Effective Business Informatics Management

Alena Buchalcevova, Jan Pour
University of Economics, Prague, Czech Republic

Abstract

The aim of this article is to present the Management of Business Informatics (MBI) model that assists enterprises in managing their business informatics. First, current issues in business informatics management are outlined as well as the results of several surveys conducted worldwide and in the Czech Republic. Then, the motivation behind the MBI model development is presented followed by the MBI model architecture and content description. For the purpose of an effective MBI model demonstration, evaluation and usage, the MBI model was implemented as a web application is free of charge.

Keywords: Business Informatics, Management, Governance, Evaluation, Management of Business Informatics Model

Introduction

Information systems and information technologies have become key elements in business development across all market segments being the means to a successful business operation, innovation and growth. These issues are driving management initiatives, such as IT governance and business – IT alignment that have become an important matter in both academic research and organizational practice. We see these initiatives as a part of business informatics management. Business informatics discipline combines various aspects of business management, information technology, and informatics (Heinrich & Riedl, 2013).

Although numerous methods have been developed for business informatics

„Learn from yesterday, live for today, hope for tomorrow."
Albert Einstein

* Correspondence to Alena Buchalcevova: alena.buchalcevova@vse.cz

management so far, the results of several surveys conducted in the Czech Republic (Pour, 2012; Pour et al., 2013) demonstrate a low level of their usage for management of business informatics. This fact together with limited customization possibilities of these well-known methods has led our team to develop a Management of Business Informatics (MBI) model that aims to assist enterprises (including SMEs) in managing their business informatics.

The aim of this article is to present the Management of Business Informatics (MBI) model and its contribution to solving business informatics management problems. This article is organized as follows. Following the introduction, section 2 explores a current status of the business informatics management domain through a detailed literature review. Section 3 then outlines the motivation behind the development of the Management of Business Informatics model and its objectives. The architecture and the content of the MBI model are then presented in section 4. Lastly, the conclusions are discussed.

Current Issues in Business Informatics Management

Over the past few years, a corporate IT departments' emphasis has shifted from technical to managerial issues (Buchwald, Urbach & Ahlemann, 2014). Resulting from this increasing business orientation and management complexity of corporate IT departments, IT governance has become an important matter in both academic research and organizational practice (Brown and Grant, 2005). The IT Governance Institute holds a leading role in this area. From an academic perspective, research on IT governance is emerging as an important area of inquiry (Huang et al., 2010; Schwarz & Hirschheim, 2003).

According to Weill & Ross (2004), IT governance specifies decision rights and accountability framework to encourage a desirable behavior in the use of IT. This behavior relates to the form of leadership, and organizational structures and processes that ensure an organization's IT sustains and extends organization's strategies and objectives (ITGI, 2009). Van Grembergen & De Haes (2009) stress the business-IT alignment facet of IT governance that enables the creation of a business value from IT-enabled business investments. A deep literature review relevant to IT governance was performed by Wilkin & Chenhall (2010).

IT governance and IT service management inherited much from corporate governance and operational IT management, but have developed into a discrete discipline. We try to combine IT governance, IT management and business-IT alignment concepts into one term, business informatics management, as shown in Figure 1.

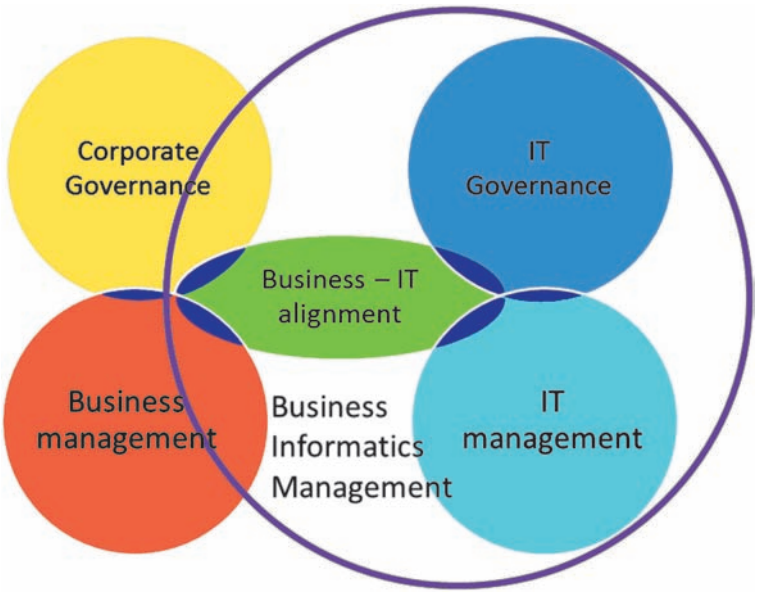


Figure 1 – *Business Informatics Management definition*

In recent years, standards, frameworks, and best practices addressing different aspects of business informatics management have emerged and matured. Among these, the most quoted are: ITIL (TSO, 2007) and ISO/IEC 20000 (ISO/IEC 20000, 2011) which address IT service management. Whereas, the Control Objectives for Information and Related Technology (COBIT) is an approach that aims to standardize proper information technology security and control practices. (ISACA, 2012). TOGAF, the Open Group Architecture Framework, has become a standard for EA development. (Open Group, 2009).

The usage of these standards and frameworks has increased in order to improve IT internal processes, quality, productivity, efficiency and communication with business areas, as well as explore possibilities for innovation (Scheeren, Fontes-Filho & Tavares, 2013). However, several surveys indicate particular challenges linked to the usage of these standards and frameworks. Studies conducted by the IT Governance Institute in 2008 (ITGI, 2009) and 2010 (ITGI, 2011) show that the vast majority (92%) of respondents are aware of the issues resulting from the application of these standards and frameworks. While security and compliance are mentioned as important elements, it is people who represent the most critical issue. 58% of respondents consider the number of IT people in their organizations insufficient, which represents the main issue brought up. The second issue, reflected by 48%, refers to the incidents related to the provision of services. Further, 38% of the respondents consider a lack of IT staff skills as another problem. In addition, it was found that communication between IT staff and users is improving, but at a slow pace and the alignment between IT and corporate strategy is bad or very bad (Lorences & Ávila, 2013).

These challenges are especially pronounced in the SMB market. Micro, small and medium-sized enterprises (SME) play an important role in today's society and economy, since they represent 99 % of all enterprises in the European Union (EU) (Küller et al., 2012). There are significant

differences in terms of resources and expertise available between small and medium enterprises and large organizations. Therefore, business informatics management practices used in large organizations cannot be linearly extrapolated to SMEs. As the results of a survey conducted in 160 SMEs in six Central European countries (Austria, Czech Republic, Germany, Hungary, Poland, and Slovakia) show, there is still an extensive difference between knowledge of ITSM frameworks and their application within companies (Küller et al., 2012). One of the reasons behind this fact is a complexity of existing frameworks. A number of IT department leaders mention that frameworks like ITIL or COBIT are too complex for them; they fear that such frameworks are administrative overhead (Küller et al., 2012).

MBI Model Objectives

As stated in the previous section, although numerous standards and frameworks aimed at business informatics management exist, they do not adequately solve practical issues and are not sufficiently applied in practice, especially in SMEs. As Küller et al. (2012) state, the ITSM frameworks are too complex and there are no guidelines for their implementation.

With the aim to identify the status of business informatics management in the Czech Republic, our team at the Department of Information Technologies at the Prague University of Economics conducted a nationwide survey during 2010 and a subsequent survey in 2012 (Pour, 2012). According to these surveys, to the most important reasons causing the low utilization of existing methodologies and standards belong their complexity, time consuming implementation and high costs. Moreover,

existing frameworks do not sufficiently take into account various factors that influence management of business informatics, e.g. sector of the economy, company size, importance of IT for strategic goals, etc. Furthermore, the implementation of such methodologies requires an extensive documentation and high knowledge and skills even in the case of a small enterprise with a simple information system. Consequently, such methodologies are used almost exclusively by larger companies with a significant IT budget (Pour et al., 2013). The results of these surveys have led our team to a development of our own tool for business informatics management.

The objective of the MBI model is to provide a support for business informatics management activities in companies that figure as the users of ICT services. The model aims to help enterprises (including SMEs) to:

- Document and analyse an existing business informatics management system,
- Design and implement a new (improved) business informatics management system,
- Obtain an advice and best practice solutions for specific IT management issues such as: How to develop an information strategy? How to prepare IT budget? What is a concrete structure and content

of SLA for application services delivered in the form of Software as a Service?

The MBI model aims to provide a solution that suits to specific characteristics of a company which determines the effectiveness of IT governance that cannot be generalized to all types of firms or industries. The MBI model strives to help organizations to improve the performance of enterprise IT systems, more specifically the quality, availability, security and effectiveness of IT services, and indirectly the overall business performance. To address these objectives, the following key principles (A to I) of the MBI model were defined:

Agility – The model rapidly responds to changing needs of business informatics, its content and functionality are easily extendable and upgradable.

Business Strategy Support – The model supports an organization's business strategy in defining strategic applications of business informatics as well as in monitoring IT investment profitability.

Competency – The model puts all responsibilities and authorities within an organization in the context of business informatics (Weill & Ross, 2004).

Deployment – The model is effectively deployable in organizations of a different size and operating in different industry sectors. The model implementation respects specific conditions under which an organization operates including its financial and human resources allowing a successful application of the model in SMEs that typically have limited financial and human resources.

Experience – An integral part of the model contains recommendations summarizing relevant practical experience.

Flexibility – The application of the MBI model in practice offers a high flexibility. The implementation of individual model components (tasks) is supported without having to implement the entire model. Considering a significant effort involved in a comprehensive business informatics system implementation, it is often more effective to address only those areas identified as the most problematic, or with the highest impact on an enterprise performance and its success.

Granularity – The model provides various levels of management tasks and metrics granularity that correspond to the requirements of different organization types.

High performance – Business informatics management is based on a coherent system of metrics that evaluate all important IT services, IT processes and IT resources (Vorisek, Pour et al., 2012).

Impact of Features – The model allows a control of all key business informatics features, e.g. functionality, availability, timeliness, accuracy, compliance with legislation, reliability, user-friendliness, security, flexibility, openness, integrity, standardization, performance, effectiveness, etc.

MBI Model Architecture

The MBI model was defined based on an extensive literature review, analysis of existing standards, methods and frameworks as well as generalized knowledge gained from numerous consulting projects across a wide spectrum of organizations.

The architecture of the MBI model is defined in the UML 2.0 class diagram notation in Figure 2.

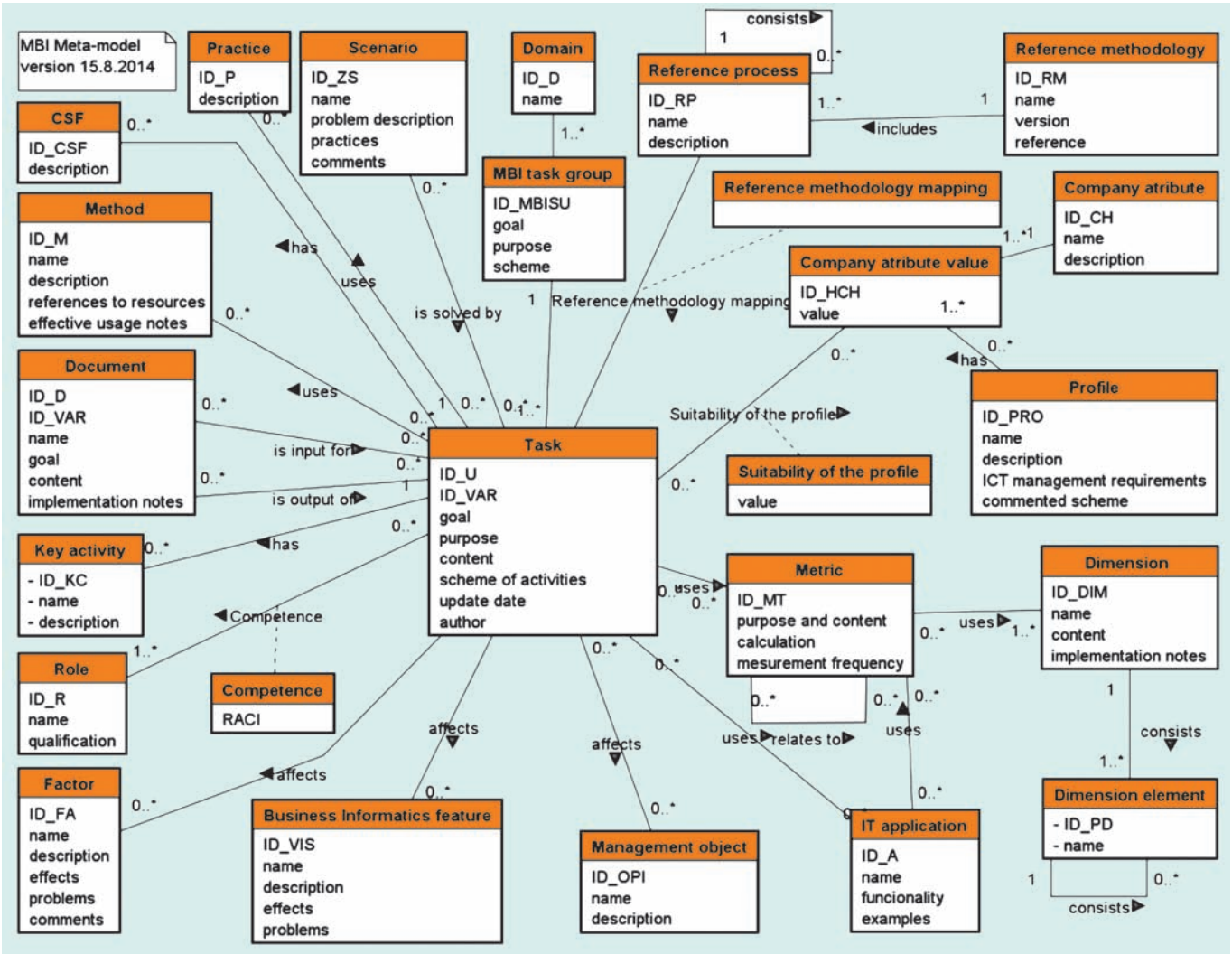


Figure 2 – *MBI Model Architecture*

Task, that represents a key MBI component, describes how to proceed in solving a particular IT management issue. The MBI model defines a large number of Tasks that are organized in a three-level hierarchy, i.e. Management Domains, Task Groups, and Tasks. To the examples of Tasks belong: Proposal for Enterprise IT System Sourcing, IT Service Implementation, Service Activation, Security Audit Implementation, etc.

Each Task has both identification attributes (i.e. ID, Variant, Author and Update Date) and attributes which represent a specific content of the Task (i.e. Goal, Purpose, Content, and Scheme of Activities).

An additional content is represented by relations to other classes. A variant of the Task describes specifics of a Task realization in various conditions according to an organization size, industry sector, or organization type. The most important related classes are the following:

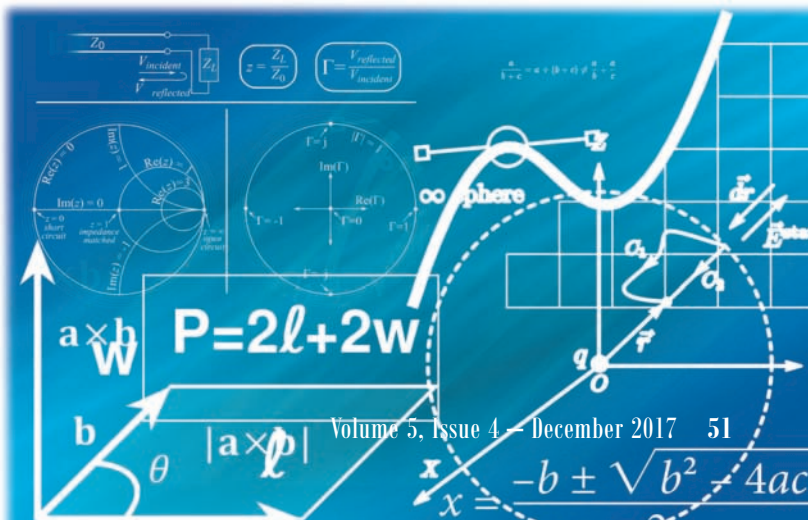
- The document represents a printed or electronic document that is used as a Task input or output.
- The scenario represents a typical issue that should be addressed in a business life.
- The application is software utilized for a given Task.
- Metrics are expressed in the context of dimensional modeling as indicators and their analytical dimensions.
- The method describes formalized process and guideline that lead to the fulfillment of a Task goal.
- Role expresses specific responsibilities of a role holder.
- Factor has a significant impact on the way a particular Task is performed (e.g. Organization Size, Industry Sector, Organization Type).

An important element of the MBI model is represented by Business Informatics Features. Regarding each Task, its possible impact on Business Informatics Features (e.g. Availability, User-friendliness, Security, Integrity, etc.) is measured in the form of yes/no record. This way it is possible to discover all the Tasks that affect a particular information system feature.

MBI Model Evaluation

The MBI model was described in detail in (Vorisek et al., 2012). For the purpose of an effective MBI model demonstration, evaluation, and usage, the MBI model was implemented as a web application (at the URL mbi.vse.cz). The MBI application was in a pilot usage from January 2014 to August 2014. During this time, the MBI application was tested by the MBI team and first MBI users. Specifically, the functionality, usability, performance, and load tests were performed. At the same time, the content of the MBI model was reviewed in a controlled manner. After this half a year pilot operation, the MBI application was refactored and improvement and enhancement were performed.

The MBI 2.0 application came into existence at the end of August 2014. Among the main enhancements are to mention user profiles and application login, full-text search, summary slide with key information related to each object, and documents for download. With the aim to enable tracking of the MBI application usage and obtaining feedback from its users, user registration was supplemented. The use of the MBI application is free of charge, the users are only obliged to register and confirm to the ethical codex. An MBI community was established shortly after the model's official presentation, which unites the MBI content authors and the most active users, organizes meetings, presentations, and training, and enables to exchange experience. Currently, the MBI application is in the Czech language, but an English version is being prepared.



Conclusions

In this article, the Management of Business Informatics (MBI) model was presented. To overcome issues in business informatics management, the MBI model was developed based on an extensive literature review, analysis of existing standards, methods and frameworks as well as generalized knowledge gained from numerous consulting projects across a wide spectrum of organizations. For the purpose of an effective MBI model demonstration, evaluation and usage, the MBI model was implemented as a web application. The MBI application underwent a pilot usage for half a year when functionality, usability, performance and load tests were performed and content of the MBI model was reviewed. This review resulted in an improved and enhanced MBI 2.0 application.

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