Intellectual Capital Management in SMEs and the Management of Organizational Knowledge Capabilities: An Empirical Analysis

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Abstract. Knowledge management is a complex concept of difficult implementation in the organizations and only possible to understand from a socio-technical point of view, where the human component establishes a relation of synergy with technological and cultural elements that allow him to extend their capabilities. The proposed model is based on a cause-effect relation, as the result of the influence of IT/IS presence, organizational culture and human capital in organizational knowledge management, within the framework of a maturity model. The investigation was developed on a group of Latin American SMEs from the industrial and manufacturing sector, using a Partial Least Squares (PLS) approach and k-means clustering for statistical analysis. Structural validity of the model was verified and reliability consistency, stability, and prediction ability were demonstrated. The analysis shows that Latin American SMEs have not found yet the balance that allows them to efficiently take advantage of the installed technology and the capacity of their human resources to operate its intellectual capital.

1 Introduction and Motivation

This research seeks to discover and to verify if small and medium enterprises (SMEs) have overcome the barriers of their nature and internal structure, in order to extend at operation levels which help to develop competitive advantage from their own knowledge.

Historically, the need to measure and manage intellectual capital has raised a high interest among researchers [1-3], especially in the case of SMEs –since they represent a very high percentage of many national economies– and their development has a direct impact at regional and national scale. Nevertheless, it is accepted that SMEs must learn to develop a balance between the accumulation of human capabilities, their technological potential and reliable processes for the handling of information and knowledge [4].
Starting off from a constructivist approach, from an epistemological point of view this represents the creation of a knowledge repository as a source which contributes to supply information to all employees and helps to create a knowledge network. From the ontological point of view, specifically in the social aspect, this repository may be shared, together with experiences and shared points of view from everyone in the company. For such reason, we propose a theoretical model whose aim is to demonstrate that, from a socio-technical perspective, the influence of technologies and information systems, the organizational culture and the human capital in the sustained development of organizational knowledge management capabilities determine a level of maturity of such capabilities to manage the intellectual capital in SMEs.

Therefore, SMEs may progress and develop their capabilities to manage organizational knowledge and finally reach an acceptable level of maturity to manage intellectual capital if three conditions are met: (a) the presence of a technological platform supporting the processes of information and knowledge handling; (b) an organizational culture based on the free exchange of information, teamwork and continued improvement; and (c) human capital prepared to face the challenges of information and knowledge management, supporting and enriching it with their experience, and their general and technical education.

2 Theoretical Foundations

The framework for this study is based on the concept of Intellectual Capital, upon three basic dimensions (human, structural and relational capital) of intellectual capital [3, 5]; these are associated with a set of respective internal sub-dimensions: (1) employee capabilities, skills, satisfaction, education and training; (2) organizational culture, processes and technology; and (3) clients, suppliers, partners, stakeholders and community [7, 8].

Once established this general framework, a comparative structural analysis of the principal intellectual capital measurement methodologies –Skandia Navigator [6], Monitor of Intangible Assets [9], Balanced Scorecard [10] and the Technological Manager [7] – is needed in order to define the parameters for the model in a similar context to those from literature.

From a knowledge management point of view, the approach of “space of information” (i-space) proposed by Boisot [11] was adopted. This approach identifies knowledge management based on information processing [11-14]. Boisot defines the “space of information” as a three-dimensional area that is present, to a lesser or higher degree, within all the organizational elements and which consists basically of the processes of information encoding, information abstraction and information dissemination or diffusion. Information encoding groups the names and internal language used within the company as part of its operations and processes; information abstraction relates to the way the company stores all the information about its business; and distribution of information comprises the mechanisms for information retrieval and distribution in a clear common language for everyone in the company.