

Virtualization and Its Role in Business

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INTRODUCTION

A new management trend of the global information technology (IT) application—virtualization—has appeared in the contemporary management. Virtualization is a process of enterprise transformation (using IT) that allows breaking through various limitations of organizational constraints. Virtualization changes dramatically the image of business, especially of small and medium enterprises (SMEs); by adopting the concept of virtualization, they can become fully competitive and may effectively operate in the global market. Barriers of the scale between SMEs and large organizations disappear. This new type of organizations is often called in literature *modern organization* or *virtual organization*. Organizations of this type have an effective decision-making process, and function based on economic criteria. Consequently, their opportunities to grow and to compete in the global market are greater than for traditional SMEs. Hence the thesis that virtualization allows individual organizations to enter strategic co-operative alliances with other similar businesses. Such of virtual organizations have a competitive position in the global market.

In the literature, there are many terms used to define virtual organization: “network organizations” (Drucker, 1988, p. 9), “organizations after re-engineering” (Hammer & Champy, 1993, pp. 77-79), “crazy organization,” “crazy time for crazy organization” (Peters, 1994, pp. 5-7), and “intelligent enterprise” (Quinn, 1992, p. 3).

BACKGROUND

Virtualization, defined as a process of continuous transformation, is a herald of a new direction in the science of organization management. In the context of this analysis, this process may assume such form that will allow them to become competitive in the global market. The process of transformation consists of quick adjustments of the enterprise to new requirements (Hendberg, Dahlgren, Hansson, & Olive, 2000). This is done through changes in the organizational structure as well as in the portfolio of products and services. These changes are possible due to development in the IT sector, particularly Internet applications (Kenny & Marshall, 2000).

From the theoretical perspective, we can separate the following forms of virtualization:

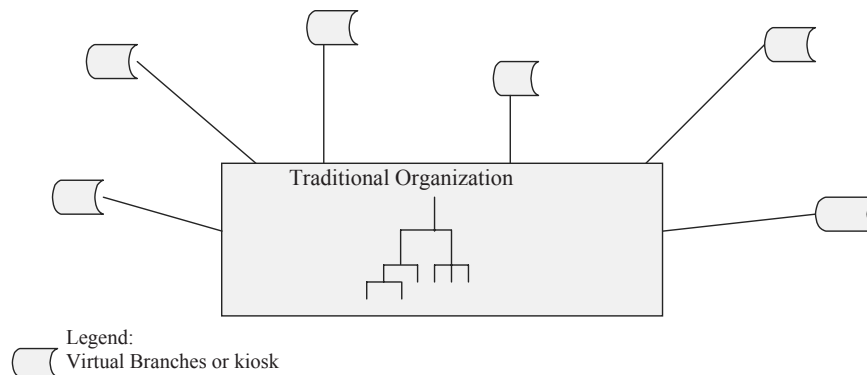
1. Functional extension (i.e., a vertical development). This occurs when the enterprise either wishes be closer to the customer and it does not have adequate resources or when the establishment of a traditional branch is not profitable. The enterprise creates for this purpose virtual branches or *kiosks*. Sometimes it enables their customers to use its services via computer or mobile phone. Examples are Internet banks, bookshops (best known is amazon.com), department stores, and travel agencies. Large companies also commonly extend their scope through such vertical development. It ensures increased competitiveness with a simultaneous control over the whole organization. SMEs apply such a strategy to a limited extent, most often for the purpose of marketing their presence in the Internet.
2. Creation of the virtual organization, or the horizontal development. Such a development occurs through a virtual incorporation of other organizations. The literature lacks a unanimous definition of this concept (Hendberg et al., 2000; Kisielnicki, 1998; Quinn, 1992; Scholzch, 1996).
3. Specialist structures being created in order to collaborate. In physical terms this is a computer or a network of computers equipped with specialist software. This form of virtualization is used for raising qualifications of the personnel by both SMEs and large enterprises (Fong, 2005).

For the purpose of this analysis, we assume that:

Virtual organization is created when its members voluntarily enter in relations of various types to achieve their common goal. Every member who creates this organization defines duration of the relation. The member who first admits that the existence of that relation is unfavorable, makes the decision on its liquidation, and withdraws. The virtual organization operates in the *cyberspace* and requires existence of the Internet and global IT infrastructure.

LSEs use IT to strengthen their competitive position in relation to other enterprises. As Hammer and Stanton (1999) rightfully notice, IT becomes—for a certain class of organizations—a “wall” that divides them from other enterprises. Large enterprises are described as “castles” (Hammer & Stanton, 1999). LSEs build these “castles” to protect themselves from competition. SMEs do not have such a sheath. They are more flexible than LSEs at a price: they are more prone to infiltration. In general, however, the

Figure 1. Virtual organization based off traditional structure



more experienced and knowledgeable the SMEs are, the more attractive they are to other enterprises seeking their share in the virtual enterprise.

MAIN THRUST OF THE ARTICLE

Virtualization in Traditional Organizations

Virtualization allows for organizational development at much lower cost than through the traditional process. The following diagram presents a virtual organization based off a traditional structure and connected with its virtual elements. These elements are flexible, allowing the organization quick adjustment to changing environments.

The virtualization may be developed as follows:

- The organization creates virtual kiosks or shops. For example, an organization that sells furniture using the Internet may present its products on a computer screen. It may also receive orders from customers located outside their traditional market. Other organizations (tourist, real estate, bookshops, stock exchange, etc.) may operate in the same manner.
- An organization places information about its activity on the Internet (Porter, 2001). It is available to its clients 24 hours a day, seven days a week, rather than being limited to office hours. Internet banking services are a good example. In addition, the expenses connected with the services of an organization are shifted to the client (the client pays for the terminal, access to the Internet, etc.). The organization covers the cost of the development and maintenance of an application.
- The organization creates a possibility of working from home (called Tele-work). It is a good way of increasing professional activity in those regions where it is dif-

icult to find “traditional” employment. Also, through a Tele-work, a local organization may become a global one.

Virtualization allows traditional organizations to have a wider range of influence. Society is better informed of the organization’s activities both by the organization itself and by its clients. The restrictions on this development are varied. The most common include available financial resources for IT infrastructure, language, and a necessity to have global, reliable computer networks. It should also be stressed that, unfortunately, virtualization enables organizations that are socially unaccepted (pornography, terrorism) to operate freely.

Based on the analysis of organizations that use virtualization, it is estimated that their operations require five times lower investment outlays. Generally, minimum savings obtained as a result of virtualization exceeded 60%. Only in a few cases, this proportion was less favorable.

In the organizations using Tele-work, the proportions are difficult to calculate. The analysis of organizations using Tele-work for outsourcing their services to developing countries confirms the effectiveness of virtualization. A good example is software development. The companies from highly developed countries (U.S., Great Britain, etc.) employ programmers from India, China, or Pakistan. This situation is beneficial for both the company and the countries providing resources.

A different situation occurs when Tele-work is connected with professional activation of the disabled or unemployed. Direct costs are higher as we deal with the poorer part of the society. Thus additional costs have to be incurred for training, hardware, and software. Unfortunately, there is no data available to make a precise estimate. In many countries, the cost of training and equipment is covered by special social programs. It is also difficult to estimate advantages. It may be said that social effect (i.e., decreased unemployment)

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