Improving the operations of companies by Using Business Process Management

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Abstract

We illustrate in this research factors of improving the operations of companies by using Business Process Management. Business process management has received considerable attention recently by both business administration and computer science communities. Members of these communities are typically characterized by different educational backgrounds and interests. People in business administration are interested increasing customer satisfaction, reducing cost of doing business.

Keywords: Business Process, Business Management, BPM, Business Administration

Introduction

Business process management has received considerable attention recently by both business administration and computer science communities. Members of these communities are typically characterized by different educational backgrounds and interests. People in business administration are interested in improving the operations of companies. Increasing customer satisfaction, reducing cost of doing business, and establishing new products and services at low cost are important aspects of business process management from a business administration point of view. Two communities in computer science are interested in business processes. Researchers with a background in formal methods investigate structural properties of processes. Since these properties can only be shown using abstractions of real-world business processes, process activities are typically reduced to letters. Using this abstraction, interesting observations on structural properties of business processes can be made, which are very useful for detecting structural deficiencies in real-world business processes. The software community is interested in providing robust and scalable software systems. Since business processes are realized in complex information technology landscapes, the integration of existing information systems is an important basis for the technical realization of business processes.

The goal of this book is to narrow the gap between these different points of view and to provide a step towards a common understanding of the concepts and technologies in business process management. Theintroductorychapterlooksatthemotivationforbusinessprocessmanagement from a high-level point of view. The background of business process management is explained, and major concepts and terms are introduced. An example featuring an ordering process is used to illustrate these concepts. The phases in setting up and maintaining business process management applications are discussed.

Motivation and Definitions

Business process management (BPM) is the practice of aligning goals and processes as businesses evolve. BPM software helps organizations define the steps required to carry out a business task, mapping these definitions to existing processes and then streamlining or improving these processes so that the steps are taken more efficiently. BPM = Techniques + Structured methods + Means to streamline operations and increase efficiency, The techniques and methods of BPM allow us to identify and modify existing processes to align them with a desired future state, Involves looking at business processes with a view to improving them from the customer's perspective Business process management is based on the observation that each product that a company provides to the market is the outcome of a number of activities performed. Business processes are the key instrument to organizing these activities and to improving the understanding of their interrelationships. Information technology in general and information systems in particular deserve an important role in business process management,

Because more and more activities that a company performs are supported by information systems. Business process activities can be performed by the company's employees manually or by the help of information systems. There are also business process activities that can be enacted automatically by information systems, without any human involvement. Business process management is influenced by concepts and technologies from different areas of business administration and computer science. Based on early work in organization and management, business process management has its roots in the process orientation trend of the 1990s, where a new way of organizing companies on the basis of business processes was proposed. In their seminal book reengineering the Corporation, Michael Hammer and James Champy advocate the radical redesign of the business processes of a company. Internet-based communication facilities spread news of new products at lightning speed, so traditional product cycles are not suitable for coping with today's dynamic markets. The abilities to create a new product and to bring it to the market rapidly,

And to adapt an existing product at low cost have become competitive advantages of successful companies. A company can reach its business goals in an efficient and effective manner only if people and other enter price resources, such as information systems, play together well.

Business processes are an important concept to facilitating this effective collaboration. In many companies there is a gap between organizational business aspects and the information technology that is in place. Narrowing this gap between organization and technology is important, because in today's dynamic markets, companies are constantly forced to provide better and more specific products to their customers. Products that are successful today might not be successful tomorrow. If a competitor provides a cheaper, better designed, or more conveniently usable product, the market share of the first product will most likely diminish.

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Research Questions

- What is the business process management and its circle?
- How business process management help in improving the operations of companies
- How we can execute business process

Business Process Lifecycle

The goal of this section is providing an overall understanding of the concepts and technologies that are relevant in business process management, using a business process lifecycle.

This lifecycle is also useful for scoping the contents of this book. The business process lifecycle is shown in Figure 1.5; it consists of phases that are related to each other. The phases are organized in a cyclical structure, showing their logical dependencies. These dependencies do not imply a strict temporal ordering in which the phases need to be executed. Many design and development activities are conducted during each of these phases, and incremental and evolutionary approaches involving concurrent activities in multiple phases are not uncommon. The business process lifecycle is entered in the Design and Analysis phase, in which surveys on the business processes and their organizational and technical environment are conducted. Based on these surveys, business processes are identified, reviewed, validated, and represented by business process models. Explicit business process models expressed in a graphical notation facilitate communication about these processes, so that different stakeholders can communicate efficiently, and refine and improve them. Chapter 4 investigates languages to express business process models.
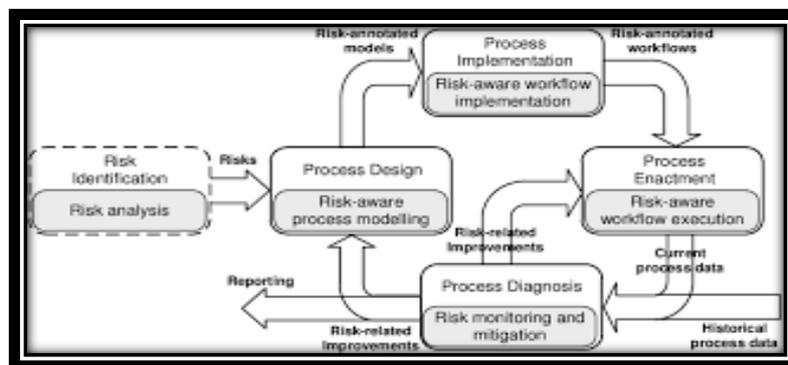
Business process modelling techniques as well as validation, simulation, and verification techniques are used during this phase. Business process modellingisthecoretechnicalsubphaseduringprocessdesign.Basedonthesurvey and the findings of the business process improvement activities, the informal business process description is formalized using a particular business process modelling notation. Once an initial design of a business process is developed, it needs to be validated. A useful instrument to validate a business process is a workshop, during which the persons involved discuss the process. The participants of the workshop will check whether all valid business process instances are reflected by the business process model.

Simulation techniques can be used to support validation, because certain undesired execution sequences might be simulated that show deficits in the process model. Simulation of business processes also allows stakeholders to walk through the process in a step-by-step manner and to check whether the process actually exposes the desired behaviour. Most business process management systems provide a simulation environment that can be used in this phase.

During business operations, and business process improvement projects, processes are composed into more complicated business processes and eventually into services (Kalakota and Robinson, 2003, p. 70). The composition process itself includes many design decisions that configure the exulting process composite by choosing which processes to use in the composition, where they are sourced as internal or external services, how they are configured and what process is used to change the composition.

It is this variety of possible design choices and the complexity of how this variety changes, due to service offer changes and service-need changes, which the BPMS manages.

Howard Smith and Peter Fingar describe a BPMS as a modeling, integration, and execution environment for the design,

manufacture and maintenance of business process and point out that "Just as relational database management systems supported the aggregation of business data and the creation of enterprise data models, a BPMS achieves the same for business processes" (Smith and Fingar, 2003, p. 15). Hollingsworth (2004, pp. 300-02) describes a BPMS as supporting a similar process design-execution-redesign cycle via an evolution of workflow management systems (WfMS) and their convergence with enterprise application integration and world wide web technologies. The addition of these later two technologies led to a greatly increased potential for BPMS and WfMS to support change in inter-organizational processes

(Sayal et al., 2002; Basu and Kumar, 2002). We make no distinction in this paper between inter-organizational processes (between companies) and intra-organizational processes running between different parts of a single company because of the inherent reclusiveness of social systems.

Enact able business process model Curtis et al. (1992, p. 77) list five modeling goals: to facilitate human understanding and communication; to support process improvement; to support process management; to automate process guidance; and to automate execution support. We suggest that these goals plus our additional goals of to automate process execution and to automate process management, are the goals of using a BPMS. These goals, which form a progression from problem description to solution design and then action, would be impossible to achieve without a process model.

This is because an enactable model gives a BPMS a limited decision-making ability, the ability to generate change request signals to other sub-systems, or team "members," and the ability to take account of endogenous or exogenous changes to itself, the business processes it manages or the environment. Together these abilities enable the BPMS to make automatic changes to business processes within a scope limited to the cover of its decision rules, the control privileges of its change request signals and its ability to recognize patterns from its sensors.

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Design

Process design encompasses both identification of existing processes and the design of "to-be" processes. Areas of focus include representation of the process flow, the factors within it, alerts and notifications, escalations, standard operating procedures, service level agreements, and task hand-over mechanisms. Whether or not existing processes are considered, the aim of this step is to ensure a correct and efficient new design. The proposed improvement could be in human-to-human, human-to-system or system-to-system workflows, and might target regulatory, market, or competitive challenges faced by the businesses. Existing processes and design of new process for various applications must synchronize and not cause major outage or process interruption.

Modeling

Modeling takes the theoretical design and introduces combinations of variables (e.g., changes in rent or materials costs, which determine how the process might operate under different circumstances). It may also involve running "what-if analysis"(Conditions-when, if, else) on the processes: *"What if I have 75% of resources to do the same task?" "What if I want to do the same job for 80% of the current cost?"*

Execution

Business process execution is broadly about enacting a discovered and modelled business process. Enacting a business process is done manually or automatically or with a combination of manual and automated business tasks. Manual business processes are human-driven. Automated business processes are software-driven. Business process automation encompasses methods and software deployed for automating business processes. Business process automation is performed and orchestrated at the business process layer or the consumer presentation layer of SOA Reference Architecture. BPM software suites such as BPMS or iBPMS or low-code platforms are positioned at the business process layer. While the emerging robotic process automation software performs business process automation at the presentation layer, therefore is considered non-invasive to and de-coupled from existing application systems.One of the ways to automate processes is to develop or purchase an application that executes the required steps of the process; however, in practice, these applications rarely execute all the steps of the process accurately or completely. Another approach is to use a combination of software and human intervention; however this approach is more complex, making the documentation process difficult. In response to these problems, companies have developed software that defines the full business process (as developed in the process design activity) in a language that a computer can directly execute. Process models can be run through execution engines that automate the processes directly from the model (e.g., calculating a repayment plan for a loan) or, when a step is too complex to automate, Business Process Modeling Notation (BPMN) provides front-end capability for human input.

Monitoring

Monitoring encompasses the tracking of individual processes, so that information on their state can be easily seen, and statistics on the performance of one or more processes can be provided. An example of this tracking is being able to determine the state of a customer order (*e.g.* order arrived, awaiting delivery, invoice paid) so that problems in its operation can be identified and corrected. In addition, this information can be used to work with customers and suppliers to improve their connected processes.

Examples are the generation of measures on how quickly a customer order is processed or how many orders were processed in the last month. These measures tend to fit into three categories: cycle time, defect rate and productivity. The degree of monitoring depends on what information the business wants to evaluate and analyze and how the business wants it monitored, in real-time, near real-time or ad hoc. Here, business activity monitoring (BAM) extends and expands the monitoring tools generally provided by BPMS. Process mining is a collection of methods and tools related to process monitoring. The aim of process mining is to analyze event logs extracted through process monitoring and to compare them with an *a priori* process model.

Process mining allows process analysts to detect discrepancies between the actual process execution and the *a* priori model as well as to analyze bottlenecks.

Optimization

Process optimization includes retrieving process performance information from modeling or monitoring phase; identifying the potential or actual bottlenecks and the potential opportunities for cost savings or other improvements; and then, applying those enhancements in the design of the process. Process mining tools are able to discover critical activities and bottlenecks, creating greater business value.

Traditional Application Development

The main goal of this section is to categorize business process management systems from a software systems point of view into major developments that information systems design underwent in the last decades. Depicts the first stage sin the evolution of information systems .The date sin that figure provide only rough estimates—the respective systems architectures were not uncommon at the dates given. In the early days of computing, applications were developed from scratch, without taking advantage of prior achievements other than subroutines of fine granularity. Application programmers needed to code basic functionality such as, for instance, access to persistent storage and memory management. Basic functionality needed to be redeveloped in different applications, so that application programming was a costly and inefficient endeavor. As a result of the tight coupling of the programmed assembler code with the hardware, porting an application to a new computer system results in a more or less complete redevelopment. Operating systems were developed as the first type of subsystem with dedicated responsibilities, realizing separation of operating systems concerns from the application. Operating systems provide programming interfaces to functional it provided by the computer hard ware. Application scan implement functionality by using interfaces provided by the operating system, realizing increased efficiency in system development.

Conclusion

In conclusion, the business process management is not a goal setting process nor having to improve a single step to improve its goal but it is a wide term of an improvement process of a core company's workflow in many dimensions. The BPM is very important as it improves the company in many aspects which eventually gives a strategic advantage so it can reach its full potential goal and maximize its profit. We can summary them in points -BPM alms to align operational processes with organizational strategies. - BPM activities cover the design, definition, enactment, monitoring and evaluation of business processes

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