response to deal with fast growing economies, fast changing conditions of certain markets and to become an agile reacting company in this environment.*

Keywords: *Virtual organization, Virtual enterprises, Virtualization, Cooperation forms, Collaboration, Technology.*

1. INTRODUCTION

Increasing environmental complexity, globalization of the economy and the growing opportunities presented by information and communication technology are just a few of the ever-present factors that are forcing corporations to adapt to changing circumstances. If framework conditions in the economy change, as is currently the case due to the trade disputes and ensuing economic protectionism we are witnessing in the USA and China – the world’s largest national economies – this more or less forces corporations to make changes in their business: they have to react to new circumstances and challenges if they wish to ensure their continued existence and competitiveness. Such tendencies are therefore a critical element in our society with a significant impact on the way the economy develops; they exercise enormous pressure on existing structures, traditional patterns and habits.

2. DEFINITION OF VIRTUAL CORPORATION

In the middle of the eighties, Mowshowitz (1986, p. 389) first used the term “virtual corporation” in the English-speaking world, thereby laying the foundation for this subject matter. However, it took a long time until this concept was picked up by Nagel and Dove (1991) and other economists and dealt with in various scientific papers. It was not until 1992 that the authors Davidow and Malone succeeded in bringing the topic to the attention of the scientific community in their bestseller “The Virtual Corporation”, thus inspiring further discussion about this type of organization. In 1992, John Byrne’s article (1993, p. 36) in *Business Week* impressively explained how corporations could indeed face up to the emerging risks by temporarily joining forces in a virtual corporation.

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In the meantime, many scientists and a number of corporations around the globe are examining the concept of the “virtual corporation”. In the German speaking area, Scholz (1994) was the main contributing author, who described and defined the term in a more future organizational trend.

In this type of organization, legally and economically independent corporations join up in a short-term collaboration to exploit a market opportunity that has presented itself to them. This temporary network is based on an appropriate market opportunity with each company sticking strictly to its core competencies and making full use of information and communication technology. Each partner assumes responsibility for that part of the product and service creation process in which it excels. The virtual corporation is therefore a mission-specific “best of everything” organization. It combines the advantages of large organizations with the flexibility and clout of small units.

3. OBJECTIVE AND RESEARCH QUESTION OF THE STUDY

Possible findings and resulting conclusions are difficult to analyze and deduce, with the consequence that those conclusions can only be validated with increased effort. A further aspect of the existence of virtual corporations in practice will be determined and presented based on an empirical study. This will involve analysis of the extent to which the concept of the virtual corporation has established itself in practice and is already being successfully implemented. However, this paper does not claim to be complete, as underlying assumptions such as a pronounced ability to cooperate with the aid of information and communication technology (ICT) are not to be presented as a result of this study. Based on economic significance, the questions posed in this paper are intended to explain how virtual corporations can arise and what distinguishes them from the characteristics of “conventional” corporate structures.

4. ORGANIZATION AND RESEARCH DESIGN INCLUDING LITERATURE RESEARCH OF VIRTUAL ORGANIZATIONS

As qualitative social research is not based on hypotheses derived from existing theories by means of deduction but begins with a more or less “open” collection of data and according to Kelle & Kluge (1999) this method then is described as “inductive”. According to the opinion of Glaser & Strauss (1967) and later Strauss & Corbin (1998), who are considered the founders of Grounded Theory and various other supportive authors as Turner (1983), stated that it is neither necessary nor helpful to begin with prior theoretical knowledge in order to arrive at an “unbiased” portrayal of reality as the researcher already begins with biased data collection. According to Glaser and Strauss (1967, p.47), theoretical knowledge should develop more or less by itself in an emergence process during data collection. Whereas Wrona (2005, p.19) is of the mind that without a subjective preconception, it is neither possible nor useful for theoretical concepts to be incorporated to begin or carry out a research project. Additionally, the “Grounded Theory” methodology according to Strauss & Corbin (1998) is suitable for achieving the aim of this study as it is based on neither a purely subjectivist nor a purely objectivist initial position, and therefore assumes a moderate initial position. In the view of Lamnek (1993, p III et. seq) the Grounded Theory attempts to ground the knowledge gained in empirical data and to support it by means of ongoing interpretations of the chronologically overlapping data collection and analysis. Beginning with data collection, this method is based on a continuous comparison of the data gained with the theory that develops from the interpretation process. The aim is to form categories at a higher level of abstraction, detect correlations and, if possible, to derive more

general correlations between laws that provide the basis for establishing medium-range theories. Its theory-building character, therefore, enables this paper to generate hypotheses based on the data collected with regard to the proliferation of virtual corporations as a future form of cooperation.

The dynamic analysis process, which enables simultaneous interpretation during data collection, underlines the process-oriented character of Grounded Theory. The openness and flexibility of this methodology are carried over into the selection of the comparative case studies as an additional research approach in this paper.

Even if one fails to find a widely recognized research design for case study work in the specialist literature, Yin (2003, p.20) believes it does not mean that such a design is neither appropriate nor helpful. It is rather the case that, when conducting an explorative study and based on his own conceptual ideals, the researcher will have a rough idea of the method he will employ before beginning his study. According to Miles & Huberman (1994, p.16 et seq.) it is not uncommon that plans made at the beginning of the process have to be modified or adapted during the subsequent course of the research. The research design depends on the extent to which the intentions and objectives of the research were defined in advance. In case study work, research designs are proposed that are based on narrow terms of reference.

As described by Miles & Huberman (1993, p.17) and Yin (1993, p.45), the research design essentially fulfills the following three functions in this study: First of all, the research design ensures the study's focus in terms of content. In order not to ultimately consider everything as potentially important as the result of more or less random data collection and not to suffocate in an impenetrable mass of data, Yin (2003, p.21 et seq.) thinks that it is necessary to set narrow terms of reference to structure the research process. Bortz & Doring (2002, p.203) have the opinion that in this procedure, the research design can be described as a logical plan for ensuring that the empirical findings supply answers to the research questions and form a logical unit together with the interpretation and the conclusions. Secondly, thanks to the narrow terms of reference, the research design actually enables a comparison of the case studies. Replication of the data as required for comparative case studies could not be carried out in a meaningful way without these terms of reference, as otherwise it would not be clear what the similarities and differences actually are. Thirdly, the strict research design enables the results obtained to be linked to the current state of research. According to Maurer (2003, p.82) the results can therefore contribute to advancing the development of theoretical concepts and supply starting points for subsequent empirical studies. The structure of the research design can refer to various aspects. This paper goes into greater detail regarding the aspects of selecting the cases to be examined as well as data analysis.

4.1. Findings of Typology of Virtual Corporations as Results of the Mixed Method

The available information and data allow the definition of and distinction between virtual corporations in relatively few typologies. The first and major type is that of one or more main corporations that merely add further skills to achieve the objective of the company or the project. A "virtual master cooperation" can be assumed here. A further form can be described as a "virtual network" as it reflects traditional network concepts. Finally, a mention should also be given to "virtual manufacturing" or "production", which consists of individual subsystems that join forces to manufacture and distribute the "product".

Type 1 - Virtual Master Cooperation

This type of virtual corporation is mainly characterized by the fact that it is controlled by one or more general contractors or a core contractor, a “key player”. There is a vertical cooperation, as the main contractor transfers the creation of the product or service almost exclusively to its collaboration partners and often just concentrates on customer contact, collating the overall performance and marketing. The interdependencies between the general contractor and its subcontractors are mainly pooled and/or sequential interdependencies or, expressed in the terminology of coordination theory, “producer/consumer dependency”.

In virtual corporations of this type, the collaboration partners’ range of products or services can be described as relatively homogeneous as the collaboration partners frequently originate from the same sector and have similar core competencies. Focus on a specific area of performance combined with the involvement of collaboration partners from a specific sector and the relatively low number of mostly fixed collaboration partners enable the general contractor or core contractor to keep the effort involved in coordination to a manageable level by means of standardization measures and detailed planning. According to the definition of Wohlgemuth (2002, p. 21) relationships between network partners can be described as relatively stable as the majority of orders are handled by the collaboration network in a very similar or even identical configuration, i.e., by the same partners in the same sequence.

Type 2 - Virtual Distribution Network

In contrast to Type 1, with a “virtual distribution network” there is no general contractor or focal enterprise that takes charge of the operational business and brings about a hierarchical structure in the network due to its prominent position in the network. Instead, the collaboration partners participate in the projects on an equal footing with the result that the arrangement can be described as a horizontal collaboration. In creating the products or service, the interdependencies among the collaboration partners are mainly sequential or reciprocal in nature. They can also be described as producer/consumer and shared resource dependencies. As the collaboration partners frequently come from the same sector and their areas of competency frequently overlap from a moderate to a substantial extent, we can say they have a relatively homogeneous range of products or services. The objectives of Type 2 virtual corporations are joint development work, pooling know-how and the maximum utilization of each company’s capacities.

Type 3 – Virtual Manufacturing

Type 3 virtual corporations are characterized by horizontal collaborations, a heterogeneous range of products and services among the collaboration partners and a relatively high level of formalization. Such virtual enterprises mainly have a regional orientation and usually boast a comparatively large latent network of potential collaboration partners frequently consisting of more than 20 partner enterprises. The large latent network mainly provides support functions when executing relatively complex projects and also enables enterprises to achieve economies of scale. Compared to the system environment, the hurdles to joining such a network are often very high, which becomes evident when one sees that new network partners are only able to join if they meet specified criteria in order to achieve or maintain a certain degree of conformity within the network.

5. FUTURE RESEARCH DIRECTIONS

This paper aims to discover what circumstances and developments make it possible to establish a virtual corporation as a future form of cooperation. Whether in the past, present or future, the general situation for enterprises with regard to the virtual corporation construct is always associated with major challenges. There are also challenges and problems for the enterprise's managers and employees that vary according to the phase in which the enterprise currently finds itself. At the same time, there is the juggling act involved in, also looking after and maintaining the existing network.

It is now more important than ever before to determine what role this network, and in particular the virtual corporation, actually plays and to specify what corporate advantages one wishes to achieve as a result. It is important not to forget that virtual corporations represent a relatively temporary joining of forces. However, virtualization still represent a challenge to the enterprise, and it can find sample support in the network to help overcome these obstacles. As already mentioned, in such project planning the focus should always be on the goals to be achieved and on the benefits the virtual network can provide for the enterprise. Before joining such a corporate network, the enterprise must have a clear idea of what markets it wants to access and what products or services it wants to offer to its customers.

Information and communication technologies (ICT) are certainly a major component in terms of achieving the predefined corporate strategy and goals, whereby, the enterprise frequently needs to take action and make necessary adjustments. ICT is subject to constant adaptations and advances in development, thus not only forcing enterprises to make financial investments but also to ensure trouble-free connection and operation within the virtual corporation.

Changes in enterprises' economic environment and current political influence necessitate constant adaptations to the future provision of products and services. Worthy of particular mention are current restrictions due to the Corona pandemic (Covid-19), the global economic and financial crises (current recession in key national economies), strategic alliances, and new technologies. These challenges and obstacles can be overcome, and new competitive advantages can be gained accordingly if cooperative, interdisciplinary and relatively independent enterprises join forces. The question posed by this research as to whether virtual corporations represent a future form of cooperation cannot be adequately answered.

However, it can be noted that virtualization has been finding its way into enterprises for some time now. As in the past, collaborations have been established and developed at certain levels and with different objectives. Currently, enterprises are focusing on the digitalization process within their own business and operational workflows. This "transformation of processes" with which enterprises are striving to remain competitive in the current environment is an effect of economic and technological challenges. Enterprises are employing the latest ICT and reaping the resulting benefits. The findings obtained from the empirical approach confirm and, in some cases, substantiate this aspect. Project planning for the virtual corporation therefore has a relatively low priority and could be understood as more of a next step as a consequence of digitalization. Therefore, the assumption and consequently the research question as to whether virtual enterprises could be a future form of cooperation has not been adequately answered. However, one may also assume that, for many enterprises, this "phenomenon" cannot be fully ruled out yet.

6. CONCLUSION

This article has identified three major types of virtual companies and their beneficial use. It has shown that companies, according to their strategy, are able to join and set up the structure for being competitive on their market or possible entries into new markets. Part of the article was also the empiric study which encountered, that there was a time, that companies were quite interested in creating and joining virtual enterprise networks. Still, it is essential and the need to adapt and implement organizational changes are required. The virtual enterprise could be one of the next future steps of organizational structures. Actually, most of the plans are currently dealing with the digitalization efforts of company's structures and processes. Generally speaking, all actions are requiring most of the company resources and therefore the focus and goals are accomplishing the next level of digitalization. Once this process is finished and execution works on a stable condition, companies may proceed with the next step to make necessary adjustments for a virtual company. The basic next level for companies interested in developing a virtual company is to join any of the typologies of the virtual company. Additionally, this article shows, that there are still virtual companies in several branches and it is a proof that the idea can become more and more realistic. Besides the fact that these virtual corporations are creating obvious advantages, the decision of companies to join are still on hold or gone. Actual pandemic situations are forcing companies to react on current circumstances and most of smaller or midsize companies are struggling with survival on their market. Global lockdown of economies including special markets have also led to huge decreases of earnings and companies have suffered severe losses and damages. As a conclusion of all these influences, companies are currently not focusing on getting into a virtual enterprise network. This might be a step in the near future as soon as the healing process of companies' business goes back to normal.

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