

Business-IT Alignment within the Management of Business Informatics Model

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Keywords: Management of Business Informatics, Business-IT Alignment, Metrics, Analytical Application.

Abstract: The paper focuses on a current highly discussed subject of interest related to Business-IT alignment. The objective of this research is to examine recently developed framework for IT management, the Management of Business Informatics (MBI) model, from the Business-IT alignment point of view and show that by using the MBI model Business-IT alignment can be better supported. As a result of the analysis several areas addressing Business-IT alignment within the MBI model are presented, e.g. communication and cooperation between company managers and IT managers, tasks aimed at the definition of the relations between the IT and business management, definition of metrics, development and deployment of analytical application.

1 INTRODUCTION

Information systems and information technologies represent means to a successful business operation, innovation and growth. To leverage all these benefits Business-IT alignment initiative was established. Previous research has stated positive impacts of Business-IT alignment on company performance (Chan et al., 1997; Chan et al., 2006; Oh and Pinsonneault, 2007; Preston and Karahanna, 2009; Tallon, 2008; Tallon and Pinsonneault, 2011). However, several issues of existing models aimed at Business-IT alignment are mentioned, e.g. low feasibility (Hiekkanen et al., 2012), lack of connections with the real world (Ciborra, 1997), lack of concise validated results (Zhou and Cai, 2011; Avison et al., 2004).

The objective of this research is to examine the Management of Business Informatics (MBI) model (Buchalcevova and Pour, 2015), recently developed framework for IT management, from the Business-IT alignment point of view. The research question is: Does the MBI model support Business-IT alignment and in which areas?

This paper is organized as follows. First, the concept of Business-IT alignment is introduced. Then, the concept of the MBI model is outlined and the analysis of the MBI model from the Business-IT alignment viewpoint is presented. Finally, conclusions are discussed.

2 BUSINESS-IT ALIGNMENT

Business-IT alignment has been studied since the early 1980s (e.g., Chan and Reich, 2007; Chan et al., 1997). According to Wu et al. (2015) strategic alignment can be classified into two dimensions (Reich and Benbasat, 2000): (1) the intellectual, and (2) the social. Studies on the intellectual dimension concentrate on the content of plans and planning methodologies while those dealing with the social dimension focus on the people involved in the creation of alignment (Reich and Benbasat, 1996). Looking at the intellectual dimension (strategy, plan, operation, or process alignment), studies show an existing relation of strategic alignment to performance (Tallon and Pinsonneault, 2011). On the other side, in case of the social dimension, the grounds of social alignment as well as the relation between both dimensions are principal matters of research (e.g., Preston and Karahanna, 2009; Reich and Benbasat, 2000).

Three forms of Business-IT alignment have been established: functional (e.g. Oh and Pinsonneault, 2007; Tallon and Pinsonneault, 2011), structural (e.g., Broadbent and Weill, 1993; Hodgkinson, 1996), and dynamic (e.g., Itami and Numagami, 1992; Sabherwal et al., 2001).

Luftman (2000) points out that achieving the alignment is an evolutionary process and proposes the Strategic Alignment Maturity (SAM) model for

assessment these activities. This alignment maturity instrument has been tested on hundreds of SMEs and large organizations (Luftman and Kempaiah, 2007; Gutierrez et al., 2009) throughout several years. Recent studies examine various factors and their impact on Business-IT alignment, e.g. change management (Avila and Garcés, 2017), geographic context (Nicho and Khan, 2017) and particularly human resources (Jorfi et al., 2017; Roses et al., 2015; Tunuguntla et al., 2016).

3 MANAGEMENT OF BUSINESS INFORMATICS MODEL

To endorse and prompt efficient IT management, the Management of Business Informatics (MBI) model was developed. 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 architecture of the MBI model is defined in the UML 2.0 class diagram notation in Figure 1.

A key MBI component represents a Task which 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. The Management Domains level constitutes the highest level of the MBI hierarchy and consists of the following domains:

- Strategic Management;
- IT Service Management;
- IT Resource Management;
- Economics Management;
- Development Management;
- Operations Management.

Within each management domain, the Groups of Tasks are defined, which represent a set of related tasks. Each Task has several attributes. Besides the identification attributes, there exist also other attributes which 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 relations to following classes:

- Document – represents a printed or electronic document that is used as a Task input or output.
- Scenario – represents a typical issue that needs to be addressed in a business life, e.g. IT cost reduction.
- Application – comprises application software that can be utilized for a given Task.

- Metric – determines key indicator of a Task performance.
- Method – describes formalized processes and guidelines to fulfil the goal of a Task.
- Role – expresses specific responsibilities of a role holder.
- Factor – 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).

To assure that key business informatics management features are considered, a concept of Business Informatics Features was introduced. 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.

The MBI model was described in detail in (Vorisek et al., 2012) and presented in several articles (Pour, Vorisek and Feuerlicht, 2013; Vorisek, Pour and Buchalceva, 2015; Buchalceva and Pour, 2015). 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 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.

4 MBI MODEL ANALYSIS FROM BUSINESS-IT ALIGNMENT VIEWPOINT

4.1 Motivation and Methodology

Even though a number of concepts of Business-IT alignment are present together with methods and frameworks of IT Governance, e.g. Cobit (COBIT, 2015), ITIL (ITIL, 2007), TOGAF (TOGAF, 2009), a great deal of open issues in practice still remains as pointed out by research results worldwide (ITGI, 2011; Küller et al., 2012).

Surveys conducted in the Czech Republic (Pour,

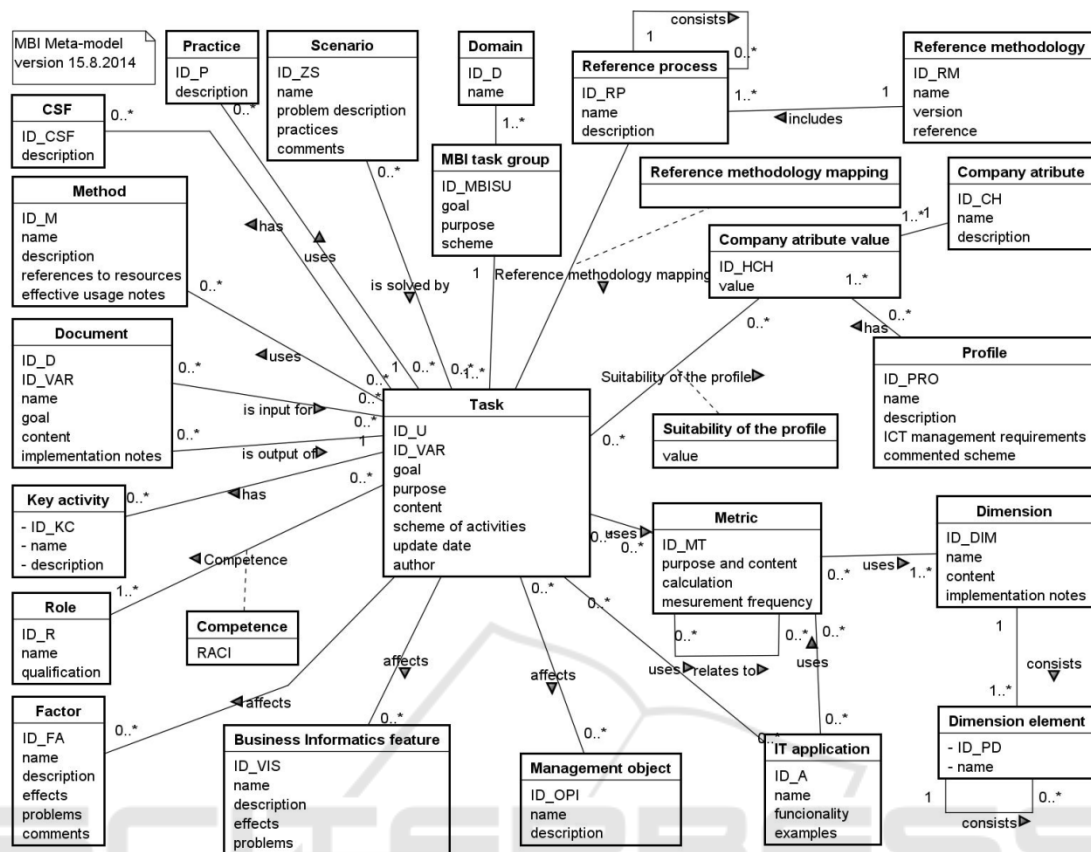


Figure 1: MBI Model Architecture.

2012) show that issues in ensuring an effective Business-IT alignment in an organization are of three kinds. First, CIO and other IT managers focus primarily on technological aspects of IT. This brings along a low level of knowledge of their own company from the business viewpoint and a little awareness of business principles. Such incomprehension of their company’s business needs consequently reduces the quality of the alignment. Second, company management and key users underestimate the knowledge of functionality of the operated applications and methods they are based on. This fact often reduces the level of application utilization that are usually very expensive or of a strategic importance to company competitiveness. Third, the users lacking such knowledge are rarely able to successfully cooperate on a further development of these applications. It is evident that the main challenge of effective Business-IT alignment lies in obtaining necessary knowledge on both sides of the relationship. The motivation for the research was to examine if the MBI model has instruments that can improve this knowledge.

While performing the analysis, the architecture of the MBI model (see Figure 1) was utilized and each element inspected according to its influence on Business-IT alignment. The following areas of the MBI model which deal with Business-IT alignment were identified:

1. Provision of high-quality and qualified communication and cooperation between company managers and IT managers, especially the CEO, CFO, CMO on one side and the CIO on the other side.
2. Clear identification and detailed definition of the relations between IT management and business management tasks.
3. Definition of metrics (and KPI) for business management as well as IT management which are mutually in compliance, are a part of specification of defined services and respect the objectives stated in corporate strategy and other strategic documents.
4. Development and deployment of analytical and planning applications aimed at an evaluation of key monitored metrics and identification of an overall quality of IT

services and their alignment with the business needs.

5. Specification of factors influencing the level of Business-IT alignment.

Each area is described in detail in the following sections.

4.2 Communication and Cooperation between Business Management and IT Management

Since the first version, the MBI model has been focused on an examination and evaluation of business and IT relations. To support the principle of “Business-IT alignment” or “Business-driven IT”, the MBI Group of Tasks “IT as a Part of Business” was developed within the domain of Strategic Management. This Group of Tasks incorporates best practices and recommendations for ensuring an alignment between business and IT at the level of strategic company management.

The “IT as a Part of Business” Group of Tasks comprises the following Tasks:

- “Role of IT in Achievement of Business Objectives”

Within this Task, the aim is to ensure the CIO and other IT managers perfectly understand the business objectives and are able to assess the opportunities how IT can contribute to their achievement.

- “IT Professionals with Knowledge of Business Economics”

This Task defines the procedures for a development of necessary business knowledge among IT professionals, especially managers and analytics. This represents the essential prerequisite for an effective communication between IT professionals and the user community.

- “Management of IT and Business Cooperation on Corporate Strategy Development”

Corporate strategy is currently strongly linked with IT. The aim of this Task is to define the rules and procedures governing the cooperation of IT management (CIO and others) and company management throughout the development of a corporate strategy.

- “Review of IT Strategy According to Business Requirements”

IT strategy should be based on corporate strategy and current company requirements on IT. The aim of this Task is to set best practices and recommendations for adjusting an IT strategy to newly emerging business requirements.

- “Management of IT and Business Communication”

Communication between business leadership and IT managers takes place constantly and plays a key role in a mutual understanding which determines the success of IT projects as well as the whole company. The aim of this Task lies in a definition of such rules and communication standards that lead to a highly effective communication.

- “Cooperation of IT Professionals on Business Model Development”

Business objectives and overall corporate strategy are reflected in fundamental rules and procedures within the business model that determine a company’s operation. The aim of this Task is to specify concrete arrangements of these relations.

- “Company Management and IT Professionals Trust Building and CIO Leadership”

One of the key prerequisites of a decent alignment between business and IT is a trust building between company management and IT professionals and a quality leadership at the level of the CIO. The aim of this Task consists in forming such principles that endorse and further develop trust and great leadership.

In conclusion, these Tasks are all focused on setting the closest and most effective relationships between business management and IT management at the strategic level.

4.3 Relations between Business Management and IT Management Tasks

The MBI model as any other methodology or framework for IT management defines the IT management Tasks (e.g. “IT Service Catalogue Development”, “SLA Monitoring”, etc.) as well as the Tasks focused on a specific IT solution or IT development (e.g. “Business Intelligence Feasibility Study”, “Requirements Analysis of Business Intelligence”, etc.). Apart from the above mentioned Tasks of IT management and IT development, the MBI model also comprises the business management Tasks. The MBI model as well as its implementation as a web application store all these relationships and enable their traceability.

4.4 System of Metrics Definition

The MBI model includes a system of metrics assessing IT management as well as business management. First, the metrics for IT management were defined followed by the metrics aimed at

business performance and management which gradually develop and together form a system of business metrics. Each metric is characterized not only by its content, but also by related analytical dimensions and sources of value assessment. In this case, an analytical dimension represents the viewpoint from which a metric can be analysed. For example, looking at the metric of Sales Volume, it can be analysed by the dimension of Customers, Products, Business Units, and others. The logic behind dimension utilization within this model is based on the principles of Business Intelligence. The MBI metrics are grouped into Packages. Each Package contains only one basic metric and then other metrics that are either related or derived in order to reduce the excessive number of IT and business metrics.

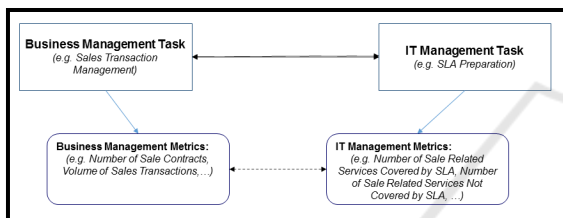


Figure 2: Relations between IT and Business Metrics.

Considering the metrics being bound to individual IT and business Tasks and the relations existing between these Tasks, it is possible to derive the relations between IT and business metrics as well (see Figure 2). Figure 2 depicts the relation between the business management and IT management Tasks and metrics that are linked to these Tasks. This example illustrates particular IT services that are related to sales management through SLAs, their quality, fulfilment, etc. The current version of the MBI model implements the relations between metrics deriving them from the Tasks. However, we expect to address essential direct relations between metrics in the next MBI model versions.

4.5 Development and Deployment of Analytical Applications

After defining appropriate metrics, it is necessary to carry out measurements and assess defined metrics. For this purpose, a group of self-service BI applications within the MBI model is defined. The aim of the self-service BI applications (Russo and Ferrari, 2013) is to provide users with an environment to execute their analytical tasks without

the necessity to utilize complex and usually highly complicated BI systems.

An example of such an application represents the Analysis of User Request Fulfilment with its basic dashboard depicted in Figure 3. It shows the ratio of user requests being fulfilled according to business units and progress over time (according to quarters). Similarly, it is possible to carry out such analyses according to other analytical dimensions. These data then demonstrate how much time an IT department dedicates to solving issues of individual business units and their management areas. This generally allows evaluate the connection of business and IT as to individual areas of corporate governance. Figure 3 shows, that IT (and the whole company) currently devotes the highest amount of time and attention to the requirements of repair management, investment analytics, and purchase department. This data serve only as an example, as the priorities usually differ in particular business conditions. The lower part of the figure depicts the development of the ratio of fulfilled user requests in each quarter of the year.

4.6 Factors Influencing Business Management and IT Management

Within the MBI model, a system of management and technological factors is defined that also affect the level and quality of business and IT management Tasks and subsequently their relations.

These factors include, for example, the following:

- Economic Environment

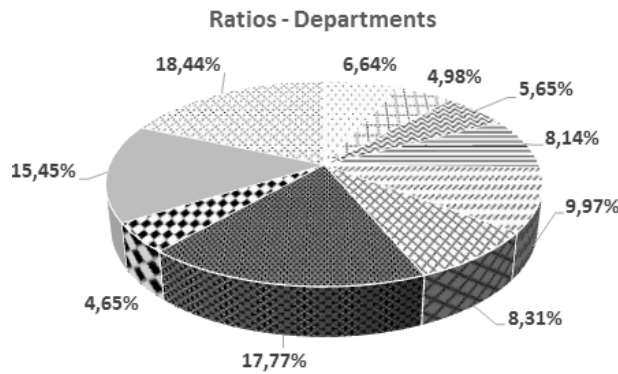
This factor covers the overall economic environment of a company and also a country and their impact on IT investments, anticipated business development, emergence of new branches and subsidiaries and their IT needs, anticipated development of new services (including IT services) provided to external customers, etc.

- IT Market Performance

This factor involves new IT market trends and development of products and services and their impact on IT Tasks in relation to business objectives, e.g. on the Tasks of IT Strategy, Business Strategy, Project Planning, etc.

The MBI model contains over 100 defined factors that significantly influence both IT and business. An analysis of such factors and their impact on the business and IT Tasks constitutes the basis for a realistic assessment and management of Business-IT alignment. Taking these factors into consideration also helps to facilitate a company's success and improve its competitiveness while enabling to

Ratio of User Request Fulfilment According to Company Departments



Lines	User Request Fulfilment
Asset Analytics	6,64%
Business Manager	4,98%
CEO	5,65%
CFO	8,14%
Customer Care	9,97%
HR Manager	8,31%
Investment Analytics	17,77%
Market Analytics	4,65%
Purchasing	15,45%
Repair Management	18,44%
Total	100,00%

Ratio of User Request Fulfilment According to Quarters

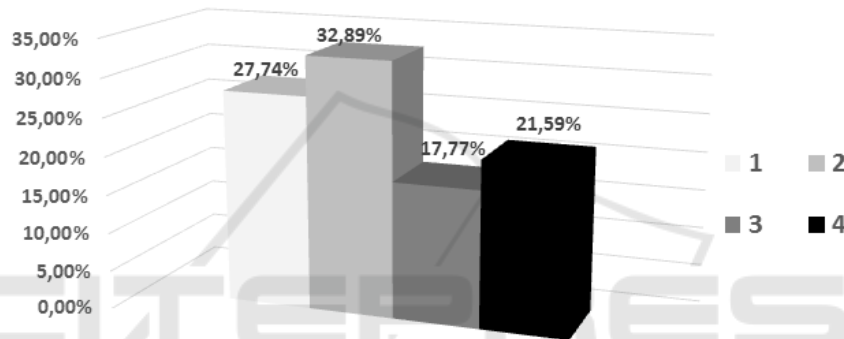


Figure 3: Analysis of User Request Fulfilment.

continuously update the content and principles of the MBI model to incorporate new technologies, management approaches, etc.

5 CONCLUSIONS

To support business informatics management in companies the Management of Business Informatics (MBI) model was developed and has been utilizing. The objective of this research was to examine the MBI model from the Business-IT alignment point of view and find out if the MBI model supports Business-IT alignment and in which areas. Results of the MBI model analysis were presented that demonstrate several areas of Business-IT alignment within the MBI model, e.g. communication and cooperation between company managers and IT managers, definition of the relations between the IT management and business management Tasks, definition of metrics, development and deployment of analytical applications. These findings represent the baseline for further research aimed at measuring

the level of Business-IT alignment support as a result of the MBI model utilization.

Main contribution of this research lies in presenting a tool that serves not only for IT management in companies but also for the Business-IT alignment improvement. The above mentioned approaches and utilization of the objects developed within the MBI model provide an opportunity for a more accurate, comprehensive, and concrete solution to the Business-IT alignment issue according to specific conditions of individual companies and organizations.

Implications of this research mainly support practice and education. Currently, the MBI model as well as the portal is used as an information source for addressing individual issues especially in small and medium-sized enterprises. 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.

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