

Structuring Intellectual Capital as an Element of Virtual Organization in the SME Clusters

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Abstract. The purpose of this paper is to explore the intellectual capital as an element of virtual organization in the SME clusters. Effective organization and management of intellectual capital is particularly required for the SMEs in clusters joining together to form a virtual relationship. It could work alongside the other important elements of virtual organization, like effective communication, collaboration, and trust, to overcome the resource constraints of SMEs. The geographical proximity of SMEs in clusters reinforces the role of intellectual capital in a virtual organization. The sharing of optimal intellectual capital among the geographically proximate members of a virtual organization is ensured by the use of social forces. This is a conceptual research paper that takes up 'structuring' as a methodology to develop models that provide an insight into the role of intellectual capital in the effectiveness of a virtual organization. No earlier research has specifically explored the role of intellectual capital as an element of virtual organization; therefore, this research establishes the theoretical foundations for further empirical research in this area. Intellectual capital as an element of virtual organization in the SME clusters could act to achieve the organizational performance objectives. The proposed model of virtual organization in this paper, signifying the sharing of intellectual capital by the SMEs in clusters, could make their activities more effective and competitive.

Keywords: Intellectual capital, virtual organization, small and medium enterprises (SMEs), cluster, social forces

1. Introduction

Contemporary organizations are striving to acquire the essential competencies, required to learn and transfer superior knowledge to the workplace in a highly flexible environment [1]. The pursuit of organizations for increased flexibility and efficiency has resulted in the emergence of knowledge-based networks. These are complex systems having intellectual capital as an un-imitable intangible asset that ensures their success in achieving organizational objectives. Most of these organizations are also establishing virtual relationships in order to increase their efficiency. Parties in a virtual organization combine their core competencies to remain competitive in the rapidly globalizing world of today. For these organizations competence based on the acquisition and utilization of intellectual capital is essential to establish collaboration, trust, and market competitiveness.

This research specifically focuses upon the development of models of intellectual capital and virtual organization, based on the review of existing literature. The key components of both are combined in the discussion to structure a model for virtual organization among the SMEs that introduces intellectual capital as one of its key elements. The article concludes that the acquisition and management of the human, structural, and, relational capital becomes easier for the geographically proximate enterprises sharing their core competencies in a virtual setting. The conclusion also provides implications for practice and the directions for future research in this area.

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2. Literature Review

This section provides a comprehensive review of literature on the key concepts used in the research. It is divided into three major sub-sections separately dealing with the concepts of intellectual capital, virtual organization, and the SME clusters.

2.1. Intellectual Capital

Intellectual capital research is considered a causal factor in the rise of the information and knowledge-based economy with its implications in the development of technology, management, and even sociology [2]. The term was introduced by the economist John Galbraith in 1969 [3] but it received widespread acceptance and recognition by the contemporary researchers after the work of Stewart [4]. It has emerged as an interdisciplinary construct that needs to be defined in management research [5], [6]. As stated in [7] the intellectual capital entails the possession of knowledge, applied experience, organizational technology, customer relations and professional skills for an organization.

A more specific and widely recognized definition is given by The Organization for Economic Co-operation and Development [8] that describes intellectual capital as the economic value of two categories of intangible assets of a company: (1) organizational (structural) capital; and (2) human capital. Some other classic definitions of intellectual capital offered by various researchers have been collected by Marr et al. [9]. While the definition given by the OECD [8] provides two sub-classifications of intellectual capital, several other researchers have proposed three [10], [11], [4]; four [12], [13] and five [14] components classifications. For the purpose of this research, we will take up the model of [11], and others that classifies intellectual capital into three components i.e. human, structural, and relational capital.

Human capital signifies the capability of individuals who are the source of innovation and improvement in an organization [4]. The capability is usually developed by the organization's investment in employee training, competence, and future [15], and is taken by the employees as they leave the organization [16]. Thus [17] defines human capital as "an inventory of the skill sets and knowledge of individuals within an organization". Others argue that it refers to relationship ability, knowledge, creativity, attitudes, values, and motivation of employees [15], [18].

Structural capital represents knowledge that is formed by intellectual inputs of employees but against human capital, it belongs to the organization and is not affected by change of employees [14]. According to [18], "structural capital includes all the structures, procedures, routines, cultural aspects, and data bases that permit an organization to codify, organize, and diffuse internally the knowledge and experiences generated by the human capital" (p. 113).

Whereas, human capital and structural capital are internal to an organization, relational capital covers the dealings of an organization with its external environment [18]. It not only integrates the knowledge about relationships with the organization's external partners such as customers, suppliers and local communities but also stabilizes the environment and makes it accessible to the firm [4], [18], [16], [14]. It covers all the intangible assets generated by developing, maintaining, and nurturing high quality relationships with the external partners that could enhance the firm's performance [15]. Furthermore, according to [17], some authors prefer to call it customer capital because building relationship with customers is the top priority of every firm.

As a final point, the researchers argue that the three elements of intellectual capital are not mutually exclusive [5], [18], and interact with each other to increase the firm's efficiency and market competitiveness.

2.2. Virtual Organization

Globalization and information revolution have resulted in the emergence of new organization structures based on flexibility, efficiency, and market competitiveness [19], [20]. Virtual organization is one such flexible and responsive organization structure [21], [22], composed of loosely coupling individuals, capital, and technology [23].

The concept of virtual organization actually emerged with the discussion of pioneering researchers as [24], [25], and [26]. It is defined as "groups of people interacting through interdependent tasks guided by common purpose that work across space, time, and organizational boundaries with links strengthened by

webs of communication technologies” [25, p. 7]. As stated in [27] and [28] the parties in a virtual organization are geographically distributed, making it necessary to establish electronic communication and information sharing. On the other hand, while studying the coordination mechanisms in a virtual organization of SMEs in cluster, [29] argue that the virtual groups can differ in the degree of the use of ICTs. This provides an allowance for the use of face-to-face communication among parties. In some recent studies [30], [31], it is stated that virtuality increases with an increase in the use of electronic communication. Therefore, the major determinant of virtuality is “the amount of time that members spend working through computer-mediated communication instead of face-to-face communication” [31, p.188].

Regardless of the nature of communication i.e. ICT-enabled or face-to-face, it is evident that it increases collaboration and accelerates the process of decision making [32]. Hence, the researchers as [33] argue that a virtual organization contracts out almost all its functions except the name and coordination among parties. According to [34] the efficiency and coordination in a virtual organization to gain market competitiveness could possibly be achieved through a relationship based on trust. In the absence of formal control mechanisms, trust ensures that the parties continue their shared commitments [33]. Hence, it is argued that trust is a social capital resource, required to guarantee the freedom, honesty and harmony among parties.

Researchers observe that it is comparatively easier to establish a trust-based relationship in geographically proximate virtual organization because the parties can have a frequent or infrequent face-to-face interaction [33]. Moreover, a collocated virtual team is more likely to provide members with the information necessary to establish trust [35]. In addition, the parties can group together for a common purpose in the presence of a set of social norms [36].

The review of literature highlights that ICTs, coordination, trust, and the geographical location of parties are important elements characterizing a virtual organization. All these elements are greatly affected by the nature and character of human, structural, and relational capital of the enterprises. The discussion provided after the literature review analyzes the nature of this relationship in detail with the help of workable models.

2.3. SME Cluster

Industrial cluster is a geographical concentration of enterprises, producing and selling a range of related or complementary products [37]. Research [38] explains the concept of industrial cluster, stating that it combines the geographically proximate businesses operating in the same industry; and its activities depend on the availability of local facilities in the region. In [39] it is stated that mutual benefits of enterprises in an industrial cluster force them to develop and intensify collaboration with each other that results in gaining better control upon human, structural, and relational capital in their respective industries.

Furthermore, the majority of enterprises in an industrial cluster operate at small or medium scale. These SMEs are characterized by the scarcity of resources, which makes it more attractive for them to share their intellectual capital competencies in the form of a virtual organization. Social ties among organizational members develop trust that facilitates knowledge sharing among members [40]. On the other hand, defection of any party could lead to negative consequences or punishment [36]. In addition, inter-firm cooperation improves the competitiveness of parties. Therefore, according to [38], “strategies such as sharing productive resources, joining forces on the development of new products, and exchanging technical information are ways of cooperating inside the clusters” (p. 118). Hence, the SME clusters facilitate the exchange or sharing of intellectual capital.

3. Methodology

This study employs the ‘structuring’ as a strategy for research as developed by [41] and [42]. According to [41], structuring is the process in which organizational phenomena are organized and documented in the form of models. In this research, the strategy would support the development of models for the intellectual capital and virtual organization using relevant literature; on the basis of which key elements characterizing the two constructs will be identified for designing a new model of virtual organization that could present the intellectual capital as one of its principal characteristics. Other researchers as in [43] also advocate the development of models for a better understanding of virtual organization. The strategy is particularly helpful

in obtaining an insight into the areas that require more rigorous qualitative research leading to advanced organizational theory and practice.

The research was started with the search of key concepts of intellectual capital, virtual organization, small and medium enterprises, and social forces in three major databases i.e. Emerald Insight, Sage and Elsevier (Science Direct). To explore the concept of intellectual capital, a total of 130 selected articles were reviewed while for the study of virtual organization and its key elements, a total of 185 articles were reviewed. Whereas, the review of ‘SMEs’ and ‘industrial clusters’ was limited only to the literature that provided an understanding of these concepts, or the work that highlighted the nature of intellectual capital or virtual organization in the SME clusters. Theoretical concepts and models presented by the researchers have been used to structure the intellectual capital as an element of virtual organization in the SME clusters. The results and analysis of literature review are presented in the following section of discussion.

4. Discussion

Review of literature in this paper consists of three major subsections separately dealing with intellectual capital, virtual organization, and SME clusters. Before creating a link between intellectual capital and virtual organization, it would be appropriate to discuss the characteristics of SME cluster that support the formation of virtual organization and the strength of intellectual capital. Literature supports that SMEs are characterized by scarcity of resources that makes it difficult for them to compete with large-scale organizations both nationally and internationally. Hence, the SMEs need to establish alliances and virtual relationships with the other enterprises operating in the same industry in order to ensure the strength and market competitiveness while safeguarding their internal autonomy.

Moreover, the geographical proximity of SMEs in clusters offers several advantages towards sharing intellectual capital and other resources required for an effective virtual relationship. Firstly, the enterprises can share their competencies in taking up organizational, process and innovation capital. Thus, the resulting virtual organization is more efficient in accomplishing its objectives. Secondly, the proximity of enterprises makes it possible to establish timely and constant communication even with lesser advanced means of ICTs or face-to-face meetings. Thirdly, the relationship of trust among parties, which is the essence of relational capital and an important element of virtual organization, could be maintained among geographically proximate SMEs without much difficulty. Fourthly, the geographical proximity helps in making the most of relational capital that resultantly guarantees better coordination among parties. Fifthly, social forces are much stronger and active in the geographically proximate industrial clusters than at a distance. These could prevent the parties from defection or safeguarding self-interests during a virtual relationship. Lastly, human capital which is most important for innovation, but always limited for SMEs due to the difficulty in acquiring and retaining it, could be utilized and shared for its optimum performance in the SME clusters.

Based on the review of literature, it could be argued that the core competencies of a virtual organization come from the elements of intellectual capital. In Figure 1, we have created a link between the components of intellectual capital and virtual organization on the basis of which one could structure the it as an element of virtual organization.

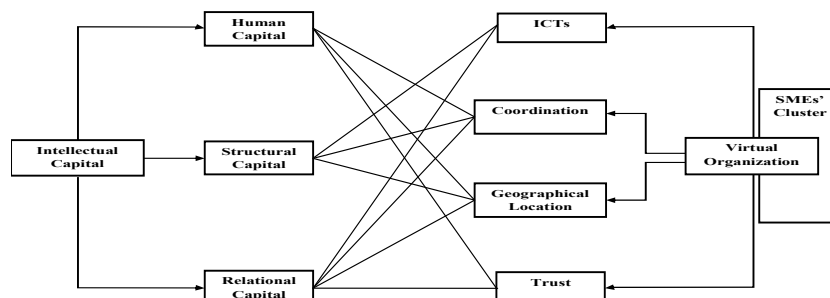


Fig.1 Relationship between elements of Virtual organization and Intellectual Capital

Figure 1 indicates a virtual organization created among SMEs in cluster. It also establishes that ICTs, coordination, trust, and geographical location are the key elements of virtual organization. On the other hand,

intellectual capital has been subdivided into three components: human capital, structural capital, and relational capital. A closer examination of Figure 1 reveals that the components of intellectual capital and virtual organization strongly affect or get affected by the nature and character of each other. Hence, it could be structured as an element of virtual organization where the two constructs emerging from globalized, knowledge-based, and digital economy of the recent times could increase the chances of survival and competitiveness for the organization. The resulting model that introduces intellectual capital as an element of virtual organization is given out in Figure 2.

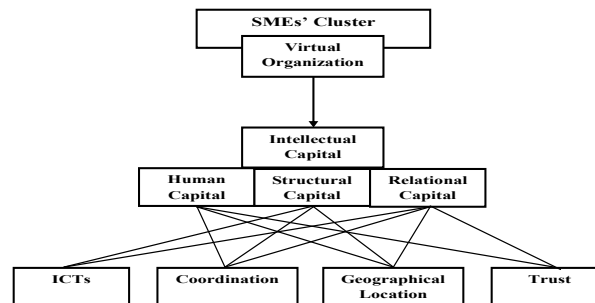


Fig. 2 A model introducing intellectual capital as an element of virtual organization

Figure 2 reveals that human capital is connected with coordination, geographical location, and trust. Coordination and trust among parties are necessary to ensure that they remain associated at an optimal equilibrium. While, in the SME clusters, geographical proximity of parties makes it easier to share their resources. It is only with a valuable human capital that a virtual organization could get its key intangible assets of coordination and trust. That is, coordination and trust in a market-based structure could be effectuated by an efficient workforce who is capable of developing effective relationship with the other parties. In addition, human capital in the geographically proximate virtual organization could be shared among members to establish the ultimate efficiency and market competitiveness.

Structural capital is linked to the ICTs, coordination, and geographical location in Figure 2. It supports the development and use of an efficient ICTs infrastructure that links the parties in a virtual organization. A well developed set of procedures, databases, and a continuous sharing of information using ICTs could help in establishing better coordination among parties. Structural capital has a reciprocal relationship with geographical proximity of enterprises where both have potential to reinforce the effects of each other upon efficiency of virtual organization.

Finally, the model depicts that relational capital is linked with all the four elements of virtual organization. It affects and gets affected by the impact of geographical location of parties on a virtual organization. It could also make the use of ICTs among parties more effective and accomplishing. Moreover, the relational capital helps in developing trust and coordination among parties which are extremely important for the success of a virtual relationship. The strength of social forces/pressures is also determined by the nature of relational capital. Social forces active in geographically proximate clusters as a result of well developed relational capital, could establish a trust-based relationship among parties. It also ascertains coordination among members as the steps to protect self-interests or defection by any party could lead to extremely negative outcomes such as social isolation.

5. Conclusion

A review of literature and the discussion in this papers leads to the conclusion that there is a strong association between human, structural, and relational components of intellectual capital and the elements of virtual organization, on the basis of which intellectual capital could be structured as an element of virtual organization. This research also highlights that the development of virtual relationship among SMEs in clusters further enhances the impact of intellectual capital upon the elements of virtual organization.

This is an exploratory research based mainly upon the review and analysis of existing literature. It employs 'structuring' as a methodology to develop models presenting intellectual capital as a key element of virtual organization especially in the SME clusters. Therefore, there is a need for further research that could

establish the relationship between two concepts, and present their impact upon organizational performance in empirical and quantifiable terms.

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