

Personal BPM – Bringing the Power of Business Process Management to the User

Jonas Lehner

Institute of Applied Informatics and Formal Description Methods (AIFB)
Karlsruhe Institute of Technology (KIT)
Kaiserstr. 89, 76133 Karlsruhe, Germany
jonas.lehner@kit.edu

Abstract External and internal factors force companies to be flexible in their business processes. However, the information systems used in the companies are often too complex and the implemented process models are too rigid to quickly adopt changing determining conditions. This leads to a loss of efficiency since various tasks that would be suitable for the execution by workflow management systems must be performed manually. The presented approach for a solution solves this problem by offering a method to exploit the automation potential by using suitable flexible tools and a target-group oriented procedure model. Compared to existing approaches this method does not try to solve the problem on a company level. Instead the focus is on the individual employee who will be enabled to improve his personal workflows.

Keywords: Personal BPM, Personal Workflow Management, JSON Nets

1 Introduction

Process models are often developed by top management and are imposed on employees (top-down). Usually this is performed by a process modelling specialist who is not equipped with the necessary domain knowledge. This may lead to a situation where the employee is faced with a process model that does not represent his actual needs and therefore does not support him in his daily business. In the worst case it will even constrain him in the fulfilment of his duties. Bandera et al. identify the “perceived gaps between process design and process execution” as one of the top operational issues in BPM [1]. This means that many processes, which have a great potential for automation, are not supported by central IT systems. Hence, it would be useful to offer a way to create user-level workflows for personal use to improve the productivity of individual members of an organization.

Companies have to deal with internal and external drivers and need to be flexible in their business processes which may lead to a problem since the information systems used in the companies cannot respond quickly to changing conditions. Hence, optimization potential is not used because employees have to perform tasks manually instead of using a workflow management system. Indulska et. al see problems with change management and a lack of governance [2].

2 Personal BPM

Personal BPM tries to address these problems by providing a user centred perspective on business process management and the execution of workflows. In this context, the *user* is understood to be any member of an organization, who is not inevitably a modelling expert. He has to have a certain level of understanding regarding the use of IT. To benefit from the automation, a substantial part of his work should be done on a computer. Examples for users in this context are agents in an insurance or scientific researchers in a university.

Following the BPM lifecycle (often described, e. g., [9]) the user needs to be supported in different activities:

1. The user has to understand which activities are eligible for automation and has to identify the dependencies between single tasks (*process design*). Here, the user has to be supported by an appropriate procedure model.
2. He then has to implement the workflow (*system configuration*). On the one hand this has to be simple so that the user is not deterred and on the other hand the system has to be flexible so that it meets the user's needs.
3. The execution of workflows has to be simple and should require as little manual activities as possible (*process enactment*).
4. To allow continuous process improvements there has to be a tool to measure key data like process time (*diagnosis*).

Business process management is widely used by companies. But as shown before its benefits does not always reach the operational level and therefore the single employee, which leads to the following main research question:

RQ0 *How can the benefits of using BPM be transferred to the operating range of individual members of an organization?*

This main research question can be divided into four questions concerning different aspect:

RQ1 *What language is suitable for modelling business processes in this context?*

Business processes are usually modelled using graphical languages like BPMN, EPC or Petri nets. This is suitable for modelling specialists, while domain specialists may have problems in understanding and using it.

RQ2 *How does a workflow management system have to be like that is flexible enough to be used by domain specialists?*

Workflow management systems are complex software systems that are usually configured by IT experts and cannot be easily customized by the end user.

RQ3 *How can the development process for new features be supported?*

A system that has to meet the requirements of the users has to be expandable in its functions. Hence, developers of additional features have to be encouraged by the architecture of the system.

RQ4 *How is the productivity of individual employees affected by the deployment of Personal BPM?*

If using a software system takes more time than doing something manually it should not be utilized. Therefore an evaluation has to be performed to show if it is useful to use Personal BPM in daily business.

Business processes as an ordered set of activities to achieve a specific operational objective can be modelled with different languages, e. g., BPMN, UML and Petri nets. XML nets represent a variant of higher Petri nets, which can model business processes based on the exchange of relevant information objects [3]. In this respect, the language is suitable for the application described here. However, the use of XML requires a relatively rigid data schema that limits the flexibility of a system which uses this language. Therefore, it is advisable to select a data format that allows to map any data schema and is easy to handle.

3 Related Work

The idea of using Petri nets to describe runnable workflows is often described (e. g., [8]). However, it is usually used by a modelling specialist not by a normal employee.

One approach to close the gap between modelling specialists and domain experts is described by Luebbe and Weske [4]. They use methods of design thinking to make process modelling more understandable for the user. In so-called “Tangible Business Process Modelling” plastic elements, which represent BPMN iconography, are used to model business processes in a playful manner. Although this approach helps to improve communication between knowledge providers and modelling experts the modelled processes remain inflexible with respect to changing conditions.

Petric and van der Aalst present an approach for flexible business process management that addresses the problem of managing dynamic processes in rapidly changing organizations by shifting from an imperative paradigm to a declarative one [5]. This means, it is rather declared what should be done without specifying how something should be done. While this may help to model a company’s processes from a high level point of view, it is hard to use these models to automate tasks as concrete execution instructions are missing.

In contrast, there are a couple of services, that use some kind of personal workflows like IFTTT (<http://ifttt.com>) or the mobile app “workflow” (<http://workflow.is>). They allow users to manage different social media services and connect them with simple rules, e. g., save a photo in dropbox, that a user posted on facebook or change the colour of a smart home light bulb when a new email is received. But these services are not suitable for a business context since they only allow simple linear processes and support a closed set of services.

There is a common approach that uses personal task management to enable end-user driven business process composition [6,7]. In contrast, the idea described in this paper focuses on data flowing through the process rather than concentrating on the tasks.

References

1. Bandara, W., Indulska, M., Chong, S., Sadiq, S.: Major issues in business process management: An expert perspective. ECIS 2007 Proceedings (2007)

2. Indulska, M., Chong, S., Bandara, W., Sadiq, S., Rosemann, M.: Major issues in business process management: An australian perspective. *ACIS 2006 Proceedings* (2006)
3. Lenz, K.: Modeling interorganizational workflows with xml nets. In: *System Sciences, 2001. Proceedings of the 34th Annual Hawaii International Conference on* (2001)
4. Luebbe, A., Weske, M.: Bringing design thinking to business process modeling. In: Meinel, C., Leifer, L., Plattner, H. (eds.) *Design Thinking*, pp. 181–195. *Understanding Innovation*, Springer Berlin Heidelberg (2011)
5. Pesic, M., van der Aalst, W.M.P.: A declarative approach for flexible business processes management. In: Eder, J., Dustdar, S. (eds.) *Business Process Management Workshops, Lecture Notes in Computer Science*, vol. 4103, pp. 169–180. Springer Berlin Heidelberg (2006)
6. Stoitsev, T., Scheidl, S., Flentge, F., Muhlhauser, M.: Enabling end-user driven business process composition through programming by example in a collaborative task management system. In: *Visual Languages and Human-Centric Computing, 2008. VL/HCC 2008. IEEE Symposium on*. pp. 157–165 (2008)
7. Stoitsev, T., Scheidl, S., Flentge, F., Mühlhäuser, M.: From personal task management to end-user driven business process modeling. In: Dumas, M., Reichert, M., Shan, M.C. (eds.) *Business Process Management, Lecture Notes in Computer Science*, vol. 5240, pp. 84–99. Springer Berlin Heidelberg (2008)
8. van der Aalst, W. M. P.: The application of petri nets to workflow management. *Journal of circuits, systems, and computers* 08(01), 21–66 (1998)
9. van der Aalst, W. M. P., ter Hofstede, Arthur H. M., Weske, M.: Business process management: A survey. In: van der Aalst, W. M.P, Weske, M. (eds.) *Business Process Management, Lecture Notes in Computer Science*, vol. 2678, pp. 1–12. Springer Berlin Heidelberg (2003)