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Note-taking as a main feature in a social networking platform for small and medium sized enterprises

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ABSTRACT

Managing knowledge (especially tacit knowledge) in small and medium sized enterprises has always been a challenge. They have special characteristics that are related to their size, structure and their members' coordination and collaboration. These specifications affect the process of knowledge management in such enterprises. In addition, they suffer from the missing of codified and standardized supports. All these factors illustrate the urgent need to provide them with an appropriate knowledge management solution. In this paper, the special needs for knowledge management in this kind of enterprises is illustrated. The importance of an effective note-taking tool is justified. A semantic model that takes into account these needs is presented. In addition, we explain our choice of MEMORAE web platform as a tool for knowledge organization. We also clarify the functionalities which have been added to MEMORAE platform in order to be dedicated to these enterprises. Finally, the web platform is introduced.

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1. Introduction

Knowledge management in organizations has been of growing interest since the late 80s, supporting the transition towards the Knowledge Based Economy. However, small and medium sized enterprises (SMEs) are often considered as remaining external to this trend. Concretely, knowledge management systems are quite rarely implemented in these small structures. The explanation associated to this lack of knowledge management is that SMEs knowledge bases are mainly tacit, which remains quite incompatible with the representationalist approaches that underlie knowledge management systems development. For example (Duncan, 1979) precises that in order to facilitate knowledge sharing, the knowledge has to be communicable and integrable. This means that it should be represented in a comprehensible and distributable manner and should be saved in an accessible and consistent organizational memory. This tends to associate knowledge management to an effective and efficient knowledge codification process. The SMEs difficulties would be the consequence of lack of codification that would create resistance to implement knowledge management systems.

Complementary to this explanation, another nature of competitive advantage associated to SMEs. Indeed, flexibility and reactivity are at the core of added value for these small structures. Introducing KM tools could alternate this valuable differentiation.

So, introducing KM tools in SMEs is a kind of challenge, which has to take into account these specificities to promote knowledge management KM tools as beneficial whereas they are often considered as constraints for these SMEs.

That's why functionalities and needs specifications have to be carefully addressed. SMEs cannot be considered as big firms model scales, but have their own consistency. Section 2 of this contribution will detail a few of these specificities.

According to Lytras, de Pablos, and Global (2009), there is a direct relation between semantic technologies and modern social networking. Lytras, de Pablos et al. (2009) states that the semantic web enables on-line and explicitly represented social information. Social networks in turn provide a new approach for knowledge management and collaborative learning. In such approach, the semantic web provides a semantically rich knowledge representations of interactions between users. The semantic technologies which are designated for social networking are called "social semantic web" (SSW). The SSW provides a new paradigm for creating, managing and sharing knowledge through combining the technologies and approaches from the Semantic Web and the Social Web (Web 2.0) (Lytras, Sakkopoulos, & Pablos, 2009).

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Our CESACO research project is indeed dedicated to knowledge capitalization within industrial SMEs, not to homothetic adjustments of systems initially developed for big firms. A field study in the French Picardy region identified a specific interest in notes sharing (Section 3). In Section 4, we justify our choice for a collaboration tool that support note taking and we explain why other existing tools are not appropriate to be used by SMEs. We also explain why an appropriate tool should be based on a semantic model. Furthermore, in Section 5 we describe the semantic model and the web platform (called MEMORAe). We explain why the platform partially meets SMEs' needs for collaboration. The developed model and the platform are presented in Section 6. Conclusion and further work are in Section 7.

2. SMEs and knowledge capitalization

Apart from a lower turnover and balance sheet weaker than in big firms, SMEs are defined by their small number of employees, less than 250, which leads to a relative important "weight" of each member (Mahe. de Boislandelle, 1996). The main functions of the business are also distributed among a few members who will frequently have to assume different roles and contribute to different functions. This multitasking generates highly tacit knowledge, incorporated in non-formalized know-how and implicit collective rules of thumb and routines.

In this context, supervision and coordination remain very direct. There are very few hierarchical levels inside SME. Employees and owner-manager mainly have direct interaction and this coordination is usually made more in the action than based on prescriptions and codified rules (Tsai, 2009) in opposition with big firms models.

This rupture becomes crucial to apprehend knowledge management in SMEs. Two consequences must be noticed. First, these characteristics must not be considered as a handicap for small firms. Indeed, the direct and informal coordination is an evident productivity source. Direct information transfer, rapid decision making, global supervision make SMEs more reactive and flexible. So, when thinking of capitalization, these flexibility and reactivity must be preserved.

Second, this emphasis on individuals tends to create dependence upon a few members for the ongoing activities. This dependence can lead to difficulties when SMEs are faced to employees turnover and more generally collective learning. This is reinforced by the importance of behavioral or interactive learning processes (Lima & Filion, 2011). Sharing, storage and evolution of competences are strongly linked to individual practices and feedbacks from other members' actions. So, the main issue of the knowledge management can be summarized as follow: it has to help managers to move from an individual to an organizational level for knowledge management. At the same time, this evolution should not affect the flexibility and reactivity of these small businesses. This compromise is at the core of the development of knowledge management systems. Our field study aims at specifying and addressing empirically this issue.

3. Field study

In order to better understand how to introduce a Knowledge Management System (KMS) taking into account these previous explanations, long preliminary interviews of four industrial managers in very small enterprises (VSEs) were organized. The objective was to better understand this quite unfamiliar context since industrial small firms are recognized as weakly engaged in information and communication technologies (ICTs) appropriation and learning.

These preliminary interviews were built around the generic core processes of Grundstein (2000) that describe the learning

organizational process in five steps: location, actualization, enhancement, preservation and management.

These interviews have pointed out two specificities which highlight this low diffusion of KMS in VSEs and SMEs. First, coordination mainly relies on direct supervision and interaction. Activity often takes place in concentrated spaces of work and between only a few actors with a direct and flexible coordination. At the opposite of bigger and highly structured organizations, efficiency and productivity in these small organizations are closely linked to these interactions that are very little mediated through procedures, codified rules or documents. So, the use of these KMS is often seen as inappropriate and useless.

Secondly, managers mention the difficult dilemma they face when they want to introduce these digital tools. Either they focus on standard solutions that are conceived for bigger organizations, and they regret to use an oversized tool; or they focus on a complete customized solution that will be well suited for their uses. But this last solution is costly for these small businesses.

In order to check these points of view and furthermore to better specify and discover the specific needs of these SMEs, we made the choice to reinforce our empirical approach through two channels: observatories in situ inside our partner Tour Equipement and interviews in 18 SMEs all in mechanics in the Picardy region. The only fact that our partner and 18 SMEs accept to spend time for our study shows how the question of knowledge management is one of their preoccupation. They especially accepted to share their time for interviews and observation when we specified them that this research is turned towards SMEs and not stemming from big firms systems. They all mentioned that a part of the official and institutional documents that are capitalized most of the time within paper boxes (because of fiscal and administrative obligations). They regret that their personal and quick note-taking are totally lost although they often concern details that make the difference when they have to repeat an answer to a demand or to reply to a specific order.

In order to take into account the specific needs of the SMEs and to avoid the two usual pitfalls, inefficiency and "over sizing", we used with our partner an experimental methodology based on a research design approach. Thanks to our small partner firm specialized in conception and production of clamping jaws, we started our inquiry by identifying a problematic situation that could be solved or improved thanks to a digital solution. The elaboration and the introduction of the solution was a step by step process involving the users themselves during the whole process. Building on this situated, iterative and collaborative methodology, we hope to facilitate the learning and use of this new solution. To identify a problematic situation, as previously mentioned, different interviews were conducted with the staff of the small partner firm (15 employees, general mechanics).

These semi-directive interviews identified the different fragmented and personal practices associated to the main functions of knowledge management. They have all mentioned a critical point in the annotation process that supports their daily activities. Each of them has its own habits and artifacts to leave traces of its contribution. These practices are likely to occur two limitations.

The first is a temporal limitation. These empirical practices are inadequate for capitalization and storage. Information that is inscribed on these different notes is frequently lost or thrown out, whereas their preservation could be useful. The second is a collective limitation. Information that is inscribed is difficultly meaningful and accessible. Pooling and sharing are clearly not concerned with these writing practices, whereas it could be of interest. The different actors recognize these limitations and agree that improving their annotation practices could benefit collective action. To support this evolution, our contribution will consist of developing a shared and mobile solution for annotation.

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