

## Knowledge Management Systems and their Impact on Knowledge-Intensive Business Processes

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## **Abstract**

As knowledge has become an important asset for most organizations, knowledge management and knowledge management systems are both the center of attention for many practitioners, business consultants, and researchers. The key issue is how to enhance firm performance by using knowledge effectively. The process level is actually where the work is accomplished and since measuring firm performance has proven a difficult endeavor, measuring process performance seems more practical. We believe there is agreement in the literature that knowledge management and knowledge management systems positively impact the performance of business processes. At the same time, our research finds that there is still need for empirical research that shows that impact. Our research is focused in finding out what is the contribution of knowledge management systems to business process performance.

## **Introduction**

During the last few years organizations have been looking at knowledge as a resource. They are giving such an important status to the knowledge resource that a special type of information systems are also being developed as Knowledge Management Systems (KMS) (Alavi and Leidner, 2001). In the strategic management literature, a "knowledge based perspective" of the firm has emerged (Cole, 1998; Spender, 1996a, 1996b; Nonaka and Takeuchi, 1995). It is believed that the organizational knowledge is embedded in processes, procedures, individual employees, systems, and culture shaping the way the tangible organizational assets and resources are used in order to create value for the firm. This means that intangible (knowledge) assets have an impact on the use of the tangible assets creating competitive advantage and enhancing firm performance. There are numerous papers and articles that recognize the impact of knowledge management on business performance as it was found by Becerra-Fernandez and Sabherwal (2001) but there is no research in what is the contribution of knowledge management initiatives to firm performance.

On the other hand, determining firm performance has long been an area of much debate and few consensus. Although today there is agreement in that intangible assets such as spending on R&D, Internet and Web applications, human resources, and customer acquisition significantly influence the performance of companies (Lev, 2001), measurement is still a matter of debate. These intangibles are not part of the financial reports which complicates even more the measurement of these intangibles.

As we move forward in our literature review, we find that there is agreement both from the academic community as well as from the practitioners community, that Knowledge Management Systems do have a positive impact on the performance of the organizations. However, we have not been able to find empirical research work that tests and verifies whether knowledge management systems improve firm performance.

It is important at this point to review what are the problems in measuring firm performance. First, firm performance is largely affected by many different factors, both endogenous and exogenous to the organization. Even further in the complexity, firm performance is usually affected by many factors. Sometimes, one single external event in the country's economy may greatly affect levels of sales. Independently of the investment in information technology to improve sales, like Customer Relationships Management systems, sales might not increase due to the

external event. Therefore, investment in CRM systems may be mistakenly taken as a bad investment because it did not help increase revenue.

The problem is that many investments in “intangible” assets take some time to actually influence performance and in the lapse of time between the acquisition of the intangible asset and the actual influence of its use any other external or internal event may affect the outcomes.

This type of problems create a challenge when trying to measure the value of these intangible assets. Knowledge Management Systems (KMS), as a special kind of information system, is no different to an “intangible” asset.

For this reason, we propose to measure the impact of these KMS at a different level in order to facilitate and isolate the effects of implementing knowledge management systems.

On the other hand, we realize that knowledge management systems are intended for particular areas and processes within the organization. As a special kind of information system, knowledge management systems are intended to enhance business processes where some type of knowledge is of particular relevance. We describe this type of processes as “knowledge intensive business processes”.

A Knowledge Intensive Business Process (KIBP) is a business process that cannot be automated due to the need of some human expert intervention in order to better perform the process. Examples of knowledge intensive business processes include product development, marketing campaigns, systems analysis and design, and strategy

A Knowledge-intensive business process is characterized by the fact that knowledge is a primary resource for that process.

In order to assess the effectiveness of knowledge management, it is important to measure knowledge (Ahn, 2003). But according to Ruggles (1998) findings, it is difficult to measure the value and the performance gain from knowledge assets

Massey et al (2002) show that the performance environment has three levels: individuals (performers), process, and business. They also argue that the process level is where the work is actually accomplished and is actually the link between the other two levels of performance: business and individual performance. However, they also recognize that the process level of performance is usually the least managed level and therefore the one that requires more attention.

## **Contributions of the Research Project**

### **Research Questions**

Based on the discussion presented above, we have the following main research question, which will drive our work:

- To what extent do Knowledge Management Systems impact the performance of knowledge-intensive business processes?

As a consequence of our main research question we have the following questions:

- What kind/type of Knowledge Management Systems have greater impact on Knowledge-Intensive Business Processes?
- How different is the impact of Knowledge Management Systems on business processes that are not knowledge-intensive?
- To what extent is it possible to automate knowledge-intensive business processes using knowledge management systems?
- What are the key success factors in implementing knowledge management systems?
- To what extent is different the impact of knowledge management systems on the performance of knowledge-intensive business process and the impact of information systems on the performance of business processes in general? To what extent are KMS different from Information Systems?

## **Hypotheses**

### **Research Methodology**

Ideally, to answer our questions we should get a sample of organizations from different industries and we should initially measure the performance of selected knowledge –intensive business processes that we believe are not being supported by knowledge management systems. Then, we should initiate some knowledge management system initiative and after some time of implementation we would go back to each organization and measure again the performance of each selected knowledge-intensive business process in order to find the gaps.

The above scenario, although theoretically possible, has several problems: the first one is related to practical issues. It does not seem realistic that we will be able to obtain a number of organizations that will let us use them as our research grounds. The second problem is related to an important issue when doing experiments: how can we isolate the effect of our knowledge management systems in such a way that it will be the only variable?, that also seems impossible in practice since many other variables may also affect the performance of the knowledge-intensive business process. Finally, even if we could overcome the first two problems, the time required to accomplish our measurement goals will exceed all practical boundaries up to the point to make this research project obsolete.

In order to overcome the problems presented above, we propose to set an experimental design. This will allow us to control for external variables, control our participants sample, and should allow us to get measurements in an appropriate time frame. Of course, a laboratory experiment does have some problems, too. Particularly we will reduce the generalizability of our conclusions; but we remind the reader that this research project is intended to be an exploratory study of the relationship between knowledge management systems and the performance of knowledge-intensive business processes.

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