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Case study

Supporting performance management with business process management and business intelligence: A case analysis of integration and orchestration

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ABSTRACT

The case(s) demonstrates the importance of business process management (BPM) and business intelligence systems (BIS) in achieving better firm performance. It has been well documented in the literature that research on the effectively usage and combination of knowledge from BPM and BIS in turbulent service environments is limited. In response, we conduct an exploratory comparative case study of four firms in banking and telecommunication industries that have implemented BPM initiative and BIS solution. Our results firstly highlight that actual results of applying BPM and BIS differ greatly from the results that were originally planned. Secondly, we find that BIS initiatives are usually driven by improving marketing and sales, while BPM initiatives are driven by improving business processes. Thirdly, we identify that there is a lack of strong commitment to using both systems for supporting performance management.

1. Introduction

In order to stay competitive firms measure, monitor, and analyze their performance. Performance management systems are regularly implemented as balanced and dynamic solutions requiring considerable human and financial resources, and offering support to the decision-making process by gathering, elaborating and analyzing information. Although business process management (BPM) and business intelligence (BI) are frequently linked to performance management, existing research rarely explores their integration.

While investments in business concepts and IT have regularly contributed to economic growth in developed countries, investing in IT has not had clear outcomes in the context of transition economies (Samoilenko, 2008). However, recent investigations (see for example, Hernaus, Pejić Bach, & Bosilj Vukšić, 2012) confirmed the impact of business process orientation on organizational performance in transition economies. Since businesses in service industries operate in more dynamic situations, and service processes are more difficult to standardize than manufacturing processes, performance management in business services can often be more complex than in manufacturing (Mcivor, Humphreys, Mckittrick, & Wall, 2009).

In response, we shed some light on the area of BPM and BI usage for supporting performance management in service industry firms. Our data come from case studies of four Croatian firms in two service industries: telecommunications and banking, among which two are early adopters and two late adopters of BI and BPM. The specific research questions addressed in the paper are as follows:

RQ1. To what extent do service industry firms utilize the potential of BPM and BI in performance management?

RQ2. To what extent is the usage of BPM and BI orchestrated within the framework of performance management?

Since our sample consists of firms from two industries and in different stages of technology adoption, we set the last research goal as follows:

RQ3. Are there any differences between the implementation of BPM and BI in performance management within telecommunications and banking industry vs. early and late adopters of both technologies?

The paper proceeds as follows: the second section introduces BPM and BI and analyzes their relationship in the context of performance management. The third section introduces our research design and methodology. The fourth section reports on the findings and results of four case studies. The final section provides a

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discussion of limitations, lessons learnt, suggestions for future research and conclusions.

2. Theoretical background

2.1. Performance management supported by BPM

In scientific management, performance is associated with two key processes: performance management and performance measurement. BPM refers to aligning processes with the organization's strategic goals, designing and implementing process architectures, establishing process measurement systems that align with organizational goals, and educating and organizing managers to manage processes effectively (Brudan, 2010). The measurement and evaluation of the efficiency of business processes is a very important facet of Business Process Management Systems (BPMSs) as it provides real-time feedback on the status of processes and measures the time and cost of processes so that they can be optimized. Properly implemented, BPM can impact a service industry firm's performance through increased revenue, cost reduction, cycle-time improvement, increased customer satisfaction and improvements in any other metric considered as important for creating value.

2.2. Performance management supported by BI

A review of scientific and professional literature shows that many BI definitions focus on decision making, which determines BI as the ability of a firm to act effectively through the exploitation of its human and information resources. The common goal of BI is to provide knowledge workers within firms with useful information which can fulfill their information needs. Providing information is even more important in service industry firms where knowledge about customers and their perception of the quality of the service is harder to measure when compared to manufacturing companies. This information is provided through a Business Intelligence System (BIS) – quality information in well-designed data stores, coupled with business-friendly software tools that provide knowledge workers timely access, effective analysis and intuitive presentation of the right information, all of which enables them to take the right actions or make the right decision. These systems enable the service industry firms to become proactive by: (1) supporting internal users in the continuous assessment, improvement and optimization of firm performance and business processes; and (2) delivering to end-users critical business information about value chain constituencies, such as customers and supply-chain partners.

2.3. BPMS vs. BIS: similarities and differences

A major shortcoming of the "traditional" BI approach was that it did not allow users to associate data with processes. In response, "process-centric" BI emerged as capabilities that are dedicated to the analysis as well as to the systematic transformation of business-relevant data into analytic information which is simultaneously embedded into an operational process (Bucher, Gericke, & Sigg, 2009). On the other hand, BPM systems resemble logs as they enable us to track the execution of processes – each process instance is observed continuously by the monitoring system. The data contained in these logs should enable insights into executed and running processes. However, many BPM systems still lack sophisticated capabilities to analyze log data (Kang, Kim, & Kang, 2012). Therefore, BPM systems are improved by incorporating BI. According to Janiesch, Matzner, and Müller (2012), the application of various measurement techniques on process-related data has been proposed under umbrella terms such as process intelligence and process mining. Consequently, this paper evaluates the extent of orchestration of BPM's and BI's usage in the framework of performance management.

3. Methodology

3.1. Purposeful selection

Firms from banking and telecommunications industries participated in the study. Some of them were considered as early and others as late adopters of examined technologies. Telecommunication industry was selected because performance management within industry has reached a standardized and mature form. Banking industry was selected since banks have reported ample improvement in cycle time, efficiency, and cost, due to BPM adoption. In addition to process improvement, BPM can also help financial institutions to streamline regulatory compliance, with account opening processes, compliance to regulations and standards, and the automation of paper-based processes being some of the more common scenarios for BPM adoption in banks.

3.2. Data collection

Both managers responsible for BI and BPM (e.g. BPO Division Executive Director; BI Expert; Chief Information Officer) and employees working with these systems on the day-to-day basis were interviewed. Interviews were conducted in three phases. First, in-depth interviews with the relevant group of managers and employees within each firm were conducted in order to collect the data. Second, each interview was analyzed in order to assess for possible inconsistencies in interviewees' estimates of the current situation. Additional explanations were obtained from firms whose managers and employees had provided inconsistent responses. Third, all of the interviews were examined together in order to establish in which areas additional information was needed to further increase the reliability of the study.

3.3. Data analysis

Since the literature lacks solid research on the implementation of BI and BPM within performance management framework, this paper employs descriptive case studies and to answer the research questions stated in the first part of the paper. The case studies were structured and conducted following a previously established and tested methodological approach for business process orientation and BPM maturity evaluation based on semi-structured interviews (Trkman, 2010; Škrinjar, Bosilj Vukšić, & Indihar Štemberger, 2010). Since the BPM aspect was originally incorporated into the methodology, our approach was modified to also include the BI approach.

4. Environment

Four firms participated in the study: two from banking industry and two telecommunications firms. One firm from each industry was considered as an early adopter of examined technologies whereas the other was considered as a late adopter.

4.1. Firm A – telecommunications and early adopter

Firm A is a telecommunication firm that pioneered the telecommunication market in Croatia and made its way through the position of the market leader. It is a branch of a multinational telecommunication firm and in the year 2010 its turnover was EUR 1131.7 million compared to 1150.9 in the year before. Despite the decrease in the turnover, however, the number of users has