Knowledge Management in Virtual Organizations

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ABSTRACT

This paper attempts to clarify knowledge management in virtual organizations. As a result, first of all, the present paper describes the concept of virtual organization and its related concepts. In the next step, knowledge management is described. Then, knowledge management in virtual organizations is clarified. Thereafter, this paper illustrates the important role of information and communication technologies in virtual organizations which facilitate knowledge sharing among personnel and partners; and make various partners operate as an integrated system. Moreover, this paper provides further insight, for managers of organizations, on investing in information and communication technologies which contribute to organizational superior outcomes.

Keywords: Knowledge Management, Virtual Organization.

I. INTRODUCTION

Because of the globalization, today’s organizations need to transform from traditional industrial enterprises into the modern post-industrial ones, which contributes to the flexibility and innovativeness of them; and they should pay more attention to factors which facilitate this transformation. Therefore, they should focus on knowledge sharing among personnel and their partners which leads to increase attention toward the use of information technology and helps organizations to adapt themselves to the rapid environmental changes. Further, the rapid changes in today’s global market have contributed to changes in the structure and functioning of organizations [1]. Considering this, explain the need for a new form of organizational structure i.e. “virtual organization” in today’s uncertain environment. In virtual organizations, personnel operate at a remote distance from one another and also from their managers [2]. Virtual organizations feature organizational flexibility and responsiveness unrestrained by the traditional barriers of place and time; and it is achieved through information technology. Thus, today’s organizations spend huge sums of money on information technology just to develop virtual organizations.

According to [3], “in the modern global economy, the increasingly rapid flow of information, and the growing recognition of the significance of intellectual capital, knowledge is increasingly claimed to be a critical resource of competitive advantage for organizations. Thus, the idea of knowledge management (KM) has enjoyed widespread popularity in today’s studies. Moreover, the rise of the knowledge economy has seen a proliferation of information and communication technologies, coupled with greater organizational complexity, the growth of virtual and global organizations and rapid change.”

Although, today’s organizational structures are changing into a new form to achieve superior performance, there is little attention given to the research about knowledge management in these new forms of structures (i.e. in virtual organizations). Thus, the present paper attempts to provide a comprehensive review on knowledge management in virtual organizations and the related concepts to demonstrate its importance to business owners to provide sustained competitive advantages for their organizations.

II. THE CONCEPT OF VIRTUAL ORGANIZATION

According to [4], the term ‘virtual organization’ evokes the special status of groups created through the use of groupware such as computer conferencing. Similarly, [5] stated that a virtual corporation is a temporary network of independent companies - suppliers, customers, and even rivals - linked by information technology to share skills, costs, and access to one another's markets. This corporate model is fluid and flexible - a group of collaborators that quickly unite to exploit a specific opportunity. Further, according to [6], a virtual corporation consists of the company that faces the customer and a network of other companies that co-operate to achieve what none of them could achieve alone. This arrangement permits each
participant to concentrate on what each does best and to limit its risks and investments to its core competencies. Moreover, according to [7], a virtual company is where work is performed outside of the definition of place. There’s no factory floor, no retail store, no conference room, no cubicle farm. Virtual work is primarily the manufacture, retail, and distribution of intellectual property.

Moreover, it is important to note that there are some factors causing virtual organizations to form. According to [8], the trends that lead to virtual organization have increased in business world. The trends towards virtual organizations are reviewed by [9] and are widely cited in the literature. According to [8], four key trends toward virtual organizations can be named as follows:

2.1 Pace

It is important to note that today’s businesses run forward in a high speed which demand flexible organizational structures that able to response to environmental changes immediately. According to [10], the business market would turn into “survival of the fastest, not the fittest”. And according to [8], this can be witnessed by the compressed life cycles for all activities in the value chain, and hierarchical organizations that cannot respond to new demands.

2.2 Cost

According to [9], the decreasing cost of market entry, like the cost of information services and other technology-driven industries, can be named as second trend toward the formation virtual organizations. Based on [9], in today’s industries, “even small undercapitalized startups can have an enormous impact on innovation”. Thus, it is inferred that to survive in such competitive market, demands special organizational structure like, that of the virtual organizations.

2.3 Personalization (Customization)

In today’s business world, various groups of customers demand different goods or services. As we know, the survival of all organizations depends on their customers satisfaction from the quality of the services and goods they receive. Thus, it is critical important for organizations to identify these different needs of all customers and satisfy their needs; to have a loyal base of satisfied customers. To serve the mentioned purpose, organizations need flexible and responsive structure. As inferred, virtual organizations have appropriate characteristics to do so.

2.4 Globalization

Globalization connotes an expansion of interfaces between nations, the flow of business, goods or capital from one country to another. A global enterprise, [11]:
- Draws resources from the world;
- Views the entire world as its home;
- Establishes a worldwide presence;
- Adopts a global business strategy;
- Transcends internal boundaries (of people, process and structure) and external boundaries (of nation, time and space).

According to [12], globalization can be defined as follows (cited in [13]):
- A process whereby markets and production in different countries become increasingly interdependent due to the dynamics of trade in goods and services and flows of capital and technology.
- In addition, a change in the nature of goods being traded, with vertical transnational production being fragmented, more intermediate goods crossing borders and corporate strategies based on outsourcing to centers based on international specialization.
- The movement of factors of production from one country to another.
- The integration of financial markets (the most transferable factor of production) and more fluid flows of international capital.
- The creation of a global market based on high levels of cross-border flows of labor migration, trade, communication, transport of goods and other items.

The evidence for the increased importance of international business comes from many fronts [13]. In addition to the proceeding paragraphs, Information Technology enables organizations to adapt themselves with the changes caused by globalization. As inferred, VOs have the most appropriate characteristics to operate in today’s global market.

III. KNOWLEDGE MANAGEMENT

Taking into account the environmental changes, organizations should pay attention to knowledge sharing, knowledge management and intangible assets as competitive advantages. According to [3], the value of a firm’s products and services is based not only on its physical resources but also on intangible knowledge assets. Some firms perform better than others because they have better knowledge about how to create, produce, and deliver products and services. This firm knowledge is difficult to imitate, unique, and can be leveraged into long-term strategic benefit [14]. Knowledge management is one of the new topics of academic and professional discourse in
many fields, such as cognitive sciences, sociology, management science, information science, knowledge engineering, artificial intelligence, and economics [15][16][17] [18][19]. According to [20], knowledge management is defined as the creation, acquisition, sharing, and utilization of knowledge for the promotion of organizational performance. Further, [21] proposed a model of the relationships among data, information, knowledge, and wisdom (see Figure 1), and stated that data, information, and knowledge are necessary for dealing with regular affairs, whereas wisdom is necessary for dealing with irregular affairs and adopting appropriate actions when faced with a changing environment. According to their view, knowledge management not only manages knowledge, but also encourages individuals to utilize knowledge effectively while working [22].

![Figure 1. Relationship among data, Information, knowledge and wisdom. Source: [21]; Cited in [3]](image)

According to [23], “knowledge management is a managerial philosophy, which is perceivable in the practices of different organizations. Knowledge management is not an ultimate tool that solves all information and knowledge creation problem. However, utilizing knowledge management, better performance can be achieved by interaction between individuals or groups. Moreover to be efficient, knowledge management requires storage for information and knowledge, which is open to organization member for searching critical information, knowledge or the best practices. Thus, knowledge management is the learned method for knowledge sharing and interaction and furthermore, knowledge management clarifies which way to operate. Knowledge management should be considered an organizational process, which is used to achieve better performance due to effective knowledge sharing and organizational learning, recognizing and developing competencies, and gaining from individually different skills and knowledge.”

In addition to above literature, it is important to note the differences between tacit knowledge and explicit knowledge. According to [24], “the most fundamental and common classification of organizational knowledge is along the explicit-tacit dimension. In this classification, explicit knowledge is considered to be formal and objective, and can be expressed unambiguously in words, numbers and specifications. Hence, it can be transferred via formal and systematic methods in the form of official statements, rules and procedures and so is easy to codify. Tacit knowledge, by contrast, is subjective, situational and intimately tied to the knowe r’s experience. Thus, it is difficult to formalize, document and communicate to others.”

Further, Knowledge management is defined as any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organizations [25].

To sum up, [26] provided a comprehensive model of knowledge management which maps the concept of knowledge management clearly (see figure 2):
After reviewing the relevant literature about virtual organization and knowledge management, and describing the related concepts, the relationship between these two concepts is going to be described in the following part.

IV. KNOWLEDGE MANAGEMENT IN VIRTUAL ORGANIZATIONS

Taking into account the above mentioned literature, it is inferred that the importance of virtual organizations is growing in global business world. Thus, the ability of organizations to create, transfer and manage knowledge faster and easier than competitors becomes critical important issue. [27] introduced five factors, which show the importance of knowledge management for virtual
organizations; as follows: (1) Competitive advantage, (2) Technology, (3) Organizational change, (4) Decision making, (5) Workforce demographics.

A) Competitive advantage

As discussed, in today’s competitive global market, all organizations need to use and manage knowledge to achieve competitive advantages. Further, with regards to the nature of virtual organizations, it is obvious that knowledge management play critical role in these post-industrial organizations.

B) Technology

As can be seen, because of the daily progress in all sciences, today’s technology is dynamic and changes every day. Thus, organizations should make their personnel familiar with new technologies; knowledge management is a key concept for organizations (especially virtual organizations) to do so. Knowledge management in virtual organizations helps to disseminate information among personnel, who are far from each other, effectively.

C) Organizational change

As [1] discussed, the changes in today’s global market have contributed to changes in the structure and functioning of organizations. Thus, it is critical important for organizations (especially virtual organizations) to create, use and manage knowledge to cope with the complexity and rapid changes.

D) Decision making

Previous studies demonstrated that applying proper knowledge by organizations helps them to achieve superior performance. Knowledge management facilitates the process of decision making in organizations. In virtual organizations, as partners and personnel operating far from each other, appropriate knowledge assists them to plan, organize, and coordinate activities in a better way.

E) Workforce demographics

In virtual organizations, as there are personnel with various nationalities, language, age, gender and etc. the effective way to coordinate all these co-workers is to facilitate and enhance their relationships and interactions with the aid of knowledge transferring, among them.

4.1 ICT and knowledge management in virtual organizations

organizations should be able to exploit and apply their knowledge and learning capability better than their competitors. This capability depends on how the organization assists knowledge management with information and communication technology (ICT). ICT gets crucial importance in today’s business because of the continuum changes in today’s business and the need to facilitate transaction between partners. Since many software packages are developed by different vendors, the alignment between partners has become one of the biggest challenges, leading to a situation where failure to achieve system integration across the transaction between partners becoming one of major growing problems in today’s organizations. According to [28], Channel partners can achieve higher system compatibility and integration by investing in advanced IT.

As there is no face-to-face interaction between partners or personnel, the critical role of ICT will be more obvious. Virtual organizations must invest on ICT to facilitate knowledge transferring among separated partners. ICT prepares a condition for virtual organizations that although they are separated, act as an integrated system. Figure 3 contributes to better understanding of how ICT integrates separated partners and how facilitates knowledge transferring among partners.
Figure 3. ICT, knowledge management, and partners integration in a virtual organization

As can be seen in the above mentioned figure, A, B, C, and D refer to various partners in different places. The dotted lines refer to knowledge transferring and integration between these partners. Moreover, as seen, ICT makes these separated partners as an integrated system. Further, the proposed model also illustrates the concept of a virtual organization; that some separated partners are linked to each other with the aid of information and communication technologies. To sum up, virtual organizations must invest on ICT to facilitate knowledge management among personnel and partners, which leads to organizational superior outcomes.

V. DISCUSSION AND CONCLUSION

The present paper attempts to clarify knowledge management in today’s new emerging forms of organizations i.e. virtual organizations. As discussed, because of the globalization, today’s organizations need to transform from traditional industrial enterprises into the modern post-industrial ones, which contributes to the flexibility and innovativeness of them. Thus, they should focus on knowledge sharing among personnel and their partners which helps organizations to adapt themselves to the rapid environmental changes and to achieve superior performance.

According to [26], knowledge management is about getting knowledge from those who have it to those who need it in order to improve organizational effectiveness. In the information age, knowledge rather than physical assets or financial resources is the key to competitiveness. In essence, as pointed out by [29], “Knowledge management allows companies to capture, apply and generate value from their employees’ creativity and expertise.” Moreover, because of the special structure of virtual organizations, creating, sharing and managing knowledge in such organizations need to be understood by managers to provide competitive advantages.

This paper attempted to describe knowledge management in virtual organizations and clarified that it leads to the competitive advantages of organizations. The current paper illustrated how information and communication technologies integrate various partners and make them operate as an integrated system. Although providing a foundation, future researches (both theoretically and empirically) are needed to build, augment, and refine this issue.

REFERENCES


