End-users' perspective on digitalization: A study on work order processing in the German banking industry

Full paper

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Abstract

The current wave of digitalization has an impact of several industries, including the financial service sector. While the current situation and arising challenges have been analyzed from a strategic perspective and from the customer perspective, research on the internal end-user perspective is scarce so far. Based on an online survey in the German banking industry, our study identifies several challenges for banks in the field of internal order processing including a lack of integration among the IT systems in use, non-realized potentials of automating the processing of work orders and a lack of training for the end-users. With our study, we add the end-users' perspective as an additional relevant facet to the discussion on current digitalization activities in the banking industry.

Keywords

digitalization, end-user, work order processing, banking, Germany

Introduction

The term digitalization is used by media, companies and science for describing a "process of moving to a digital business" (Gartner 2016). Today, enterprises from many industries recognize that making this move is a major challenge with heavy impact on existing business modes (Veit et al. 2014). One industry, which intensively discusses strategies for digitalization is the banking sector (Cziesla 2014). Breakthrough improvement in the business models, the need to establish new technologies, flexible and comparable products as well as social media are often referred to as major challenges. Due to the acceleration of technological change and the fierce competition, companies have come under pressure in recent years (Lasi et al. 2014; Scott 2007; Snip 2015). CIOs and the IT see this pressure of constant change as a high risk and as an opportunity for new business at the same time (Gartner 2015).

So far, studies on the digitalization in the banking industry have either focused on the strategic level or on the customer perspective. On the strategic level, studies analyze and discuss the impact of digitalization on business strategies and business models (Schmidt and Drews 2016). On the customer level, studies from research and practice seek to describe and explain customer behavior in selecting and adopting new technologies and services (Aladwani 2001, Bain & Company 2014; Pousttchi and Schurig 2004, Pozza and Texier 2014; Roland Berger and Visa 2015). In addition to these two perspectives, banks should also consider the internal organization and the IT systems as relevant input for assessing the current state of digitalization (Ross et al. 2015; Venkatraman et al. 1993). According to Engelbert and Graeml (2015), end-users do not always use IT systems as expected by designers, because they seek to maximize their personal results by minimizing their individual effort. In contrast, the alignment of the strategy and the customer requirements with internal operations is fundamental to withstand the pressure of digitalization (Ross 2015).

In our paper, we focus on this third important field of digitalization endeavors: the banks' employees who are acting as the internal users of the IT systems. In the current literature, this perspective is not covered as intensively as the strategic and the customers' perspective. In order to fill this gap, we conducted a survey-based study in the German banking industry. This study aimed at getting a better understanding of the current status and the challenges of digitalization in banks from an end-user perspective. Due to the high number of processes and tasks in banks, we decided to focus on an area, which is expected to be heavily influenced by digitalization: the processing of incoming work orders. In the banking industry, customers use several incoming channels for their requests and orders, including mobile apps, fax, e-mail and paper-based documents. We strived for mainly attracting participants who are employed as case workers or skilled employees for our study to capture the end-user perspective. By getting a better understanding of the internal end-users' perspective, we seek to contribute to the ongoing research about digitalization in the banking industry. Furthermore, the insights gained might also be used by companies for refining their digitalization strategies.

The remaining paper is structured as follows: First, we briefly summarize related research regarding the digitalization in the banking industry and the end-user perspective. Second, we describe our methodological approach. Third, we present the demographic data and results of our study. Fourth, we discuss our results and give an outlook on future research questions.

Related research

Digitalization is a top strategic challenge for many companies, as indicated by a multitude of recently published studies from strategy and IT consultancies like Accenture (Accenture 2013), Capgemini (MIT Center for Digital Business & Capgemini Consulting 2011), McKinsey (McKinsey & Company 2013) and pwc/strategy& (Neuland et al., 2014). Furthermore, many current press articles and conferences cover this topic. We see this as a strong indicator for the relevance of this topic in practice. While companies have the digitalization of their business on their strategic agenda, research in this field is rather scarce. Bojanova (2014) and Cziesla (2014) analyzed the main topics of digitalization in the financial service industry. Bojanova (2014) mainly describes the trend from "physical to digital", the enablement of digital technology and the challenges for nearly every traditional business model within the financial service industry. On the technology level, the emerging technologies like virtual assistants or gesture controls are analyzed (Cziesla 2014). Both sources explain aspects of the digitalization on a strategic level but not on the operational level.

Though implementing IS in banks and the financial industry has been a topic of information systems (IS) research for several decades, the current discussion about the digitalization stresses several distinct features. First, the digitalization is seen as a trend that leads to additional channels to the customer and the managerial challenge of organizing processes and IS in a way that they are able to capture these multi- and omni-channel scenarios (Pavlovski 2013). Second, the IT megatrends are expected to heavily influence the internal IT capabilities as well as the customers' requirements. This challenge is referred to as SMACIT (social, mobile, analytics, and the internet of things) (Ross et al. 2015). Third, it is stated that customer relationships undergo a fundamental change. The customer needs are changing from static and predictable to dynamic and adaptable (Jahn and Pfeiffer 2014). Changing patterns of media usage challenge enterprises more frequently than before the current digitalization wave (Lembke and Honal 2015). Fourth, precise information of customer profiles and consumer behavior is necessary for the creation of individualized financial products (Koye and Auge-Dickhut 2014). Furthermore, for achieving customer loyalty in the financial industry, innovative products and outstanding service are required (Bain & Company 2014a). Enterprises are encouraged to focus on key customer interactions (Bain & Company 2014b; Berman 2012). Fifth, a fine-grained customer segmentation is required (Ambacher et al. 2014). Customers expect improved communication and collaboration (Sola et al. 2015) as well as a real customer experience when interacting with enterprises in the financial industry (Carl, Michael and Enzweiler 2014). Finally, the enterprises in the financial industry have to support the digital user through the development and improvement of appropriate internal structures and processes (Brenner et al. 2014).

Hence, we need to get a better understanding of the status and the shortcomings of current processes and structures with regard to the challenges of digitalization. For gaining a better understanding, two different perspectives are possible: The analysis could take the management and top-management perspective or it could take the perspective of the end-users. We decided to take the latter one as the end-users are the

people that run the processes day by day. In the literature, there is a long tradition of research on the user's perspective on IS implementation and organizational change (Joshi 1991). Approaches like end-user computing and end-user development seek to empower the users by building IS that the users can adapt to their needs on their own (Clark and Dwivedi 2012).

Methodological Approach

The study has been conducted with a strong focus on the end-users of IT systems within banks. In Germany, there are different types of financial institutes like cooperative banks, private banks, savings banks and regional state banks. In our study, we the used the online survey method based on Bryman and Bell (2011). In the first phase, we defined to analyze the end-users' perspective in work order processing. In the second phase, we created two different variants of a questionnaire with the aim of formulating the questions in a way that is understandable to the target group.

The structure of the questionnaire was created by using the three aspects of input, processing and distribution from Porter's value chain model (Porter 1998). Input describes an incoming work order. Distribution means the distribution of an incoming work order to a department or to a team to process the work order. The input channels and the related distribution of work orders of current multi- and omni-channel architectures of financial institutes within the questionnaire are based on (Nüesch et al. 2015; Pozza and Texier 2014). The last step describes the processing of the work order by a department or a team. The departments were selected based on (BIAN 2015). We tested the online survey with five employees from three different banks. As a result, we have chosen one questionnaire and adopted it based on the employees' feedback. Especially terms like "business process" and "workflow engine" were substituted by more general terms like "work order" and "IT system".

Finally, we created the questionnaire for the online survey. The aim was to gather at least 100 completely filled out questionnaires. In the beginning of the data gathering, seven demographic questions were asked to ensure that only employees with the right skill level from the defined types of financial institutes could take part in the online survey. All participants who did not match the defined criteria could not answer the questions. The durations of the data gathering phase was four weeks. After three weeks, we had almost 100 responses, but we decided to wait one more week to further increase the number of responses. Finally, we received 130 responses. The raw material of the complete online survey was exported for the analysis. In the final step, we aggregated all given answers of one question and created a visualization of the aggregated data. The key findings of the study are presented in the following parts.

Demographic Data

Figure 1 shows the demographic data of the 130 participants of our study. 80 % of the participants are full-time workers and 20 % work less than 30 hours per week. 85 % of all participants work as case workers, team leaders or skilled employees and 15 % have an executive job role. Therefore, the participants are mainly working on the operational level as intended. The participants cover large banks with more than 1000 employees (47%) as well as small and medium sized banks.
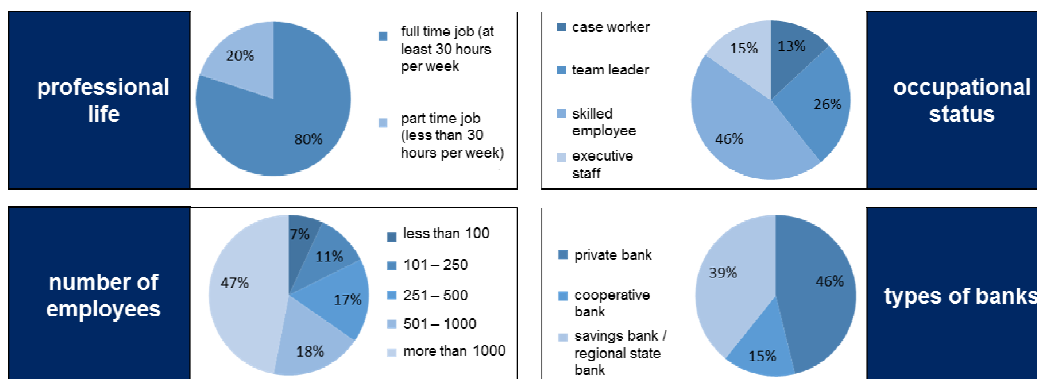

Figure 1: respondents' demographic data (n = 130)

Within the study, we differentiate between three types of banks: private banks, cooperative banks and savings banks respectively regional state banks with German headquarters. Figure 2 shows the departments, in which the participants are working. They are working in a wide range of departments. The top three departments are: private customer service (18%), credit department (16%) and back office (11%).
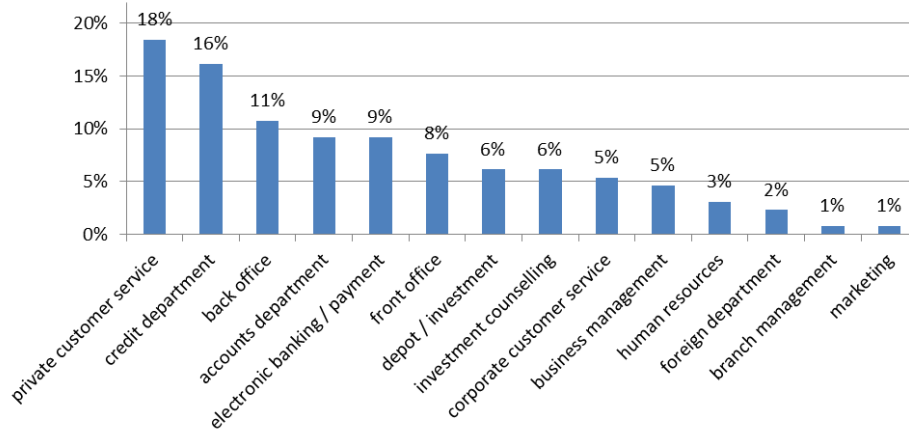

Figure 2: departments, the respondents are working in (n = 130)

Results

In this part, we present selected descriptive statistics from our study. The findings of our study cover three domains as described above: (1) input data, (2) distribution of work orders, (3) work order processing and improvement.

Input Data

The first domain "types of input data" deals with the different types of incoming work orders (see Figure 3). 84 % of the respondents say that even in the digital age the trigger of work orders is often or very often a phone call or a personal conversation. This channel requires at least one employee for each request. A structured form like structured e-mail, fax or letter is not available in 42 % of the incoming work orders. Structured means that clearly defined values in a foreseeable order reach the bank. The online channel, which also includes mobile devices, is used by 57 % rarely or very rare. Incoming work orders are available in a structured pattern in 49 %, which is presented in Figure 4.
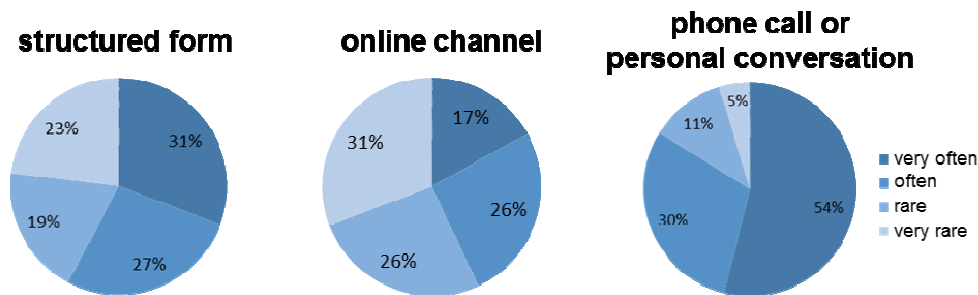

Figure 3: types of incoming work orders (n = 130)

The unstructured e-mail is predominantly used because 68 % of the respondents say that they get very often or often unstructured e-mails. Unstructured means that undefined values in a random order reach the bank. In comparison, faxes and letters are less popular as an incoming work order. Nearly a quarter of

the respondents say that they get structured or unstructured work orders by fax or letter. Letters are with 35 % more often used than faxes with 25 %. Each of the unstructured input formats lead to extensive manual work in context of work order processing.
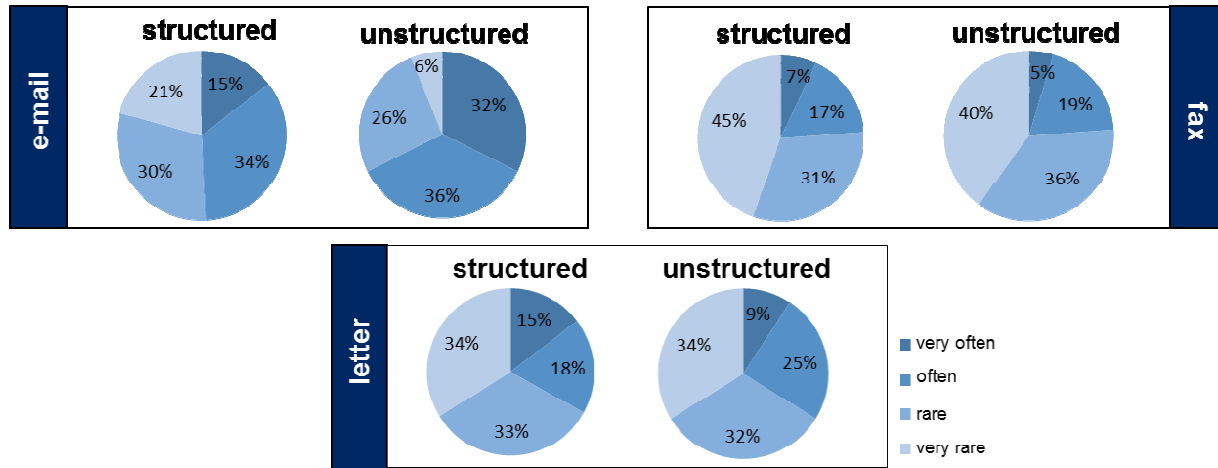

Figure 4: structured and unstructured input formats (n = 130)

Distribution of Work Orders

The distribution of incoming work orders depends on structured and unstructured format. In 12 % of all incoming work orders the distribution of work orders is automated. Vice versa 88 % of all incoming work orders are distributed manually. 20 % of the banks still use a central mailbox for all incoming work orders per department. That means the subsequent work order processing includes a lot of manual tasks carried out by the employees. The remaining part of the employees says that a manual distribution of a work order is directly delivered to a specific employee. The last aspect means that for 31 % of all incoming work orders the knowledge of a specific employee is needed to process the work order. Figure 5 shows this in detail.
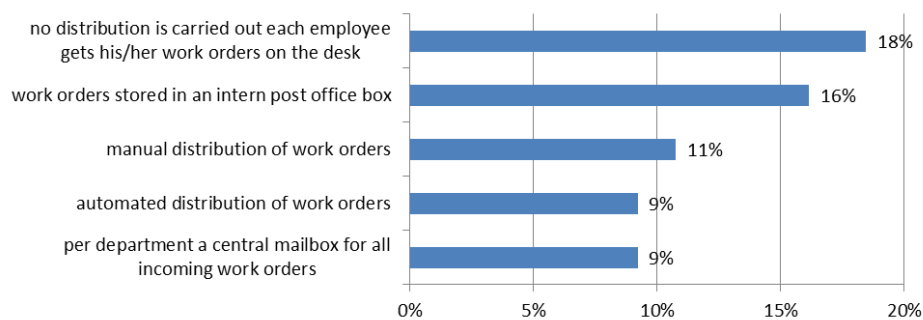

Figure 5: distribution of work orders (n = 130)

Work Order Processing and Improvement

Work order processing: The work order processing is in 66 % of all incoming work orders supported by an IT system. All other work orders have to be processed manually. The usefulness of the used IT systems is stated by 19 % as more complex and more time consuming with the IT system than in former times when the work orders were processed manually. Whereas 81 % of the respondents say that the processing of work orders became more efficient with the IT systems in use. Figure 6 shows reasons for why the use of IT systems can be even more time consuming than a manual process: In 45 % of all incoming work orders, five or more IT systems have to be used to process a single work order. Most cases require three to five IT systems for a single work order.
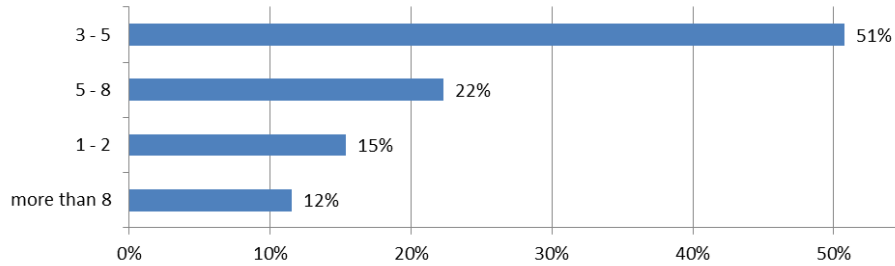
Figure 6: number of IT systems for processing one work order (n = 130)

Training: Another question was about the training for employees before working with the IT systems. 49 % of the employees answered that they were inadequately prepared as presented in Figure 7. 6 % just got a handbook for the IT system, 27 % participated in an information event and 16 % got a quick demonstration of the IT system. The other 51 % attended an intensive training or have been directly involved into the implementation or roll out process.
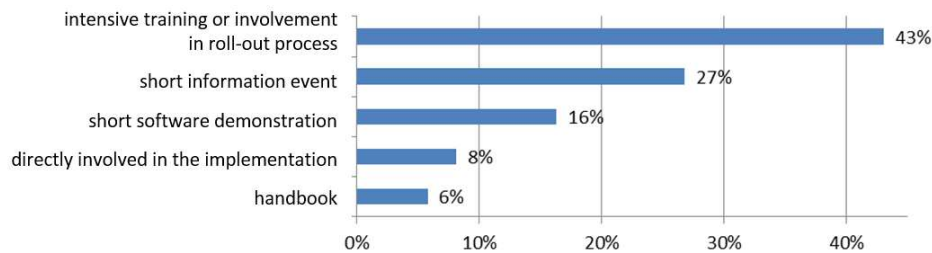

Figure 7: training for employees for working with the IT systems (n=130)

Limitations of the IT systems in use: Despite the high complexity of the used IT systems for work order processing, only 62 % of the IT systems have been optimized within the last three years. 38 % of them achieved an improvement of only 10 %. Furthermore, Figure 8 shows that the implementation of IT systems resulted in an improvement of work order processing of 30 % or more in just 13 % of the enterprises.
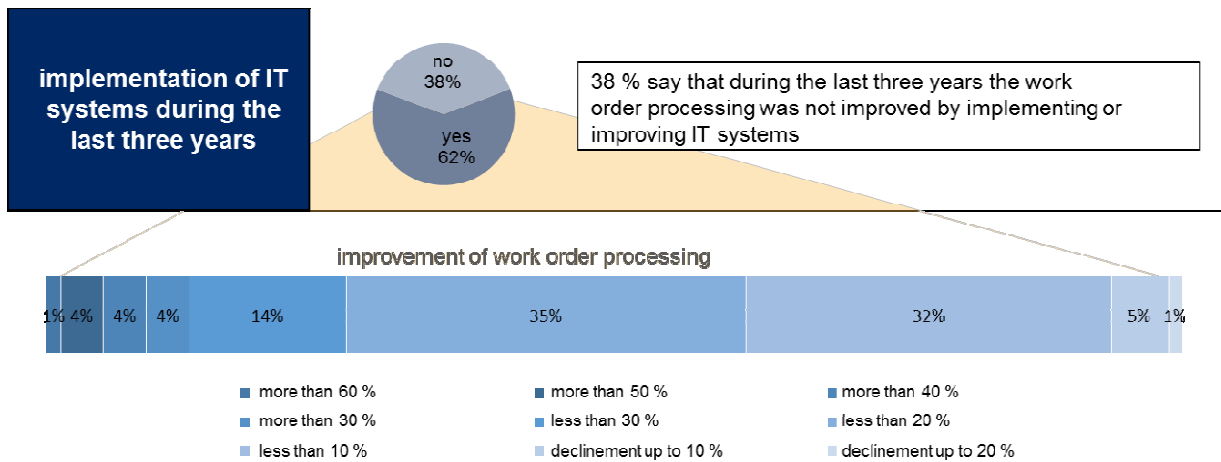

Figure 8: implementation of IT systems during the last three years (n = 130)

The participants are also aware of the limitations of the IT systems in use as Figure 9 shows. 38 % of all participants complain about inadequate support for processing custom work orders. Mainly, the standardized processes are depicted within the IT systems. But also performance problems, problems with stability as well as lack of interfaces to adjacent IT systems have been named by the participants. In relation to Figure 6, the missing interfaces between different IT systems and the high number of necessary IT systems to process a single work order increases this problem. Furthermore, aspects like inadequate

usability (e. g. high complexity of user interfaces) and critical problems with performance are stated as the main limitations of today's IT systems. One participant mentioned long response times of the IT systems as an example for a critical problem. An example for stability is that some IT systems are sometimes offline for up to three days, so the employees have to use workarounds within these times.
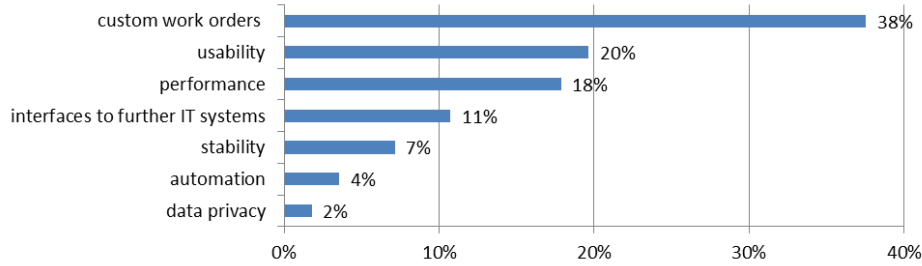

Figure 9: limitations of the used IT systems (n = 130)

Improvement: The participants were asked for possibilities to improve the efficiency of processing works orders (see Figure 10). 21 % of all participants think that there are no further possibilities for improvement available due to the individuality of each work order. In contrast, 45 % think that at least 20 % of the work order volume can be automated in the future.
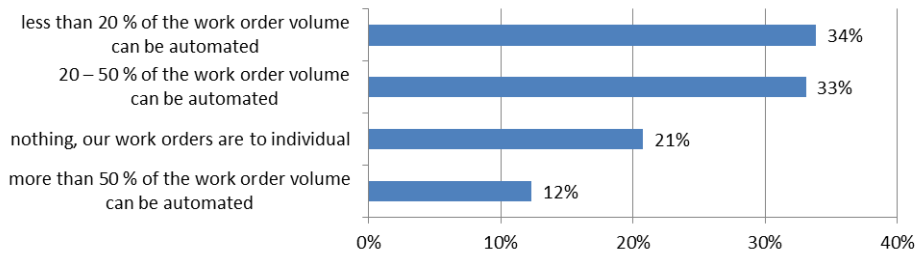

Figure 10: automating processing of work orders: room for improvement (n=130)

The participants in the departments back office, electronic banking / payment, investment / depot, private customer service, accounts and credit see room for further improvement of the work order processing. Especially electronic banking / payment and back office are stated as the most important departments for achieving improvement.
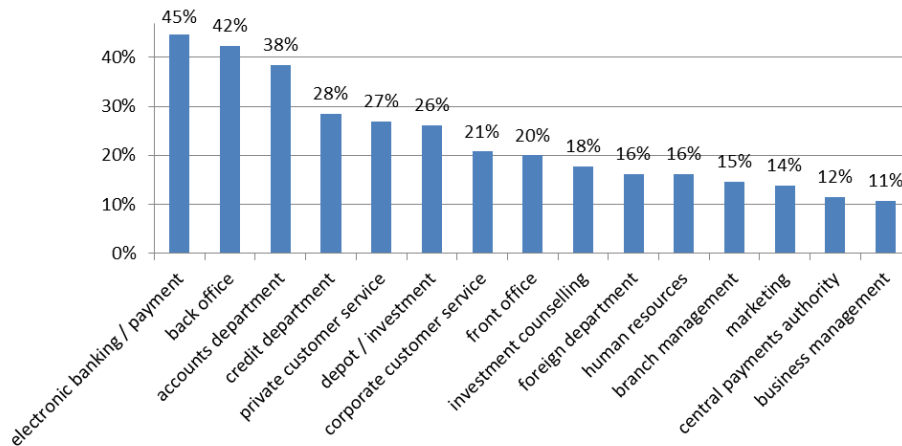

Figure 11: room for improvement by department (n=130)

The work order processing today can be described within three categories. The first two categories contain the input and distribution of work orders. As a main result of the study it can be stated that the typical input for work processes is unstructured. Therefore, in 88 percent of all incoming work orders, no automatic distribution of work orders is possible. In contrast, customers have high expectations regarding processes, mobile banking, branches and products. Especially mobile banking requires the combination of automated and standardized processes, real time information and well integrated IT systems. This cannot be realized with such large problems in processing work orders (Besson and Rowe 2012; Sola et al. 2015). The third category "work order processing and improvement" shows the baseline problems of banks. The landscape of IT systems is very heterogeneous and not integrated. Hence, it will be difficult for bank to realize real-time interaction with the customer in the context of mobile banking, if up to eight different IT systems without clearly defined interfaces are only connected with the help of manual interactions.

Discussion and Outlook

We started with the research goal to get a better understanding of the end-user perspective on work order processing in banks and the current status of digitalization of these processes. Our survey-based study in the German banking industry revealed that the digitalization is a challenge that comprises the reorganization and improvement of internal processes, structures and IT systems. The results show that (1) the integration of existing IT systems is rather low in some German banks, (2) current processes have not been optimized to a sufficient degree during the last years, (3) great non-realized potentials for automating the processes of work-orders exist, (4) end-users need additional training for being able to fully realize the IS potentials. While enterprises add nice apps and new services to their portfolio, they should not oversee that tremendous change management and IT optimization activities need to be carried out as a part of their agenda for digitalization. Already in the last millennium, empirical studies of new technology failed to pay attention to the operational level of technology in use (Randall et al. 1999). But the legacy of the given organization was and according to our study even is an issue from the moment used technology is part of an organization's everyday work (ibid.). In context of digitalization, the improvement of the end-users' situation and the improvement of the degree of automation in their processes is even more necessary.

The results of our study are limited due to a number of reasons. First, it is geographically limited, as only banks located in Germany participated in the study. As some of them operate globally, it is probable that similar result might also be found in banks in other countries. Second, due to our mainly quantitative approach, we could not get data that allows us to get an in-depth understanding of the changes in the socio-technical work system. Third, we focused on describing the results of the end-users' perspective and did not relate it to the strategic or the customers' perspective, yet.

Based on our results, it seems reasonable to further investigate the digitalization from an end-user perspective. Understanding how end-users within the organization rely on a combination of different strategies to deal with given technologies in their daily work subsequently affects the individual outcome and the individual job performance (Abbott et al. 2015). The digital business therefore has to change the way of thinking about IT from a functional-level perspective to a fundamental driver of business value creation (Bharadwaj 2013). The digital technology in combination with the business infrastructure is fundamentally important for new operational working experiences (ibid.). Hence, we argue for conducting additional studies on the situation in the financial industry as well as in other industries regarding the end-users' perspective on digitalization to overcome the silo thinking in the IS discipline from a new perspective (Alter 2015). For further research, we will focus on the combination of the three perspectives: strategic perspective, end-user perspective and customer perspective. We will compare the different views to each other to generate a more comprehensive overview of the challenges of digitalization in the financial industry. As a second step, we seek to develop an approach, which supports improving the strategic fit between all three perspectives.

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