# APPLYING KNOWLEDGE AND QUALITY MANAGEMENT TO IT PROJECT MANAGEMENT

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*Abstract*

*The article focuses on the role of information management (IM), knowledge management (KM) and quality management (QM) in the business management process, inclusively in IT project management. The main objective is to emphasize the fact that researchers and practitioners in the field of IT should take into consideration the necessity of integration of IM, KM and QM elements in the process of project management.*

*Key words: information management, knowledge management, quality management, project management, integration, information technology*

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**Introduction.** One of the most essential conditions, ensuring competitiveness of an enterprise in the modern environment of the global increasingly competitive economy, is the access of the managers and specialists of different levels of hierarchy to multidimensional information and knowledge about all the aspects of enterprise's activities and its environment (customers, markets, etc.). However, how to manage and use the information and IT to help organizations take best advantage of information technologies?

The problem is that if in the past the main focus was concentrated on the development of infrastructure of IT (networks, information systems, etc.), now we have reached the level of IT, when we can process huge amounts of data and obtain enormous volumes of information, sometimes impossible to be assimilated by users.

As a solution of the problem, researchers and practitioners promote the ideas of so called *information management, knowledge management* and *quality management* of information technologies. Each of these directions of science and practice is presented as a critical condition for organization's success. Although they appeared and were developed as different independent directions of research and practice, at present, some interrelations among these types of management are discussed in the specialized literature.

The article represents an attempt to focus researchers on the relationships among all these types of management and their role for the business management, particularly for project management in the field of IT.

**Relationships among IM, KM and QM**

In the increasing amount of publications in these fields we see that during the latest period of time more and more different interdependencies among these directions of science are discussed. Usually, these researches are oriented (limited) to some aspects of relationship between two of these types of management: QM and IM, IM and KM etc.

Some researches [1] are focused on total quality management (TQM), as an information-intensive management system, the critical information needs of TQM and the role of information systems (IS) in providing the necessary data for implementing TQM. On the other hand, we can find researches on how TQM concepts can improve and extend information systems quality [2]. These interdependencies between these two directions of researches are generalized in [3], where it is discussed the role of Quality Management in the development of Information Management, transforming it in a foundation for Knowledge Management.

An essential attention was paid to the relationship between IM and KM. In [4] we see an attempt to present the integrated IM as an important part of the general (business) management and a first order tool for a successful decision making process. In this context, IM is discussed as a foundation for KM. The relevance of KM to IS research was argued because the functionalities of information technologies play a critical role in shaping organizational efforts for knowledge creation, acquisition, integration, valuation, and use [5, 13].

An opposite interdependence was argued in the article [6], which focuses on the necessity of a systemic approach to the design of management information systems from the perspectives of knowledge management (KM). The main objective is to emphasize the fact that in the actual conditions researchers and practitioners should take into consideration that management information systems (MIS) should become a fundamental infrastructure for KM and, at the same time, KM should be integrated as a strategy in the MIS development. So, we see a mutual relationship between IM and KM.

Different aspects of interrelations between KM and QM are also discussed in the related literature. Authors of [7] sustain the idea that a quality strategy depends on the intellectual capital of the organizations to keep their products or services competitive, and once employees in such organizations are required to do knowledge work, KM can become an integral part of the organization's quality strategy. Thus, this supports the idea about the dependence of QM from the KM (**QM ← KM**).

On the other hand, large amounts of information generated in the process of QM can serve as a source for capturing or creating new knowledge, necessary for promoting a continuous and consistent improvement in quality of the organization's activity. This confirms the dependence of KM from QM **(KM←QM)**, and, in general, mutual interrelations between them *(QM ↔ KM)*. [8]

**The mutual interrelations among all three types of management: IM, KM and QM**

So, as above mentioned, there are different interdependencies among each of two types of management. As a result of the application in parallel, each of these types of management improves the conditions of functioning of the others.

Summarizing the results, the interdependences among all these types of management (IM, KM and QM) in the framework of the same business management (BM) system are presented in the fig.1.

In our previous articles [4, 9, 10] we mentioned that in a sense, knowledge represent that information, which entirely correspond to the quality requirements of the end user. In [8] it is argued that these conditions can be realized by applying principles of total quality management to the IM processes. Thus KM, the highest level of IM can be reached by using a QM system to the IM processes.

Thus, we could mention, that a well-organized IM under the influence of environmental QM factors can be a good basis for the KM. In other words, this impact of QM on the IM (contributing to transforming IM into a foundation of KM) is the result of a synergistic relationship of those three types of management: **QM, IM and KM.** These conditions, in their turn, have a positive impact on the business processes they support.

Significant benefits can be achieved from the integration of IM, KM and QM [3, 8 and 11] in the form of improved profitability and improved customer satisfaction. Quality management of IS, when the information about the user's satisfaction on the quality (usefulness, relevance, timelines, etc.) should be collected permanently, can be an efficient subsystem, transforming IM in a good foundation for KM.

**The practical aspects on** how to apply **IM, KM and QM** to IT project management

The discussions and theory, built around the idea of an integration of IM, KM and QM in the framework of the same business management system, look logically rather correct, although without an empirical evidence for such a claim.

We had a good opportunity to demonstrate the formulated ideas not only theoretically, but also to review empirical experience as well [12]. For this purpose, the master degree students of the

Academy of Economic Studies of Moldova, specialized in the field of Information Management, have been involved in researches. Among other courses, their program of specialization includes such two courses like *Knowledge Management* and *Quality Management of IT.*

During the last three academic years, in the framework of each of these courses, the students had to elaborate presentations (reflecting the results of the case studies) about real practices of utilization of KM and QM in the IT project management process in the companies they are working in. It is worth mentioning that most of these master degree students are working at least two years in different leading IT companies with very well developed modern project management systems: Endava, EstComputer, Cedacry, Crystal System SRL, Pentalog, etc.

As a result, 32 presentations have been presented and discussed at seminars in the classes.

Analyzing those presentations we found that in all IT organizations with an efficient project management there are many functions proper for IM, KM and QM, used in parallel and integrated into the real project management process. Although these organizations do not mention the use of IM, KM and QM, the data and information collected in the process, as well as managerial actions based on them, confirm the realization of principles of all these types of management: IM, KM and QM.

In fact, all the main types of activities with information and knowledge, proper for KM and described in [14], have been identified as used in the course of the project management in the mentioned organizations. These activities include: the work associated with identifying, capturing, and storing project learnings, detection problems and making adjustments and repairs whenever necessary and possible, practicing and facilitating knowledge sharing during the course of the project, training and education of project team, application of learnings to future projects etc.
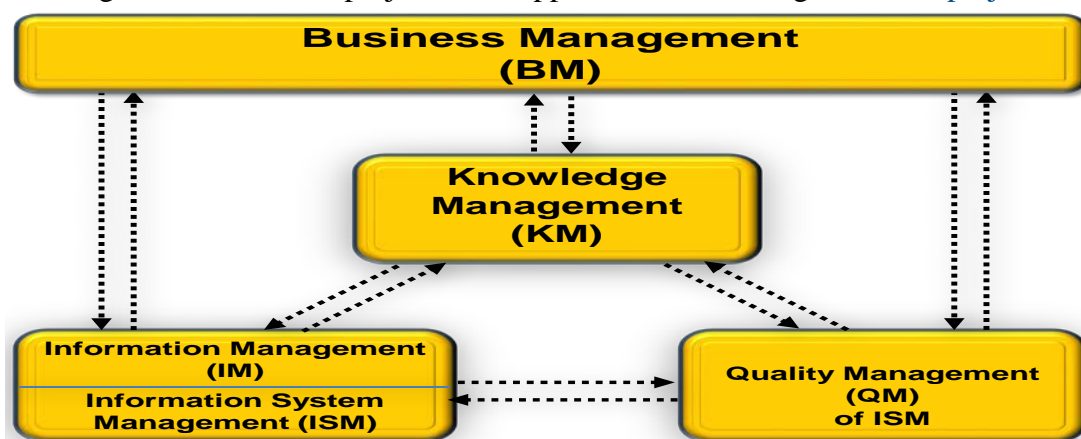


Figure 1. The model of mutual interdependencies among
BM, IM, KM and QM

It is interesting to mention that many types of information and related activities in these IT organizations are proper for all three types of management and can be used in parallel in the business process realization. This fact means that there are no strict boundaries among IM, KM and QM. Thus, taking into consideration the previous discussion, we could conclude that they can and should be integrated into the business process, which, in this case, is into IT project management.

The analysis of the real project management systems of the mentioned organizations confirms the hypotheses that knowledge management, information management and quality management are complimentary practices in the framework of the project management and can work hand-in-hand to improve organizational performance.

## CONCLUSIONS

Significant benefits and the highest synergistic effect can be achieved from the integration of IM, KM and TQM in the form of lowered manufacturing costs, improved profitability and improved customer satisfaction.

The interdependencies among KM, IM, QM and the necessity of their integration into business management are established both theoretically and empirically. These results include only the conceptual level of management.

This is a promising area for more detailed research for the future.

Taking into consideration the prospects of integration of KM, IM, QM, we could conclude that some convergence of different specialties linked with these directions of research and practice could happen in the future. The practice accumulated during the first stages of information society development until present has shown that such a convergence of specialties is something usual.

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