Business Informatics Management Model

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Abstract The aim of this paper is to present a development of the Management of Business Informatics (MBI) model that aims to assist 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. The MBI model development is described based on design science research methodology.

Keywords Business informatics · Management · Governance · Design science research

1 Introduction

Recent changes in the environment, economy and technology substantially drive a usage of ICT services within companies and the whole society. Businesses are realizing that performance and availability of their technologies are critical to their growth and competitive advantage. These issues are driving business informatics management initiatives. 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 [1] and ISO/IEC 20000 [2], ISO/IEC 38500 [3], ISO 27000 [4], the Control Objectives for Information and Related Technology (COBIT) [6] and the Open Group Architecture Framework (TOGAF) [7]. 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 [8]. However, several surveys indicate particular challenges linked to their usage. Studies conducted by the IT Governance Institute in 2008 [10] and 2010 [11] show that the vast majority (92%) of respondents are aware of the issues resulting

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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. Results of a survey conducted in 160 SMEs in six Central European countries [11] show an extensive difference between knowledge of ITSM frameworks and their application within companies. Likewise, results of surveys conducted in the Czech Republic [12],[13] demonstrate a low level of usage of these frameworks for management of business informatics. This fact together with limited customization possibilities of these frameworks 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 paper is to present a development of the MBI model. This paper is organized based on the structure recommended by Gregor and Hevner [14] for presenting design science research. Following introduction, section 2 defines our approach to the research. Section 3 then describes the development of the MBI model and its evaluation. Lastly, the conclusion is presented.

2 Research Method

The MBI model is a methodology for business informatics management and as such it represents an IS artifact according to [15]. Thus, design science research (DSR) can be applied to develop such an artifact. Based on a definition of research contribution maturity levels introduced in [14], the MBI model represents an instantiated artifact, i.e. Level 1 artifact, and within their DSR Knowledge Contribution Framework the MBI model can be classified as an Improvement. The development of the MBI model was based on design science research methodology [16].

3 Business Informatics Management Model

The structure of this section follows individual steps of the design science research methodology [16].

3.1 Problem Identification and Motivation

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 [13] and a subsequent survey in February 2012 [12]. According to these surveys to the most important reasons causing the low utilization of existing business informatics management 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 [13]. The results of these surveys have led our team to a development of our own tool for business informatics management.

3.2 Solution Objectives

The objective of the Management of Business Informatics (MBI) model is to provide a support for business informatics management activities in companies that figure as users of ICT services. 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 as e.g. Ali and Green point out [17]. 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 [13].

3.3 MBI Model Design and Development

Design and development activity is crucial in the whole design science research process. In compliance to Hevner et al. [15], this activity was performed as an iterative search process. 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 (without methods as on the conceptual level) in Figure 1. A key MBI component represents a Task which describes how to proceed in solving a particular IT management issue. To the examples of Tasks belong: Proposal for Enterprise IT System Sourcing, IT Service Implementation, Service Activation, Security Audit Implementation etc. The MBI model defines a large number of Tasks that are organized in a three-level hierarchy: Management Domain, Task Group and Task level.

Each Task has several attributes. Besides the identification attributes, other attributes represent a specific content of the Task, i.e. Goal, Purpose, Content and Scheme of Activities. An additional content of the Task is represented by relationships to other classes e.g.:

- Document – this class represents a printed or electronic document that is used as a Task input or output.
- Scenario – this class represents a typical issue that needs to be addressed in a business life.

- Application – this class comprises application software that can be utilized for a given Task.
- Metrics – this class constitutes of metrics that are expressed in the context of dimensional modelling as indicators and their analytical dimensions.
- Method – this class describes formalized processes and guidelines to fulfill the goal of a Task.
- Role – this class expresses specific responsibilities of a role holder.
- Factor – this class has a significant impact on the way a particular Task is performed. To the most important Factors belong: Organization Size, Industry Sector (in which an organization operates) and Organization Type (i.e. private company or public institution).

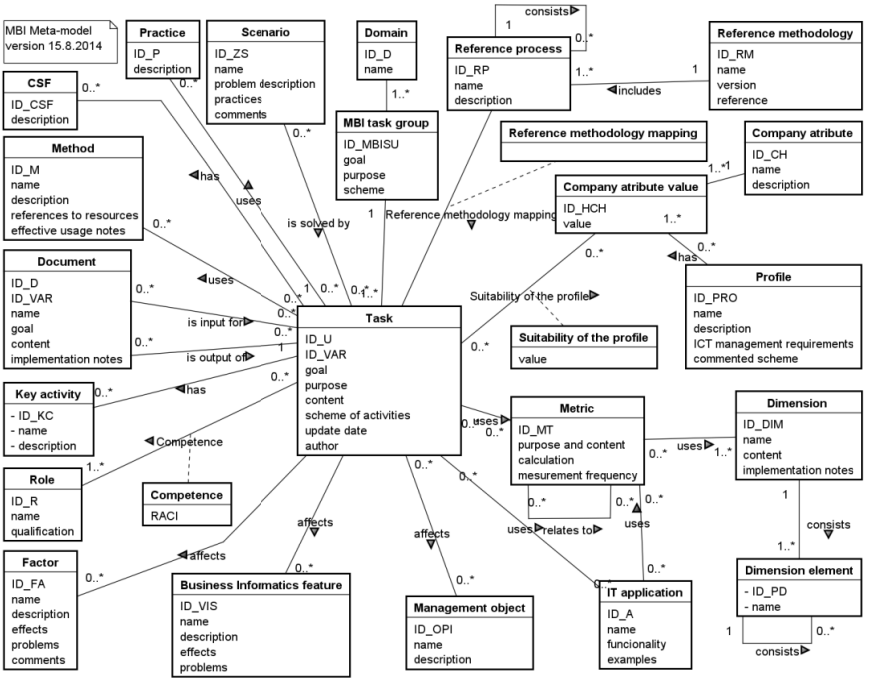

Fig. 1 MBI model architecture (Source: authors)

3.4 Demonstration, Evaluation and Communication

The MBI model was described in detail in [18]. 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). A screenshot of the MBI application shown in Figure 2 demonstrates all Tasks – Roles relationships including the detailed specification based on RACI matrix.

Both the MBI model and the MBI application were presented at the business informatics management conference arranged by the Czech Society for Systems Integration in January 2014 where they received a positive acceptance and ITSMF association expressed its interest in cooperation on the MBI model further development.

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. 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. Number of registered users is increasing and has run to 350 currently.

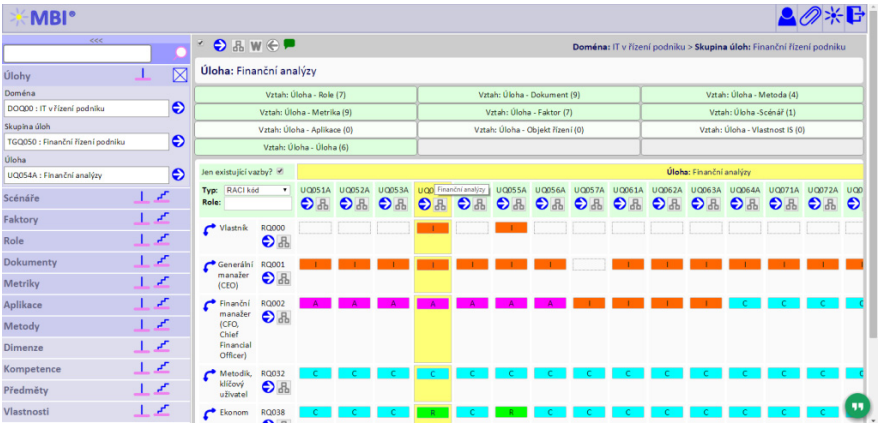

Fig. 2 Screenshot of the MBI application – Task and Roles relationships

The MBI application serves as an information base for companies and supports solution of their IT management problems. Following are examples of companies that use the MBI application:

- iPodnik – the Czech company delivering cloud services for more than 200 clients,
- ITG - the Czech consulting company concentrated on analysis and design of IT systems operating on the Czech and Slovak market,
- Aquasoft – the Czech software company focused on public administration.

Besides use in business the MBI model and application are used in university courses at Prague University of Economics and Czech Technical University in Prague. A MBI community was established which unites MBI content authors and the most active users, organizes meetings, presentations and training and enables to exchange experience. Currently, the MBI application is in Czech, but English version is preparing.

4 Conclusion

In this paper, the Management of Business Informatics (MBI) model was presented focusing on the MBI model development according to design science research methodology. First, current issues in business informatics management were outlined as well as the results of several surveys conducted worldwide and in the Czech Republic. To overcome reported issues, the MBI model was decided to be developed. 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 MBI model was described as to its concepts, architecture, accessibility of information and processes for model manipulation. 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 which starts to be used and further developed by the community.

Benefits of the MBI model can be highlighted based on its comparison to key competitive products, i.e. ITIL Version 3 and COBIT Version 5. Concerning scope the MBI model unlike ITIL or COBIT is practically driven aiming in improvement of IT management and governance processes. With regard to availability and accessibility both ITIL Version 3 and COBIT Version 5 are commercial products. They are available in the form of printed or electronic books as well as web portal for prescribers or association members. Both products are not translated into Czech, even though certain supporting materials are available in Czech language. On the other hand, the MBI model is freely available and completely in Czech language including its original design.

The main advantages of the MBI model lies in information searching. ITIL does not have a portal that enables an effective use of the framework. COBIT is accessible through a set of electronic or printed guides or COBIT 5 Online but effective information search is not supported. The MBI application primarily focuses on effective information search. Using the MBI application through Scenarios enables solving a concrete management situation very effectively. When finding an appropriate Scenario and opening the page with a Scenario description, it is possible to read through key issues and questions that are connected with the problem to be solved, recommended practices that can be used to solve the issue and a list of all interrelated Tasks. Another way how to direct access to information is to select a particular Role, Task, Document or some other path relevant to the issue you are working on. In case of search for specific term, a full-text searching option is available since the MBI 2.0 version. This way all occurrences of the term within all MBI objects will be obtained.

Lastly, the MBI model is compared in the area of customization. Both ITIL and COBIT have to be adapted to individual needs either in-house or by help of consultants. The MBI model covers the customization requirement within its concept of various MBI model types. The MBI Generic model is intended for all

types of organizations and includes generalized best practice guidelines for business informatics management. The MBI Specific model is aimed at organizations that belong to a particular sector of the economy (automotive, banking, public administration, etc.). The content of the MBI Specific model is adapted to particular industry, business, legislative and other conditions that apply to a given sector of the economy. The third type of the MBI model is the MBI model for a concrete organization taking into account particular aspects of an organization.

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