Digitalization Through Process Mining Tools – A Qualitative Analysis

Bachelorarbeit

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vorgelegt von

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1. Introduction

Different processes take place in every company every day: A delivery arrives, an order goes out. Employees make offers and pay bills. Many companies have developed fixed processes to ensure that all these processes run smoothly. For example, an invoice must be checked and released before the accounting department can transfer its amount. But the more processes, the more mistakes can creep in - and finding them is often pure "detective work".

Since the 1980s, there has been a trend away from functional orientation towards process orientation in the organization of the corporate structure. During this development, which produced current buzzwords such as Business Intelligence (BI) and Business Process Management (BPM), many applications have also emerged that support the process-oriented view. Workflow technology in particular has undergone enormous development in recent years. Especially for the use of workflow management systems, the existence of a process model is necessary.

Nevertheless, process knowledge is often not explicitly available in companies, for example as a graphical process model. Most of the time, it exists indirectly in the mind of the employees involved, in form of local knowledge. They know from their daily work how tasks must be carried out in their respective departments. In most cases however, there is a lack of knowledge about the entire global process.

Because processes are becoming increasingly complex and several functional units or even multiple companies can be involved, the explication of process knowledge is a complicated and an expensive matter. *Process mining* provides methods for extracting process knowledge from log data of past process executions.[1] For the first time, process mining is an objective alternative to traditional techniques of knowledge acquisition. In the context of this work, an overview of this new topic is given.

This thesis pursues two objectives. On the one hand, it provides a comprehensive overview of existing process mining methods. On the other hand, this thesis will point out to what extent process mining can progress the processes of a company. Therefore, the research question is the following:

How and why can process mining help organizations to improve their processes?

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[1] cf. Van der Aalst (2012): Process Mining.

In order to understand what the digitalization of processes means and why the digitalization is a key factor nowadays, this thesis will give an understanding of topic related terms. BI, Big Data and BPM in general will be introduced. In the next step, process mining methods and tools will be explained in detail, which will be fundamental for the following qualitative analysis in form of semi-constructed interviews.

The following chapter will illustrate the drawings that were taken from a state of the art literature analysis. Moving on, results from six interviews will allow a deeper insight on process mining in organizations to help answer the research question.

A discussion of theoretical and practical opinions will follow in chapter five. The discussion of the gained knowledge and the interviews will help to answer the research question. The bachelor thesis will end with the description of its impact on research and practice as well as a presentation of a conclusion and an outlook.

6. Conclusions and Outlook

Due to the digitalization of processes and workflows in companies, the goal of this thesis was to give an insight into process mining and the use of process mining in practice. Through a state of the art literature review and interviewing six multinational employees of a global auditing company that offers process mining as a service, an overview of this promising topic was given. The results were used to answer the research question formulated in the introduction and to develop recommendations for practice.

The results show that process mining enables a whole visualization of processes and data. Through the visualization, companies gain 100% transparency of their processes as their process knowledge is available as a graphical process model. Process mining tools, such as Celonis and Perceptive, give companies the opportunity to regain power over their often widely entangled processes. Consequently, the companies obtain more insights about their process workflows. This can lead to cost reduction for companies as inefficient processes can be detected, reconstructed or even terminated if they do not serve their initial use anymore.

However, process mining also holds some problems companies must deal with. Firstly, data extraction is a major problem for companies. They struggle to gather all data into one data format. Especially the harmonization, cleaning and merging of event data is a big issue.

But the technical implementation is not the only problem. Not just the act of process mining is difficult, but furthermore the decision a company has to make to introduce process mining, seems difficult as well. Many firms are not aware of the potential and benefits of process mining. Its tool licenses are very expensive which can deter organizations from implementing it in their working methods. More education and schooling of companies is necessary to raise the awareness for the need of implementing process mining in practice.

Nevertheless, the overall impact of process mining on companies' workflows is positive. The data collection becomes easier for companies and is objective since no more interviews with employees are needed to collect information about processes. Thus, no more data can be hidden.

Still, more research is needed for the use of process mining tools in companies. Process mining is a rather new topic which needs more exposure. It can further the process analysis and can thereby become an emergent technology for companies which needs to get developed further.