Chapter 3.5
A Methodology for the Auditing of Technological Knowledge Management

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ABSTRACT

This work presents a methodology for auditing technological knowledge management that allows the proposed solution to be aligned with the competitive strategy of organisations, as well as with their processes, key competences, and the associated knowledge resources. That enables the solution to be technologically oriented and to be applied to different types of business, from SOHO and SME to large companies. Firstly, the authors will present their view regarding knowledge management, which is a technological perspective; they will specify the context of application and their objectives. Secondly, the authors will analyse the characteristics of knowledge as the object to be managed and will identify, analyse and criticise the most relevant knowledge management approaches, models and methodologies related to their objectives, then outlining the requirements that technological knowledge management must meet. Thirdly, the authors will present the components of the model on which the methodology is based, and they will describe its stages and tasks. Then the authors will analyse the advantages of the model and methodology regarding other proposals. Finally, the conclusions and future lines of work will be presented.

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INTRODUCTION

Within literature related to Knowledge Management there is a great diversity of models, which can be classified within the following dimensions

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or approaches: a) knowledge resources (Leonard-Barton, 1995; Sveiby, 1997), b) knowledge activities (Alavi, 1997; Leonard-Barton, 1995; Nonaka, 1994; Szulanski, 1996; Wiig, 1993) and c) factors of influence (Andersen & APQC, 1996; Szulanski, 1996). While the first approach attaches importance to the sources of knowledge themselves and gives as its main purpose the measurement of the value of knowledge for the organisations where it is placed, the second focuses on the possibility of the evolution of knowledge and has as its main objective increases in creativity and innovation in organisations. Finally, the third approach is aimed at the structure of organisations and mainly investigates the adaptation of knowledge to their strategic objectives.

A second way of classifying the proposed approaches and models, complementing the first, is according to their dependence on technology, including the following categories: a) knowledge evaluation, b) knowledge management and c) technological knowledge management. While the first approach is aimed solely at the assessment of the intangible assets of organisations, regardless of whether their sources are people or information systems (Sveiby, 1997), the second focuses on the management processes of said knowledge, which may be independent of technology (e.g. the creation of a training plan) or dependent on it (e.g. creating a document based project management system) (Leonard-Barton, 1995; Nonaka, 1994; Szulanski, 1996; Wiig, 1993), and the third focuses its attention on the management, mainly through processes and computer systems, of the knowledge of organisations (Alavi, 1997; Andersen & APQC, 1996).

According to Holsapple & Joshi (2002), none of the mentioned models covers all of the specified dimensions. On the other hand, it can be seen that the group of models oriented mainly towards technological knowledge management is relatively small.

To better understand technological knowledge management, it is very useful for us to analyse the Conceptual Model of the Knowledge Management System proposed by (Kerschberg & Weishar, 2002), that is based on his Model of Knowledge Management Processes (Kerschberg, 2001) in which the author attempts to connect processes with data and their representation. The aforementioned conceptual model, based on three layers (the data layer, the knowledge management layer and the presentation and creation layer), proposes the modelling of a portal that is used as a vehicle to create, share and search for knowledge in organisations. If we observe the group of services defined in the middle layer, and taking into account the business model of organisations and the goals established by their strategic management, it can be divided into two sub-groups: a) Services Based on Unstructured Knowledge and Information and b) Services Based on Standardised Processes and Structured Information (Paniagua, 2007).

The services of the first sub-group are those that are aimed at the organisation's needs relating to its competitive knowledge: business intelligence for the monitoring and management of processes; knowledge engineering for the modelling of intensive knowledge processes and the culture of the organisation, management of the unstructured or semi-structured information of the organisation that amounts to 80% of all of the available information, and work in group processes, containing a certain degree of automation of the workflow.

Therefore, a technological knowledge management model must take the following requirements into account:

- To find a technological strategy, composed of a group of solutions, for the knowledge management of the organisation,
- To be composed of a group of services based on knowledge and unstructured information, and which must be integrated into the services based on standardised processes and structured information.
- Said services must apply the appropriate activities of knowledge transformation to

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