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S-BPM illustrated

A Storybook about Business Process
Modeling and Execution

 Springer Open

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and Execution

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S-BPM stands for “subject-oriented business process management” and focuses on subjects. Subjects represent the entities (people or programs etc.) who are actively engaged in processes.

S-BPM has become one of the most widely discussed approaches for process professionals. Its potential particularly lies in the integration of advanced information technology with organizational and managerial methods to foster and leverage business innovation, operational excellence and intra- and inter-organizational collaboration. Thus S-BPM can also be understood as stakeholder-oriented and social business process management.

S-BPM as a discipline is characterized by a straightforward approach towards the analysis, modeling, implementation, execution and management of interaction patterns with an explicit stakeholder focus.

Institute of Innovative Process Management, www.i2pm.net, 2013.

Preface

This book shows how subject-oriented business process management (S-BPM) and its tools can be used in order to solve communication and synchronization problems of humans and/or machines in an organization.

This is a hands-on book. All the activities which are necessary to implement a business process are shown step by step. We start with analyzing the problem, continue with modeling and validating the corresponding process, and finish off by embedding the process into the organization. The final result is a workflow which executes the process without requiring any programming. In the first step a very simple process is implemented. This process is extended and improved in “adaption projects”, because additional problems have to be solved. This reflects reality where processes must always be changed and adapted to new requirements.

If you want to execute all the steps by yourself you can download the tool suite from the www.i2pm.net website. If you want to get more background information about S-BPM you can find it in the book “Subject-Oriented Business Process Management” which is available as a Springer Open Book. You can download it from Springers website¹ for free.

There are many people in the background who helped in the production of this book. In particular, the authors wish to thank Metasonic AG for allowing use of their BPM suite, Udo Kannengiesser for proofreading the manuscript (all remaining errors are the authors), and last but not least Ralf Gerstner of Springer Verlag for his support and cooperation.

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¹ <http://link.springer.com/book/10.1007/978-3-642-32392-8/page/1>

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Introduction

Subject-oriented Business Process Management (S-BPM) is different from current BPM approaches. In this chapter we want to explain what processes and Business Process Management are about and on which hidden paradigms current BPM approaches are based. Then we show how S-BPM is different to most of these approaches.

1.1 Business Processes and Business Process Management

In modern days, no successful company without processes exists. Large companies may even have hundreds of different processes. These processes can be remarkably simple with only one or two participants or highly complex with a dozen or even hundreds of participants. Processes use the company's resources to produce a desired output that is of value for the company or its stakeholders (i. e., customers). This output, for instance, can be a service or a product (technical or otherwise). It is very important for companies to keep their processes as effective and efficient as possible; this is ensured through the use of Business Process Management (BPM). BPM uses many different methods and tools to identify, control, and improve a company's processes.

A process is a structure consisting of logically connected tasks, operators, material expenses, and information. This includes a chronological, geographical, and quantitative definition. A process has a defined launch event (input) and result (output) with the goal of producing something of value for customers. The sum of all processes is the process organization.¹

Processes must be continuously adapted to changing business environments. This should be done in a structured and well-defined way. This activity is called business process management which is, according to Fischermanns² and Roger T. Burlton³, a process in itself. This process has to be managed and controlled, to ensure continuous improvement of the organization's performance (and therefore success). In Business Process Management the following activity bundles have to be executed:

- Analyze a process
- Model a process
- Validate a process
- Optimize a process
- Embed a process into the organizational structure
- Embed existing IT-Solutions into a process
- Run and monitor instances of a process

¹ Dr. G. Fischermanns: Praxishandbuch Prozessmanagement, 6. Auflage, Gießen: Verlag Dr. Götz Schmidt 2006, p.12

² Dr. G. Fischermanns: Praxishandbuch Prozessmanagement, 6. Auflage, Gießen: Verlag Dr. Götz Schmidt 2006, p.26f.

³ Roger T. Burlton: Business Process Management, Profiting from Processes, USA: Sams Publishing 2001

Normally these activities are not strictly executed in that order. If deficiencies are discovered in a process model you can go back either to *analyzing a process* or *modeling a process*.

Current BPM approaches are still heavily influenced by Scientific Management proposed by F. W. Taylor⁴ and Fordism developed by the Ford Motor Company⁵. In the following sections we want to show that Taylorism and Fordism are still the unspoken paradigms underlying “modern” business process management.

1.2 Taylorism, Fordism, and Post-Fordism

Taylor began by analyzing work systematically. He wanted to replace the “rules of thumb” used for organizing work with a systematic scientific approach. The major aspects of Taylor’s Scientific Management are described in his article “The Principles of Scientific Management” (see footnote 4):

Under the old type of management success depends almost entirely upon getting the “initiative” of the workmen, and it is indeed a rare case in which this initiative is really attained. Under scientific management the “initiative” of the workmen (that is, their hard work, their good-will, and their ingenuity) is obtained with absolute uniformity and to a greater extent than is possible under the old system; and in addition to this improvement on the part of the men, the managers assume new burdens, new duties, and responsibilities never dreamed of in the past. The managers assume, for instance, the burden of gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws, and formulae which are immensely helpful to the workmen in doing their daily work. In addition to developing a science in this way, the management take on three other types of duties which involve new and heavy burdens for themselves. These new duties are grouped under four heads:

First. They develop a science for each element of a man’s work, which replaces the old rule-of-thumb method.

Second. They scientifically select and then train, teach, and develop the workman, whereas in the past he chose his own work and trained himself as best he could.

Third. They heartily cooperate with the men so as to ensure all of the work being done in accordance with the principles of the science which has been developed.

Fourth. There is an almost equal division of the work and the responsibility between the management and the workmen. The management take over all work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon the men.

⁴ Taylor, Frederick Winslow (1911), *The Principles of Scientific Management*, New York, NY, USA and London, UK: Harper and Brothers, LCCN 11010339, OCLC 233134. Also available from Project Gutenberg

⁵ An overview and references can be found at <http://en.wikipedia.org/wiki/Fordism> last access January 2013

Taylor's scientific management is a business process management system which means he is describing a way to identify effective and efficient production steps or sequences of production processes. These work plans are developed and described by management (white-collar workers) and executed by blue-collar workers. Taylor does not elucidate how the sequences of actions are described or how their execution is supported generally.

Independently of Taylor, the Ford Motor Company focused on the aspect of how succeeding work steps executed by different blue-collar workers could be organized in an effective and efficient way. For this purpose Henry Ford introduced assembly lines.⁶

The first step forward in assembly came when we began taking the work to the men instead of the men to the work. We now have two general principles in all operations—that a man shall never have to take more than one step, if possibly it can be avoided, and that no man need ever stoop over. The principles of assembly are these:

1. Place the tools and the men in the sequence of the operation so that each component part shall travel the least possible distance while in the process of finishing.
2. Use work slides or some other form of carrier so that when a workman completes his operation, he drops the part always in the same place—which place must always be the most convenient place to his hand—and if possible have gravity carry the part to the next workman for his operation.
3. Use sliding assembling lines by which the parts to be assembled are delivered at convenient distances.

In the 1970s several market changes occurred. A general saturation of consumer markets had major impacts on mass production. Increased competition from new markets (especially Southeast Asia) due to globalization, made the old system of mass producing identical, cheap goods through division of labor uncompetitive. Additionally, more individual and specialized products were required by consumers. The development of information and communication technology allowed work to be organized in a totally new way. This period of time is called Post-Fordism⁷. According to S. Hall Post-Fordism is characterized by the following attributes:

- new information and communication technologies
- more flexible, decentralized forms of labor process and work organization
- decline of the old manufacturing base and the growth of the “sunrise” computer and communication industry
- the contracting out of functions and services
- more specialized products
- emphasis on types of consumers in contrast to previous emphasis on social class
- the rise of the service and the white-collar worker, and a declining need for unskilled workers
- the feminization of the work force

⁶ Ford Henry, My Life and Work, available from Gutenberg Project, <http://www.gutenberg.org/cache/epub/7213/pg7213.txt>

⁷ S. Hall, Brave new World, Marxism today, October 1988

Mass marketing was replaced by flexible specialization, and organizations began to emphasize communication rather than command.

1.3 Communication instead of Central Control

The principles developed for production systems were transferred into the world of administration and became the paradigm for BPM. Business processes define how an organization reacts to business events like a customer order, customer complaints, supply chain events etc.

Today most BPM approaches are still based on Taylor's and Ford's principles. In BPM there are specialists mainly from consulting companies who evaluate the current processes and define "better" ones (white collars). These processes are evaluated by the people who have to execute these processes (blue collars).

Most process specifications are based on control flow diagrams enhanced with swim lanes, events, connectors (and, or) etc. Control flow diagrams are like abstractions of assembly lines. The activities in a control flow diagram correspond to workplaces in an assembly line. The transportation activity of an assembly line is like the execution of a control flow diagram. This is mainly done by computers. The software used for this is called a workflow system.

This paradigm does not fit with the properties of post-Fordism. In today's service industry, people executing activities in knowledge-intensive service processes are highly qualified. Normally they know best how they should do their job. Service processes must be executed very flexibly and therefore a lot of communication is necessary between the people. Because they are highly qualified people want to define their work by themselves, and this self-empowerment is essential for their motivation. They do not accept a strong central control. Because of division of work different people in different organizations must work together. In such situations there is no institution that controls the required cooperation.

The parties involved in a process communicate in human-centered workflows. This is where Subject-oriented Business Process Management (S-BPM) comes into play. It marks a paradigm shift from the flow-oriented execution of activities to a communication-based view of subjects interacting as active parties in a process. S-BPM directly involves participants in the design of their processes. Because of an easy-to-understand graphical notation based on natural language (subject, predicate, object) the domain experts can model their processes by themselves. They describe their individual view of their task by specifying three activities: receiving information from others, sending information to others, and perform functions. As the resulting models are based on a clear and unique formal, and thus executable, logic⁸ the process participants can evaluate and modify them on the fly. These properties of the S-BPM approach allow the decentralized, self-organized design of work patterns as it fits to Post-Fordism and modern organizational theory. Nevertheless, the subject-oriented approach to BPM also supports the traditional flow-oriented way of designing processes if necessary. This is possible, because central control is just a special case of communication, where interactions are kind of "hard-wired." This means, contrary to

⁸ page 315 in A. Fleischmann, W. Schmidt, C. Stary, S. Obermeier, E. Börger; Subject Oriented Business Process Management, Springer 2012

traditional concepts, S-BPM covers both, communication-oriented and flow-oriented processes. In the following chapters we elaborate the concept and its features using a real-world example. In that example not all concepts of S-BPM are applied, we focused on the practical use of the most important aspects. All the concepts are described in the already-mentioned book (see footnote 8).

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The Problem – Part I

The soul never thinks without a picture. *Archimedes*

This chapter tells a short story about typical situations in production companies. You can skip this chapter at any time and go to the next chapter to directly work through the examples. Nevertheless, the story defines the context of the step-by-step examples.

2.1 Do you Know this?

2.1.1 About Communication ... and other Troubles

It was just another morning of a typical working day for John Doe, who was one of the Teaching Factory's operations managers. John took a look at today's production schedule. Even though one of his workers, responsible for quality inspection, was on vacation, today's goal for the production schedule would easily be met.

John Doe,
Operations
Manager

Or, so he thought. Suddenly he received an e-mail from one of his workers, saying that he was not able to come to work that day, due to illness, but assuring he would come back tomorrow. Upon reading the name of the worker who called in sick, it struck John like a lightning bolt: it was another quality inspection worker. After closely examining that day's production schedule, John quickly realized that for today's production order the absence of his quality inspection workers would lead to a serious bottleneck in quality assurance, which would delay the order by at least one day and also lead to a lot of semifinished items being stuck at the quality inspection workbench. John was getting nervous. If the production of today's order would take two days instead of one, the production schedule for the whole week was screwed. This would anger his superiors because he knew of at least one customer deadline, that would be violated by this delay.

He anxiously looked over the production schedule to find a solution for this situation. After examining the schedule for the next day, he realized that the solution for this problem was relatively easy. The items to be produced the next day had a much less complicated quality check than today's items, and thus could be done in a shorter time. If he just could swap the production schedule from today with the one for the next day, all problems would be solved because the missing worker would be back – therefore no time would be lost, and the production schedule for the week would also be met. John took a look at the clock on his office wall. He still had one hour left to switch production schedules.

The only thing he had to do to switch production schedules was to tell the logistics department – whose task was to deliver the raw material for production – to deliver the parts for tomorrow's production schedule and not for today's. This was essential because the items to be produced today and tomorrow required different components. John immediately sent an e-mail to all managers of the logistics department to notify

them about the situation and of his proposed solution. Because of the importance of the matter he asked for immediate confirmation.

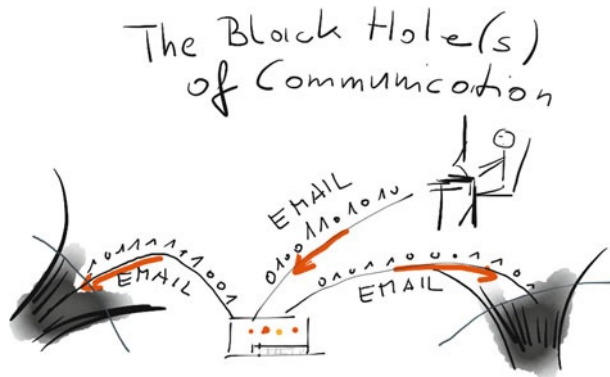
We have here an example of so-called “unstructured communication.”

But after 15 minutes, which felt like 15 hours, still nobody had answered his e-mail. There were only 45 minutes left and so he decided to make a phone call. He called each manager from the logistics department, but nobody picked up the phone.

With only 30 minutes left he ran over to the logistics department, which was in a different building, only to find out that there was no manager present and also none of the employees knew where they went.

Exhausted, angry and defeated, John walked back to his office and, from his office window, watched the impending disaster, which he was unable to prevent, unfold. For a moment he wondered how high the agreed penalty for the delayed delivery would be and was angry, because he now had to take the blame for something upon which he had absolutely no influence. It was not his fault that one of the orders was calculated so scarcely and it also was definitely not his fault that none of the responsible persons in the logistics department could be reached. It was always the same with those logistics people. If you needed them, they let you down. John had to learn that from experience. Logistics was in no means flexible or reliable, he thought. And now he had to take the blame for that. And he hates not getting a response to his mails – sometimes he had the feeling mails were disappearing in a sort of digital black hole; they never come back. Or, in the best case you get an answer too late (see illustration in Fig. 2.1).

Fig. 2.1 E-mails are a very flexible and convenient way to communicate, but you do not know what will happen with them. The drawback of this flexibility is, that it is an unstructured form of communication. For example, there is no defined time to answer, and therefore no defined throughput time for the communication



2.1.2 Daily Quarrel in the Factory

Later that day, at noon, John decided to have lunch in the company’s canteen. After clearing his head – while walking there – he took his meal from the self-service counter and looked for a place to sit. Soon he noticed Norma Roe, one of the logistics department’s managers, sitting alone at a table, having lunch. Now upset again, he walked over and took a seat to have a serious talk with her.

“Seriously, Norma,” he said, trying to calm his voice. “What on earth is wrong with you?”

Surprised, she looked up.

“I sent you an email, I called you three times and I even ran over to your department, only to see nobody was there! We had real trouble today and I really would have appreciated your support!”

Norma Roe,
Logistics Manager