Exploring the Relationship between IT Consumerization and Job Performance: A Theoretical Framework for Future Research

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Abstract:

The consumerization of information technology (IT) refers to consumer IT resources, such as laptops, smartphones, social media, or cloud storage, that are used for business purposes. The topic has engendered an ongoing debate among practitioners. However, a scientific approach has yet to be developed to understand the effects of IT consumerization on individual performance in the workplace. In this paper, we conduct an inductive empirical study on pilot projects in an industrial and a public sector organization. From these data, we derive key concepts and develop a theoretical framework that conceptualizes the relationship between IT consumerization and job performance. In particular, ownership and freedom of choice are interesting concepts to provide insights beyond what has already been investigated in previous research on IT-related job performance. Our findings lay the foundation for developing a substantive theory that is independent of our area of enquiry. Moreover, they show numerous connections to the body of information systems literature that sharpen our construct definitions and raise the theoretical level of the results. We outline potential avenues for future research on IT consumerization based on our study's contributions.

Keywords: IT Consumerization, Job Performance, Ownership, Freedom of Choice.

I. INTRODUCTION

The consumerization of information technology (IT) refers to consumer IT resources, such as devices or software, that are used for business purposes. Owing to the topic's practical importance, numerous practitioner studies about IT consumerization have been conducted (Niehaves, Köffer, & Ortbach, 2012). These studies associate IT consumerization with performance and productivity gains (e.g., Dell & Intel, 2012; Gens, Levitas, & Segal, 2011; Moschella, Neal, Opperman, & Taylor, 2004). Moore (2011, p. 3) asserts that IT consumerization is not just about satisfying the demands of the new working generation, "but rather a next wave of productivity gains to be garnered from investing in a next wave of IT". For instance, employees are more aware of technology in their workplace than ever and want to choose the devices and software that they use for work. Approximately one-half of the workers surveyed in studies said that they could complete more tasks on time (Harris, Ives, & Junglas, 2012), and would be able to do higher-quality work (Junglas & Harris, 2013) if they were allowed to choose their own IT for work.

The effects of IT consumerization on job performance and, consequently, on the productivity of business organizations have engendered an ongoing debate among practitioners. While some companies have tried to embrace IT consumerization, others are adopting a "wait-and-see" approach (Dell & Intel, 2012). Success stories from various companies indicate that IT consumerization has brought them advantages (Brousell, 2012). Gartner analysts LeHong and Fenn (2012) assumed in 2012 that IT consumerization would unfold its productivity potential in two to five years. By contrast, other authors have warned against a positive bias initiated by consumer enthusiasm and claim that business benefits are difficult to estimate (Kaneshige, 2014) and that potential benefits are offset by serious risks (ENISA, 2012). Taken as a whole, the practitioner literature lacks a formulation of the systematic relationships between IT consumerization and its possible effects on individuals, in particular with regards to job performance. Establishing measures of job performance in a contemporary workforce that appreciate IT consumerization is work in progress (Dell & Intel, 2012).

Few scientific publications address the terms "consumerization" or "consumer IT". Hence, IS research has not yet developed a theoretical perspective on the matter, nor have there been efforts to come up with a specific vocabulary or methods to help practitioners understand IT consumerization in general. In particular, IT consumerization's implications for job performance are an open research question. Sawyer and Winter (2011, p. 96) state that "the consumerization of IT is growing at the very same time that the IS field is struggling". They argue that the IS community has not adopted to new forms of IT that reach far beyond the scope of organizationally centered systems. Similarly, Vodanovich, Sundaram, and Myers (2010) notice that IS research focuses on the use of IT systems in organizations and call for research on ubiquitous IS beyond an organization's borders. Baskerville (2011a, 2011b) pursues the same idea: he states that "as technological power [has] continued to march downward in terms of organizational scope finally reaching a single individual, IS interests [have] waned" (Baskerville, 2011b, p. 251).

While individuals' engagement with IT has been addressed by promising research endeavors, performance effects are still under-researched. In a smartphones context, Yun, Kettinger, and Lee (2012, p. 142) note that "mobile IS have not been formalized in terms of job performance evaluation schemes". However, without a systematic understanding of the relationships between the underlying forces that constitute the job performance effects of IT consumerization, companies will not be able to meet the demand for new and sophisticated measures that track job performance back to an individual.

In light of this research gap, we explore the following research question: "How does IT consumerization affect the job performance of individuals?". To answer this question, we qualitatively analyze the topic with a case study. This paper is structured as follows: in Section 2, we conceptualize IT consumerization and job performance. Moreover, we list related work to further describe the research gap. Thereafter, in Section 3, we describe our research method and the detail how we collected and analyzed our data. In Section 4, we present the findings of our qualitative study. Furthermore, we develop a theoretical framework that defines the relationships between IT consumerization and job performance. In Section 5, we discuss the framework by relating our findings to the existing body of IS knowledge and theories. We also discuss future research possibilities and our study's implications and limitations.

II. BACKGROUND

IT Consumerization

The term IT consumerization has been used ambiguously in extant literature. The practitioner-oriented literature loosely associates IT consumerization with the work use of any software or device originally designed for distribution in the end customer market (Prete et al., 2011; D'Arcy, 2011). Harris, Ives, and Junglas (2012) call this the market perspective of IT consumerization. From this perspective, whether the technology is owned by the company or the employee is only marginally important. Other studies, however, use ownership as important cornerstone of IT consumerization (e.g,. Ortbach, Köffer, Bode, & Niehaves, 2013). For instance, IT consumerization has been characterized as "workers investing their own money and time to use a number of popular, yet diverse products to get their jobs done" (Unisys, 2010, p. 10). As for the case of privately owned devices, Harris et al. (2012) also discuss the perspective of an organization's IT department on IT consumerization. The authors describe IT consumerization as consumer IT used in the organization that "may not be part of a company sanctioned list and/or have not been formally approved" (Harris et al., 2012, p. 101). This differentiation refers to the fact that the use of private IT often goes unnoticed or is implicitly tolerated by the company. Formal approvals are "bring-your-own-system" (BYOS) strategies that aim to provide a legal and organizational foundation for IT consumerization while maintaining end users' technological autonomy (Baskerville & Lee, 2013). With or without a BYOS strategy, companies are more often integrating consumer IT into their own computing environments (Yun et al., 2012).

In accordance with Harris et al. (2012), we investigate IT consumerization's wider definition (i.e., the use of IT tools with a consumer-market origin at work). Looking at empirical use statistics, we particularly incorporate the use of laptops, netbooks, tablets, and smartphones on the hardware side, and social media, web conferencing, and cloud storage on the software side (Cisco, 2011; Gens et al., 2011). Figure 1 illustrates our conceptualization of IT consumerization in the perspectives of market origin, ownership, and organizational approval.

Figure 1. Conceptualization of IT Consumerization
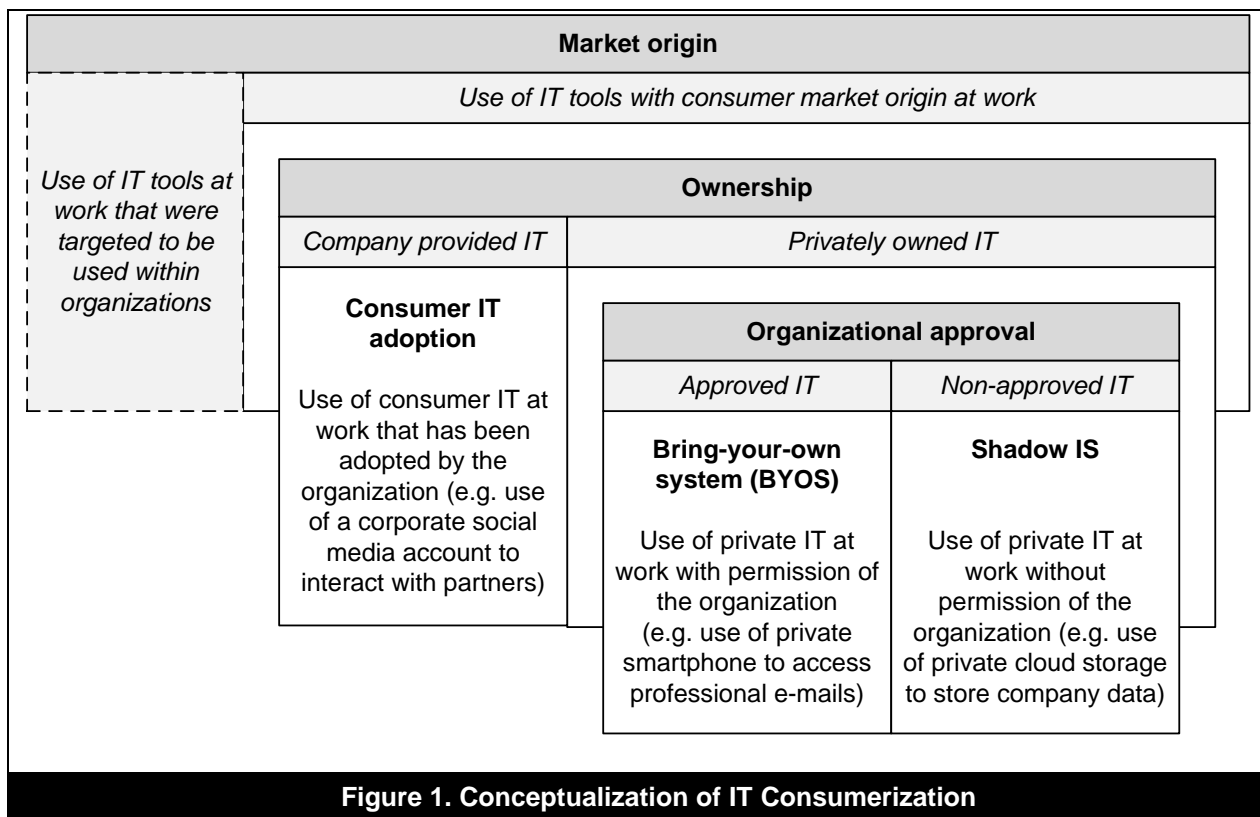
Job Performance

IS are usually developed to assist individuals in performing their tasks. To measure IS success, the relationship between job performance and IS has been studied extensively (Petter, DeLone, & McLean, 2008). In the IS context, job performance has been related to individuals accomplishing tasks with improved efficiency, improved (decision) effectiveness, increased productivity, higher awareness, and/or higher quality of work (Goodhue & Thompson, 1995; DeLone & McLean, 1992). However, research has only recently started to study IT consumerization's effects on individual and organizational performance. Harris et al. (2012), who conducted a worldwide survey about IT consumerization benefits as evaluated by executives and employees, constitutes one such example. The authors

identify innovation, employee satisfaction, and productivity benefits as IT consumerization's main advantages. In the study, 67 percent of executives said that IT consumerization was important for increasing employee productivity and 49 percent of employees said they could complete more tasks on time when allowed to choose their own hardware and software for work (Harris et al., 2012, p. 103). In a different study, Dell and Intel (2012, p. 3) conclude from interviews with executives that many were monitoring the IT consumerization trend closely "to capitalize on it to nurture productivity and efficiency".

Studies that investigate IT consumerization's influence or the use of consumer IT on job performance are rare. One exception is an ongoing research stream about the potential of using tablet computers in the educational sector to increase students' learning performance (e.g., Enriquez, 2010). Related to aspects of IT consumerization, Tarafdar, Tu, and Ragu-Nathan (2010) explore the potential effects of end user satisfaction on end user performance in the context of technostress. They show that increases in user satisfaction positively affect productivity and innovation. Other research directly addresses job performance and its relationship to specific IS. For example, Kositanurit, Ngwenyama, and Osei-Bryson (2006) identified the ease of use of ERP systems to be one of the most important factors that can positively influence individual performance. Related to the fact that consumer software such as social media is an integral part of IT consumerization, Zhang and Venkatesh (2013) found in their study that employees' ties in online networks positively influenced job performance.

In arguably the most influential IS study about individual performance, Goodhue and Thompson (1995) emphasize the importance of a fit between specific task-technology combinations. Their model of task-technology fit (TTF) has since been adjusted to systematically analyze how mobile IS can support knowledge workers who work at different locations (Gebauer & Shaw, 2010) or with new features of technology (Junglas, Abraham, & Watson, 2008). Consumer IT's effects on job performance have been also investigated in the mobile IS context. Arnold (2003) discusses the paradoxical nature of mobile technologies that create both benefits and drawbacks for individuals. Regarding job performance, Jarvenpaa and Lang (2005) use this paradox to describe the contradiction between higher performance achieved through more efficient ways to coordinate tasks and drawbacks caused by less personal time and an inability to distance work from home. Likewise, short-term performance benefits such as easier communication may turn into drawbacks in the long run (e.g., if the amount of communication exceeds a certain level, which can create higher coordination efforts) (Davis, 2002; Jarvenpaa & Lang, 2005). Yun et al. (2012) has specifically analyzed the dual role of mobile IS in smartphones context. They show that increased productivity through smartphone use reduced work overload. However, the higher job flexibility due to smartphone use increased work overload.

Taken together, IS research has not focused much on technology's role in influencing job performance (Hossain, Moon, Yun, & Choe, 2012; Zhang & Venkatesh, 2013). More specifically, none of the abovementioned studies on consumer IT and/or mobile IS includes a broader consideration of IT consumerization or the use of consumer IT for professional purposes. In this paper, we argue that IT consumerization encompasses additional consequences than merely mobile IS. In the context of TTF studies, scholars have argued that mobile IS has influenced the nature of professional tasks so that the interplay between task and technology has changed (Junglas et al., 2008). Likewise, IT consumerization is able to expedite professional tasks since privately owned consumer IT offers a variety of features for working from home or at places where it was previously not possible. For instance, the ownership characteristic of IT consumerization resembles the two main types of inquiry regarding user-acceptance studies: 1) TTF studies, and 2) user-satisfaction studies (Kositanurit, Osei-Bryson, & Ngwenyama, 2011). Employees who privately own their IT have most likely chosen it on their own to solve particular tasks, and, ultimately, to feel more satisfied and competent with it. Furthermore, privately owned IT at work represents an obvious overlap between private and work spaces, which is likely to influence work-life satisfaction and job performance (Hossain et al., 2012).

III. METHOD

Method Selection

We develop a theoretical understanding of consumer IT use in organizations that is grounded in the experiences of these organizations' human subjects (Sarker, Lau, & Sahay, 2001). We argue that IT consumerization considerably influences the way professional IT-related tasks are performed and that the consumerization research topic is in its early stages (Eisenhardt, 1989). Thus, we chose an inductive design for our study. In addition, we assert that existing theories cannot be translated or applied easily to understand or explain the consumerization phenomenon. For example, Gebauer and Ginsburg (2009) note that TTF theory provides only little guidance for professionals concerning particular combinations of task and technology. Thus, we develop a descriptive and integrative model (Galal, 2001) that characterizes the relationship between IT consumerization and job performance. We draw on grounded theory methodology, which has proven useful in studying IS phenomena (Urquhart, Lehmann, & Myers,

2010). Grounded theory was first established jointly by Glaser and Strauss (1967), until each researcher eventually proposed a different version of the methodology. For our purposes, we apply the principles of the Straussian version, which consists of the following three phases: 1) open coding, 2) axial coding, and 3) selective coding. In this version, the researchers generate and validate codes by constantly comparing the data analyzed with the emerging theoretical concepts until theoretical saturation is achieved (Strauss & Corbin, 1998). Our resulting framework may be regarded as a theory that is primarily descriptive and analytical (Gregor, 2006). All proposed relationships are associative rather than causal. This procedure resembles the approach of an inductive study design whose primary purpose is to generate theoretical knowledge instead of testing existing theories (Seidel, Müller-Wienbergen, & Rosemann, 2010).

Data Collection

As we studied the relationship between IT consumerization and job performance in a real-life context, we selected instrumental cases where our subject of interest was transparently observable (Eisenhardt, 1989; Stake, 1995). Our cases are two specific pilot projects in two organizations that aimed to deploy consumer IT among its employees as a reaction to the increasing challenges posed by IT consumerization. Hence, we selected the two projects for their similarity (i.e., they predicted similar results in terms of a literal replication) (Yin, 2009). However, we wanted results applicable to various organizational contexts. Thus, we sought differences in organizational conditions to allow useful contrasts during data analysis (Orlikowski, 1993). To this end, we performed the sampling of case organizations and the within-case sampling with variation to see which main patterns still held true (Miles & Huberman, 1994). Interviews focused on the specific consequences on job performance that resulted from the introduction of consumer IT in the organizations. In turn, we did not focus on explaining the differences between the two organizations. We plan to analyze cross-case conclusions (e.g., private vs. public sector) in a subsequent study.

The first organization, "CouplingCo" (pseudonyms are used for reasons of anonymity), was a medium-size manufacturing enterprise that focused on developing coupling technology. It had more than 2000 employees worldwide, and sales of over $400 million in 2011. The second organization, "City", was a municipal administration. The city had about 150,000 inhabitants with about 2500 employees working in the administration. Before starting the pilot project, both IT departments at CouplingCo and City had informally noticed that employees were increasingly using their private IT in lieu of corporate IT to do their work. This development began without either organization's formal approval. For instance, existing IT policies did not address privately owned IT use. During the course of the projects, the organizations' respective IT departments equipped certain employees with popular consumer IT devices. At CouplingCo, several unit managers and sales representatives were equipped with smartphones because both groups travel frequently and work at customer sites. Employees could not make their own smartphone choices, which meant that the organization did not consider individual vendor preferences. At City, employees were mainly selected according to their hierarchical role, which meant that several executives were equipped with smartphones and tablet computers if they desired them. The organization partly considered the individuals' wishes because it chose a common vendor after an inquiry of the participating individuals.

As key features of theory-building case study research (Eisenhardt, 1989), our data analysis and data collection overlapped since we finished our analysis of the CouplingCo case before beginning to collect data on the City case. Thus, our reports from the CouplingCo case served as feedback for how we designed the second case study. In consultation with executive management, we selected interviewees who we expected would have profound knowledge of the pilot projects. Thus, each respondent was either a participant of the project, a supervisor of participants, or a IT staff member that administrated the project. For both pilot projects, we used an embedded design to perform multiple analyses in one case (Yin, 2009). As a consequence, we selected interviewees from different roles and departments. We conducted and recorded semi-structured interviews with 13 respondents at CouplingCo and 7 respondents at City. We conducted each interview in person and later transcribed them. In total, three researchers were involved in conducting the interviews. Table 1 shows the details of the data collection, including interviewee roles.

Table 1: Overview of the Data Collection in the Two Organizations				
Organization	Interviewees (Count)	Date	Length	Transcript
CouplingCo	Management (incl. CEO, CIO) and subunit executives (5), sales representatives (4), IT staff members (4).	February 2012	~ 45 minutes	51,546 words
City	Subunit executives (6), IT staff member (1).	November 2012	~ 60 minutes	31,991 words

We pre-defined the questions for the semi-structured interviews after comprehensively analyzing the available practitioner literature, during which we focused on the current and potential use of IT for business purposes, including privately owned hardware and software. We asked the respondents explicitly about the individual and organizational advantages and disadvantages of using their privately owned and company-provided consumer IT

tools for business purposes. In addition, we asked the IT staff members and the executives to report performance changes of employees involved in the pilot projects. During the course of the interviews, our questions became slightly more specific as our research progressed (Strauss & Corbin, 1998). Appendix A overviews the main questions that guided the semi-structured interviews.

Data Analysis

Using conceptualized codes, two researchers independently performed the first step of our data analysis, open coding, separately line-by-line. The codes represented concepts that would later become part of the theory (Coleman & O'Connor, 2007). As a central code repository, we used NVIVO software for creating codes and deriving concepts. Consistent with Strauss and Corbin's (1998) recommendations, the conceptual name of every code, if not coded as "in-vivo code", was always in line with the conditional background of the situation embedded. Thereby, the research question strongly influenced our open-coding process. In particular, the Straussian grounded theory methodology encourages the use of research questions that are defined a priori rather than requiring that those questions emerge from the data collection (Eisenhardt, 1989). Thus, open codes represented text segments where respondents elaborated on the effects on their job performance. Theoretical sampling and open coding continued in several workshop meetings. In the workshops, we all shared our thoughts and evolving ideas about the generated codes and selected meaningful coding categories by looking for intra-group similarities coupled with inter-group differences (Eisenhardt, 1989). Inspired by the idea of the "hermeneutic circle", each iteration brought greater consistency to the interpretation of codes and concepts. We were all involved in the data analysis. Strauss and Corbin (1998) argue that researchers' backgrounds often lead to creative and important insights, and they encourage self-reflection during the theory-building process. In total, during open coding, we identified 370 codes that referenced 462 text segments. Appendix B lists exemplary open codes.

Axial coding describes the process of linking subcategories with their respective categories. We performed this step together during the workshop meetings. Once we established the first set of categories, the researchers (who performed the initial coding) looked over all the conceptualized codes again, during which they focused on identifying relationships between codes and categories. The additional coding iteration ensured a close fit between theory and data to exploit new insights (Eisenhardt, 1989). With every workshop iteration, we felt more comfortable with the emerging categories, their relationships, and the underlying associated strips of transcript data. However, it was impossible to accurately categorize all of the subcategories according to the paradigm model that Strauss and Corbin (1998) suggest. As Sarker et al. (2001) similarly perceives, it was sometimes too difficult to distinguish between properties and subcategories. After discussing the different concepts, we decided to use Sarker et al.'s (2001) adapted grounded theory procedure for the rest of the axial coding procedure, during which we used a two-step process. First, we hierarchically related the categories in the sense that subcategories form their parent categories. During this step, we also had to revisit and refine the open codes. We then reduced the saturated concepts as much as possible to the relationships between the core categories (i.e., the parent nodes of the hierarchical coding) that emerged from the open coding. Second, we created an integrative memo for each core category. These memos were written descriptions of ideas that integrate different pieces of data and that show that those data are instances of a general concept (Miles & Huberman, 1994).
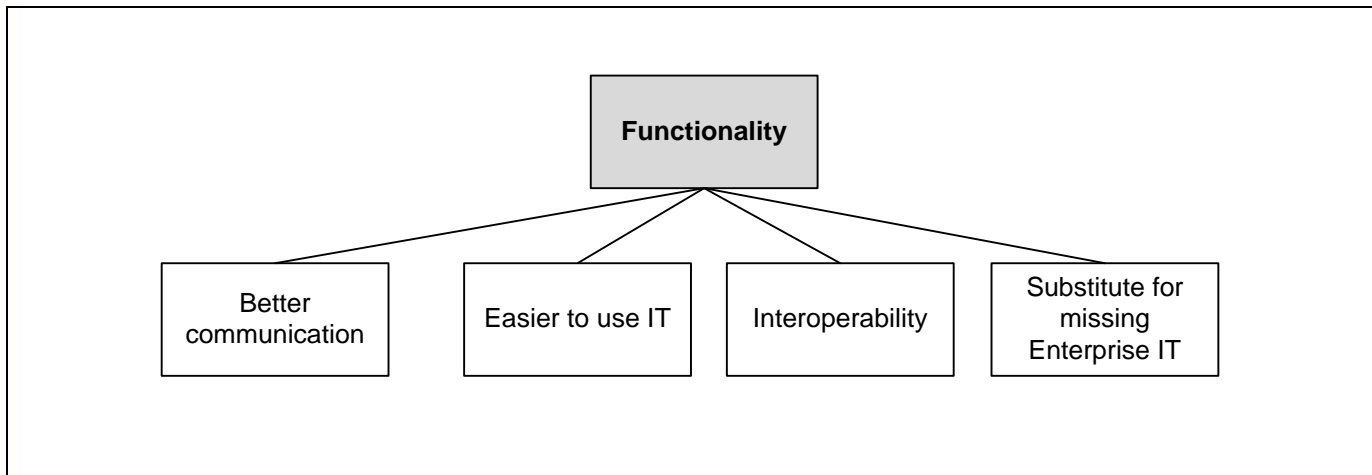
Selective coding is the process of integrating and defining categories. The first step in integrating categories is deciding on a central category that represents the research's main theme (Strauss & Corbin, 1998). Because we explored IT consumerization's effects on job performance, we targeted our central category at this dependent variable (i.e., IT consumerization). Thus, we argue that selective coding would have been counterproductive for our study because it would reduce our findings' variability and move its focus away from the relationship between IT consumerization and job performance. Because we performed the whole open-coding process with this relationship in mind, we naturally associated all codes with job performance. This determination changed the data-analysis path. For instance, we did not try to insert job performance into our hierarchical structure of categories and subcategories. We achieved theoretical saturation in the data-analysis process (and so stopped further analysis) when we agreed on the conceptualized codes, categories, and their hierarchical structure, such that developing further concepts and relationships would have provided only minimal additional insights (Glaser & Strauss, 1967).

IV. FINDINGS

To present our findings, we list all the categories identified during open coding, including their hierarchical structure. We agreed on 17 categories, 12 of which were subcategories and five of which were core categories (i.e., functionality, IT competence, self-responsibility, work-life overlap, and work satisfaction). For example, we linked "dual use of private IT for work" as a subcategory of "work-life overlap". We used core categories to separate the categories into five meaningful groups that represent separable effects on job performance. We support our analysis with citations from the cases. Finally, we explore and use the codes and categories to build a theoretical framework depicting the relationships between IT consumerization and job performance.

Functionality

The emergence of consumer IT has influenced the relationship between IT functionality and job performance in several ways. With ready-to-use consumer IT at hand, employees can increase their output by using their own IT solutions instead of company-provided IT. Our findings indicate a clear positive relationship between the functionality of consumer IT and job performance. Furthermore, we note that employees selected appropriate IT autonomously by relying on their IT-related competence, and sometimes refused IT that provided only restricted functionality. Figure 2 summarizes the results of hierarchical coding for the categories associated with functionality.

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Figure 2. Hierarchical Relations of Categories for Functionality

Better Communication

Many of the IT-supported business tasks in the two cases were related to communication issues. Communication involved stakeholders from external organizations that might use other IT solutions. Here, consumer IT provided a good opportunity to overcome the connection barriers of corporate online communication platforms. One CouplingCo employee explained:

> *I worked together with an external partner. A salesperson of that partner wrote me, that he added me to his friends list, so we can make an easy video call next time. I had to tell him, that we do not have this* [consumer IT] *platform. I would have appreciated to show the partner more flexibility.*

The previous quote points out an interesting behavior in relation to IT consumerization's ownership perspective. Respondents told us that they used their private instant messaging accounts on their smartphones to communicate with foreign customers. In doing so, they wanted to save their company telephone costs and thereby indirectly increase the company's productivity. The paradox is that, while employees meant to act in good faith, they put company data at risk. An IT staff member from CouplingCo did at least acknowledge that the degree of confidentiality matters when choosing the communication channel:

> *I often use social media to chat with ex-colleagues to ask things like "How was that?" or "When was it?". If the data are not confidential, then I also use my* [privately owned] *smartphone for that.*

It is disputable how dangerous such actions really are. In any case, employees accepted that guidelines were violated when they were trying to increase their job performance.

Easier to Use IT

Several respondents perceived IT tools with a consumer market origin as easier to use. Employees preferred to use the IT they knew from their private lives. One respondent from CouplingCo saw a direct link to job performance.

> *Let's take an example: My* [privately owned] *tablet PC. With the tablet, I am a thousand times faster than with my corporate laptop. The tablet is ready to use at the press of a button. If I have the required documents on it, I can directly show them to the customer. It is definitely an advantage, regardless whether it is my private device or company-owned.*

The last statement makes clear that respondents thought more about the individual performance they could derive from IT features than about the ownership of devices. At City, several employees described situations in which they

bypassed company guidelines because their privately owned IT was easier to use. As the municipal administration did not provide sufficient equipment to take photos on construction sites, employees used their private IT, even though it could be used in combination with their company-provided desktop computer. One executive explained:

> *I take photos with my private cellphone. Then, I use my private personal computer to download them and send them back to my business account via email. The only other alternative would be to ask the IT department to download the photos from my camera. Then, it would take a lot of time, until I finally get the pictures.*

We consider the employee's self-assessment to use a particular IT tool for the job or not as important for the relationship between functionality and job performance. The case data showed that employees who have acquired a basic knowledge about consumer IT are able to decide for themselves which IT to use in a variety of circumstances. In doing so, ownership played only a minor role in job performance. In fact, people focused on a technology's functionality and opportunities regardless of who the owner is.

Interoperability

Neither CouplingCo or City offered access to business data from private IT. To cope with this issue, employees regularly sent emails between private and corporate accounts in order to have their data available. Thus, individuals created workarounds to integrate additional IT into their work. An IT staff member from City explained:

> *We will have problems at all interfaces. As long as we use standard applications, there will be very few problems. But if we say: "Our workgroup uses a certain consumer application from now on", other colleagues will ask: "What kind of tool is this and how does it work?"*

This statement underscores that an increased heterogeneity of IT can result in knowledge gaps between individuals. At City, there were few interfaces to enable interoperability between consumer IT and corporate systems. This missing accessibility and compatibility resulted in negative effects on job performance. Sending data back and forth between systems also occurred when access options were blocked because of security concerns (e.g., through locked USB ports). In this case, employees reacted with incomprehension and demotivation because this, in their view, exaggerated security guidelines.

Substitute for Missing Enterprise IT

In addition to the positive aspects, respondents often spoke about the restricted functionalities of both corporate and consumer IT. One example was the access to email attachments on mobile devices. As company-provided smartphones did not display documents or larger pictures very well, employees started using their privately owned smartphones to read emails. In this case, private IT served as a substitute for missing enterprise IT. One CouplingCo employee said:

> *I cannot edit many documents on my company smartphone. Thus, whenever I receive a Word or Excel file, I cannot really use that device. It is unreadable and scrolling is really annoying. This is why, from time to time, I send the documents to my private email account in order to view them on my private smartphone, which has a sophisticated zoom function.*

Our study included more examples where employees sent corporate documents to their private accounts in order to leverage private IT functionality, such as the use of more sophisticated printers or larger screens. As such, our evidence suggests that inefficient IT caused employees to commit IT policy violations via using their privately owned devices. Ignoring company restrictions, all these actions were mostly examples for an increase in job performance. The following statement of a CouplingCo manager summarizes the thoughts of several respondents from both cases:

> *If our company IT would be more open so that I could do more things with it, this would be okay for me and I wouldn't need any of my own devices then.*

We concede that our case offers much room for interpretation with respect to this argument because the IT infrastructure at CouplingCo and City is obviously not "state of the art". Nonetheless, we found evidence of employees refusing to use their private IT due to functionality issues; they stressed the idea that such an IT decision could also be made the other way round that favored company IT. One respondent from CouplingCo stated:

> *Everybody must check if private IT can really generate added value for himself. I can imagine that private IT often lacks performance that makes it inappropriate for business tasks.*

IT Competence

With respect to IT competence, we derived two aspects where IT consumerization specifically revealed performance effects that would have otherwise remained untapped. Figure 3 summarizes the results of hierarchical coding for the core category IT competence.
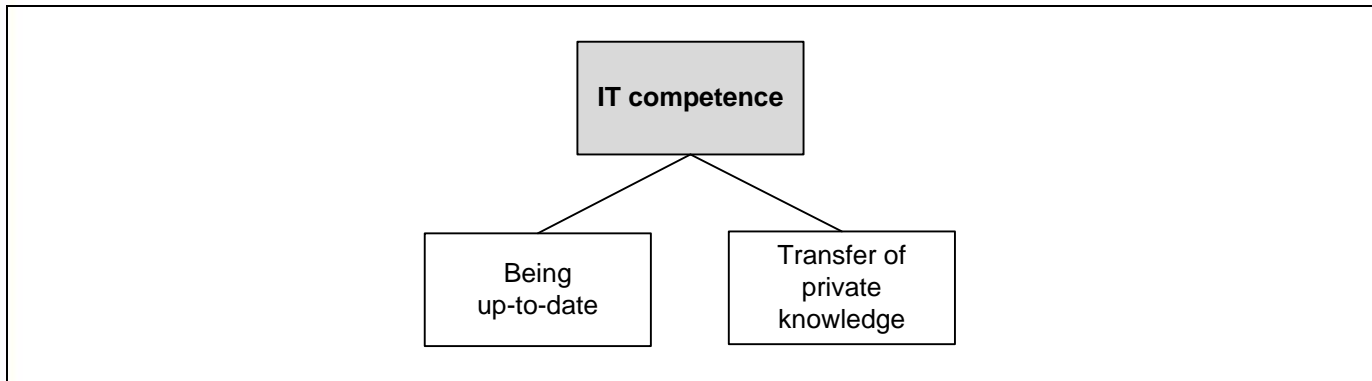
Figure 3. Hierarchical Relations of Categories for IT Competence

Being Up-to-Date

An important factor related to IT competence was employees' wish to be up-to-date. Respondents experienced long-term positive effects of their performance because IT consumerization and privately owned devices encouraged them to keep in line with technical progress. An employee from CouplingCo's IT staff stated:

I really think that employees who use mobile devices or smartphones can better keep pace with technology advances. They face technological challenges and think about solutions, which then can be transferred to the organization. That's why I see an advantage, if employees use their private IT.

This statement highlights IT consumerization's innovative aspects, which are likely to positively influence job performance in the long run. However, respondents also commented that they thought their organization should not lag behind current technological standards. Considering the organization's low level of IT maturity, one sales representative from CouplingCo suggested that the company was already missing out on technological advancements:

Even some of our small competitors already use smartphones to make instant pictures that are sent to the email inbox of customers five minutes later. We need to consider how we can take effective actions to keep pace with these developments. In my opinion, we are already lagging behind.

The case data suggested that, if organizations embrace IT consumerization, employees are encouraged to check for new ways of using IT for work purposes. As a result, they stayed up-to-date and the organization could benefit from employee-driven IT modernization.

Transfer of Private Knowledge

Many respondents developed the habit of using specific devices and software in their private lives. By using private consumer IT that they already knew from outside work, employees could use this knowledge in their organization. In thinking about the advantages of private IT tools, one CouplingCo manager stated:

Considering my experience with smartphones or mobile phones, I can say that concerning usability or performance, a privately used device might be faster for me. I have habitual workflows with such devices and it is easier for me to use them.

Such previously acquired knowledge resulted in individuals adopting process for IT changes faster and accepting new IT-supported processes more easily. Moreover, one respondent saw advantages in terms of idea generation:

It is logical that somebody who knows specific things from his private life will profit from that knowledge at work. Perhaps he will be able to hit on new ideas and develop impulses for new software development.

Employees also increased their performance with the help of colleagues who possessed prior knowledge of consumer IT-related questions. One executive from City described:

As we now have these corporate smartphones, it is an advantage for my colleagues that I already know something about the specific functions. So, I can help them with the devices.

Self-responsibility

Transferring IT-related responsibilities from the organization to the individual emerged as an important aspect of IT consumerization in our case data. However, we could not easily derive direct effects on job performance. For the most part, our respondents did not directly relate self-responsibility to their individual performance. However, our findings suggested that employees' enhanced self-responsibility is an important argument about how IT consumerization influences job performance. In particular, our data showed that greater freedoms in IT choice and a lack of enterprise support influenced job performance. Figure 4 summarizes the results of hierarchical coding for the categories associated with self-responsibility.

Figure 4. Hierarchical Relations of Categories for Self-Responsibility
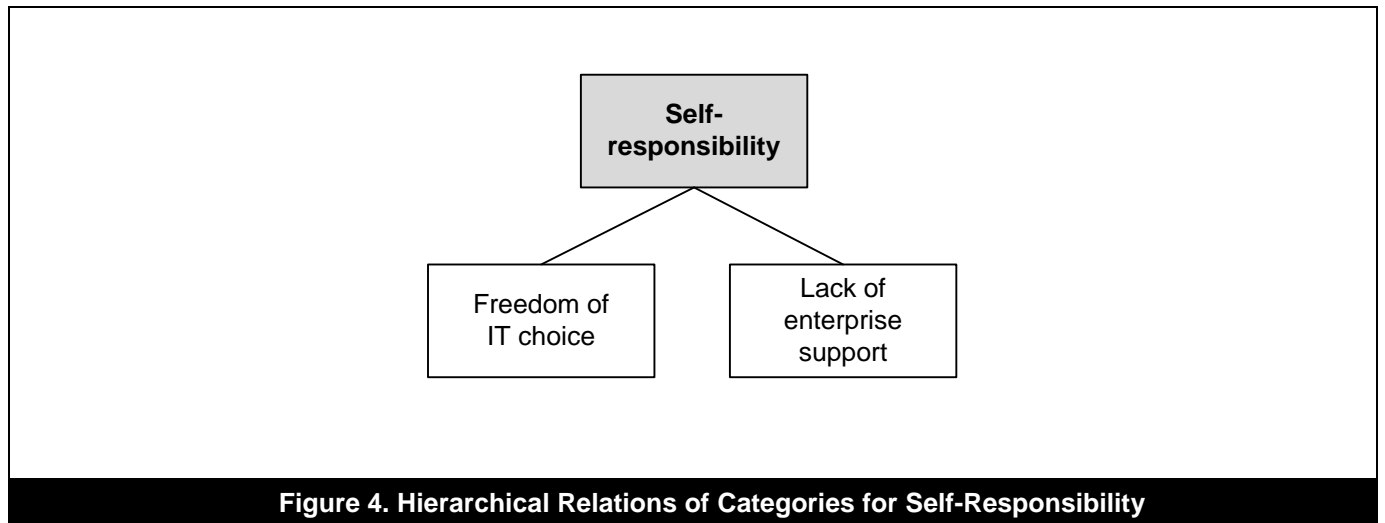
Freedom of IT Choice

Responsibility for IT-related tasks was an often mentioned issue with distinct opinions among the respondents. Because IT consumerization offered employees more freedom to choose and operate IT solutions, it fostered empowerment. As a consequence, freedom of choice motivated employees because they could choose the IT they want to use. One CouplingCo employee described this difference:

Everybody should use the IT that he wants to use. There would be a lot of advantages to that. The question is whether these advantages would outweigh the disadvantages.

However, our case offered a variety of insights on performance effects that seemed to contradict each other. Such contradictions are likely to increase if our analysis included multiple organizations. The data suggested that a positive perception of self-responsibility on job performance is strongly influenced by IT competence; that is, employees with high IT affinity were happy to use modern and more efficient IT solutions and, thus, were able to create a higher job performance benefits for themselves than their colleagues. In our two cases, private IT allowed individuals to experiment with software tools, but both CouplingCo and City restricted software installations on corporate devices. One of CouplingCo's sales representatives shared the following thoughts:

The use of private consumer IT brings no advantages for people with no IT affinity. But for people with high affinity towards IT, it does. They will get a strong motivational boost because they can use their self-purchased devices at work. They will dive deeper into work and will be better motivated.

As the above statement implies, employees that do not have sufficient IT competence might be more harmed than helped by added responsibilities. A worried employee of CouplingCo's IT department stated:

If we say "everybody can use what he wants", we cannot provide trainings anymore. There will be difficulties as soon as people start to use software and don't have an idea what they are doing.

Lack of Enterprise Support

The lack of enterprise support for individual consumer IT solutions was the main theme for enhanced self-responsibility's negative effects on job performance. Respondents generally doubted that end users perform self-

support as efficiently as the designated enterprise support. As a result, several employees worried about productivity losses through inefficient support. One CouplingCo IT staff member explained:

With the variety of devices, I would have to undertake large efforts to provide the distinct support services. If this support cannot be delivered, the user probably won't be able to work anymore and the productivity decreases. So, the biggest problems aren't the costs for the central support, but the loss of employee productivity through failures and necessary configurations.

All respondents had the opinion that the IT department could be expected to deliver support for privately owned IT. Therefore, any operating problems with private IT needed to be solved by the users themselves.

Work-Life Overlap

According to our case data, an emerging theory about IT consumerization's performance effects should consider concepts such as dual use of IT for both private and work tasks, and the possibility of performing private tasks at work. Overlaps between work and life influence job performance in several ways. Figure 5 summarizes the hierarchical coding structure of work-life overlap.
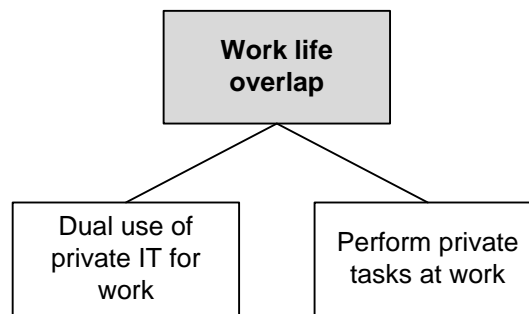
Figure 5. Hierarchical Relations of Categories for Work-Life Overlap

Dual Use of Private IT for Work

Asked about consumer IT's negative consequences, respondents quickly approached the topic of mobile devices and ubiquitous access, along with the perception of being permanently at work. Respondents also told us about how they achieved increased performance in business tasks on private trips. As technologies facilitating work from home have been available for many years, these perceptions are not a new phenomenon of the IT consumerization trend. However, with privately owned devices that were dual-used for work purposes, the boundaries between private and corporate ownership of IT became blurred. A City IT staff member explained that it was sometimes hard to differentiate between private and corporate IT use:

The employees do not notice that they are permanently using private IT for work purposes. Nobody speaks about that. Often we [as IT department] *find such issues only coincidentally. The employees themselves are not aware of this.*

Unless the used IT has a feature that divides private and professional content, activities and data will be inseparably intertwined. As a result, employees always had business tasks visible on their private phones and vice versa. This behavior lead to a state where people are working whether they like it or not. One executive at City noticed that a permanently visible inbox from social media accounts provoked faster reactions:

A friend of mine sent me work-related requests to my private social media account. I answered very quickly. With emails, it would be the same on my private device.

Considering this statement, we assumed that work-life overlap had a clear positive effect on job performance because communication requests were answered more quickly. Certainly, this relationship was not valid for every individual. Employees who strived to integrate their personal and professional lives perceived both positive and negative effects on job performance. IT tools that have a consumer-market origin helped them to experience less effort in integrating the two. For instance, several respondents appreciated the possibility of reducing the number of

hardware devices they carried on business trips because it lessened the effort required to synchronize data between devices. One CouplingCo employee said:

> *Of course, it is nice to have just one mobile phone that I must carry around. That is obviously an advantage, if I have just one system. In particular the data administration would be easier; for example, the organization of my address book.*

Employees who preferred work-life segmentation disliked their private life interfering with their business activities. With consumer IT that fostered working anytime anywhere, they had additional effort to separate their private and business lives, which likely reduced job performance. Furthermore, the wish to separate work and life might be seen critically from the view of the integrators and led to a culture where blurring of work and life is misinterpreted as organizational commitment. One manager expressed this maxim by the sentence: "Whoever enjoys work, enjoys being available". One CouplingCo employee saw the disadvantages for employees:

> *If the employee uses personal IT for business purpose, then the management could have the desire "as a matter of principle, the employee carries everything needed to perform job tasks all the time", so we should make use of it.*

As such, we could see that there is a certain danger that managers took consumer IT's new possibilities and its related work-life overlap as a new standard for employee behavior. This was underlined by the fact that all our respondents reported that they would perform critical and necessary work tasks outside of core working hours.

Perform Private Tasks at Work

Work-life overlap also works the other way round, with one's private life affecting their work life. Many respondents enjoyed using their personal consumer IT to perform private tasks during work time. In our study, it was normal for employees to perform these tasks (e.g., a private phone call or email). One CouplingCo employee stated*:*

> *The interference of my private life will increase. But I also want to enrich my work time with private content. This is my understanding of work and life overlap.*

Another situation where such behavior occurred were long business trips, where employees naturally need to perform private tasks in between. This aspect demonstrated the close connection between work-life overlap and work satisfaction, since employees who were not bothered by private concerns at work felt more satisfied and were more dedicated to their work. A CouplingCo employee explained*:*

> *It has a lot of advantages to carry my private laptop on business trips, for example to watch a movie on a plane. I also have my favorite music with me all the time, my contacts, or whatever. I can easily do private tasks at the hotel, whether editing holiday pictures or making my tax declaration.*

As a result of the rising percentage of private tasks being performed during working time, company IT also needs to provide access to private data, which contemporary consumer IT best provides.

Work Satisfaction

When asked for specific advantages and disadvantages about IT consumerization, respondents often positively brought up work satisfaction. The experience that users built up with consumer IT created higher expectations about company-provided IT. Moreover, managing costs for privately owned IT influenced individuals' work satisfaction. We assumed that our respondents elaborated on satisfaction rather than on performance because the former is more easily self-reported and evaluated. Measuring performance, on the other hand, requires a broader view of all inputs and outputs. Figure 6 summarizes the hierarchical coding structure of work satisfaction.
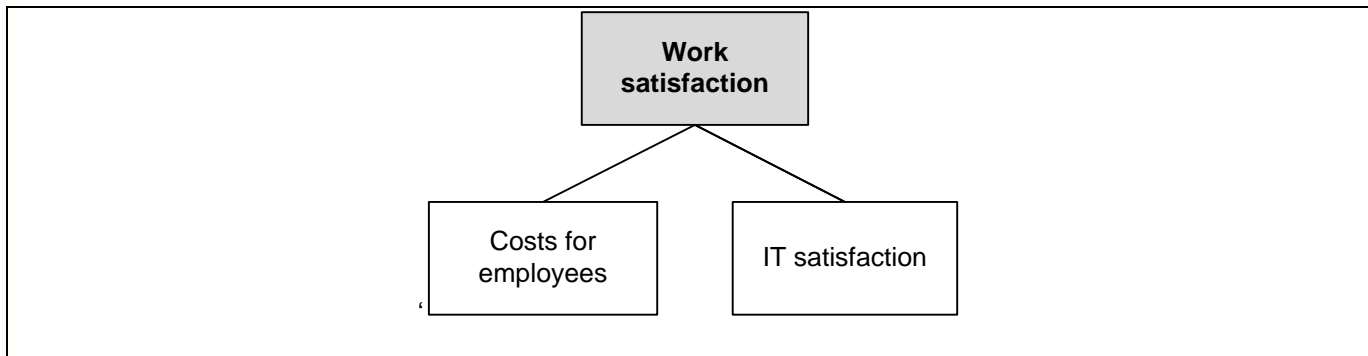
Figure 6. Hierarchical Relations of Categories for Work Satisfaction

Costs for Employees

Employees worried about damaging their private IT from business use. Both CouplingCo and City did not provide any support or a replacement service for privately owned devices. Instead, both organizations passed on these costs to their employees. This also applied to costs that may result from data theft on privately owned devices. This cost risk directly influenced how often privately owned IT was used for work purposes. One City executive stated:

> *If I pay the device on my own, then I don't want to use it for professional purposes. Doing that would be a clear disadvantage. I would only consider this if the use frequency would be very low.*

Respondents saw the potential to save their organization money via IT consumerization. Some respondents supposed that self-responsible employees will use privately owned IT more carefully and reduce the wear and tear on devices, resulting in a more sustainable IT infrastructure. Furthermore, many employees who were not satisfied with the IT their organization provided bought their own IT at their own expense. Since employees perceived such purchases as inevitable means to maintain their job performance, this was seen as transfer of IT acquisition costs from the organization to the individuals. One CouplingCo sales representative told us:

> *It might be a disadvantage if the company develops an understanding that employees take along their private IT. For instance, an employee might not get a corporate laptop, because he can use his private tablet while traveling or on holidays.*

IT Satisfaction

CouplingCo's CIO saw a clear positive relationship between individuals' satisfaction with corporate IT and job performance, but stated that its effects would only unfold in the long run:

> *From the personal view of the users, productivity will certainly increase because everybody will be happier with the tools they are using and, therefore, will also be more productive. However, the path that reaches this state will be unproductive, because every individual will need some time to find the IT that best suits his work.*

Likewise, our respondents frequently complained about the current IT infrastructure in the two case companies. Thus, it seemed that CouplingCo's and City's employees, inspired by technological experience from their private lives, have raised the bar for IT satisfaction. In our interviews, respondents complained about blocked Internet access, locked functions on mobile phones, and/or software restrictions. All these complaints relate to the increased pressure that organizations are facing from IT consumerization. Indeed, as it concerns job performance, outdated IT infrastructure demotivated employees and lowered their work satisfaction. However, most of the respondents understood their organization's need for restrictions and, thus, thought that employees must cope with missing IT features. In this vein, one *CouplingCo* IT staff member said:

> *We expect from the employees flexibility and understanding that they are able to differentiate between corporate and private IT. I don't think that our company IT is lagging behind in terms of technology or having fun at work. Nobody must fight back using own IT.*

Asked about IT consumerization's negative consequences, our respondents mentioned aspects that reduced their enthusiasm for consumer IT. For instance, if they used one single device for private and work tasks, they expected the company to apply security mechanisms to that device. As a result, the device loses its consumer market originality. Furthermore, the employer could snoop into private data. One sales representative from *CouplingCo* said:

[Company control of my private device] raises the question about access to my photos, videos, and movies or whatever I have on my personal device. I will be a "glass human being" for my company, because they will know all my preferences. I can understand people who say "I don't want that". They will probably call it a backup feature but in the background they save private emails from my girlfriend, my wife, my concubine.

Building the Theoretical Framework

Figure 7 proposes our theoretical framework based on the data. The five core categories presented in the above sections represent parent nodes of the hierarchical coding. We understand them to be key concepts in our theoretical framework and argue that they have direct relationships to job performance, both positive and/or negative (relationships 1-5). We do not claim that the distinct core categories are shaped without any overlapping. In particular, for the categories self-responsibility and work-life overlap, our data showed ambiguous effects. They can be both harming and beneficial to job performance depending on individual circumstances.

In this context, we argue that there are interaction effects among the core categories. Concerning work-life overlap, our case data indicate that effects of work-life overlap on job performance are mediated by functionality and work satisfaction. First, to leverage the positive effects of using IT for both private and work tasks, an organization must provide appropriate IT functionality that employees can work with from outside the company (relationship 6). Second, with consumer hardware and software implicitly blurring the boundaries between work and life, organizational rules must comply both with company interests and employees' private needs, otherwise negative effects on work satisfaction and, consequently, on job performance are likely (relationship 7). Furthermore, our case data support an interaction effect between self-responsibility and IT competence (relationship 8). As several statements from our respondents indicate, it is likely that positive effects of more responsibilities will be highest for people with higher IT affinity or higher IT competence.
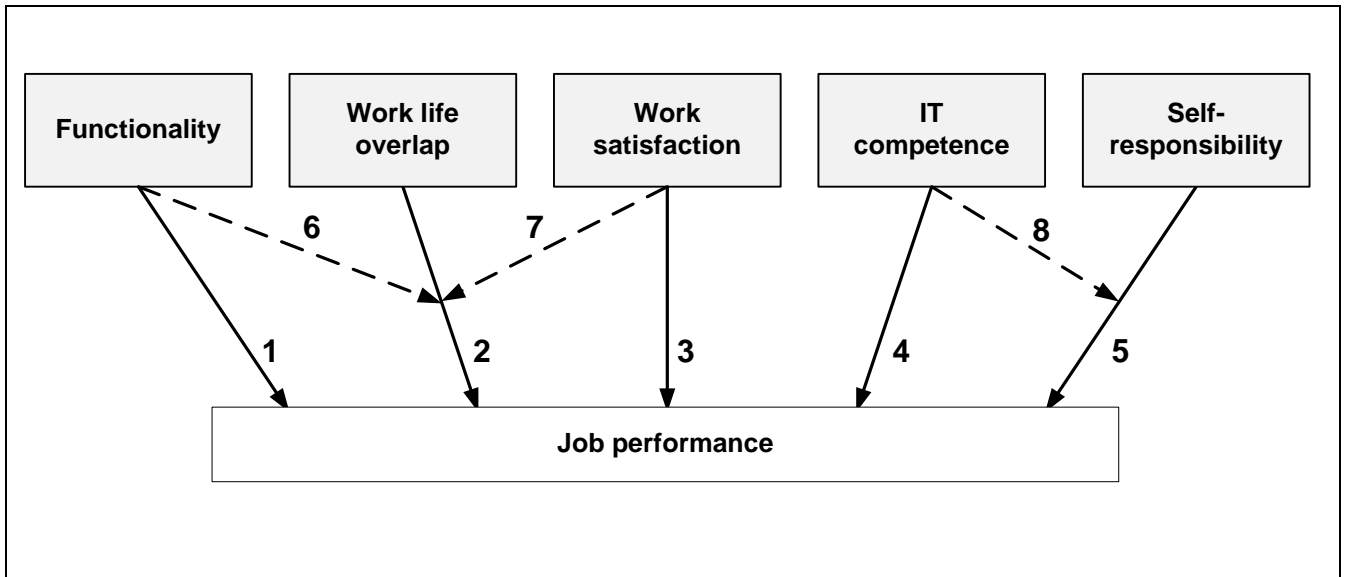
Figure 7. Theoretical Framework of an IT Consumerization Theory on Job Performance

We concede that our framework is most likely not fully complete because additional interaction effects between core categories and sub-categories could be proposed by drawing on psychological literature. To this end, the theoretical framework represents those core concepts and relationships that have emerged from the interview data. Above all, the concept of work satisfaction is related to many other concepts. As Strauss and Corbin (1998) state, it is very possible to use distinct central categories as a result of selective coding. Assuming that, to some degree, employees enjoy higher performance in their job, work satisfaction rather than job performance could be used as the central category of our framework. However, we separate work satisfaction from job performance because there are concepts in the framework that influence job performance with only marginal effects on work satisfaction (e.g., the functionality subcategory). Furthermore, there are also offsetting effects between job performance and work satisfaction. For instance, in the case of private IT use for professional purposes, people may increase their job performance in the short-term with possible negative effects on work satisfaction from role conflicts between work and life in the long term.

V. DISCUSSION

Contribution

In this paper, we develop a theoretical framework that conceptualizes the relationship between IT consumerization and individuals' job performance. IT consumerization has gained much attention among practitioners, who mostly present it as positively affecting productivity (e.g., Moore, 2011). However, there is as yet no scientific approach for understanding IT consumerization's effects on job performance. This paper contributes to closing this research gap. Because there are few previous insights related to IT consumerization, we apply an inductive study design that draws on grounded theory methodology. In accordance with the grounded theory's original intention (Urquhart et al., 2010), we develop initial descriptive and analytical theory on IT consumerization. The framework is grounded in an empirical study of two pilot organizations in which consumer IT was introduced. We conducted 20 in-depth and semi-structured interviews that we used as our primary data source. In the process of analyzing our data, we discovered a total of five core categories as key concepts for answering our research question: 1) functionality, 2) IT competence, 3) self-responsibility, 4) work-life overlap, and 5) work satisfaction. We placed other coding categories hierarchically below the core categories, depending on their relationships that we identified during the data analysis. We believe that future theory building in IS can benefit from our theoretical framework and that it will "sensitize" (Klein & Myers, 1999) researchers in their efforts to investigate the effects of consumer-driven technologies on organizations and individuals. In this sense, our findings lay the foundation for developing a substantive theory (Urquhart et al., 2010) that is independent from our area of enquiry (Glaser & Strauss, 1967).

Our study contributes to the ongoing discussion of IT consumerization in the scientific and practitioner literatures and relate to the defining characteristics of IT consumerization. In particular, IT ownership and freedom of choice are interesting concepts that need to be verified with additional data in future studies to provide insights beyond what has already been investigated in previous research on IT-related job performance. First, the question of who owns the IT used is crucial to determine how performance is affected. For instance, people use their IT competence with their private IT on the job to attain better performance (Harris et al., 2012). In this sense, our study follows up on consistent findings in the IS literature that computer self-efficacy and end user proficiency are strong predictors of performance (Marakas, Johnson, & Clay, 2007; Marcolin, Compeau, Munro, & Huff, 2000). By now, ownership's role has been used for definition purposes only, and not for explaining its technology-related influence on job performance. Second, our findings from the core category self-responsibility suggest that the opportunity to make one's own IT choices further influences job performance. Privately owned IT is usually selected and purchased by users themselves. Thereby, ownership and freedom of choice are not necessarily intertwined since organizations can also enable choice among company-owned hardware and software. In addition, there exists a temporal relationship: if employees learn about consumer IT through private ownership, they are likely to make better choices about this particular technology in the business realm.

The fact that people choose, adopt, and own IS in their private lives and use it at their workplace changes the view on technology adoption. However, theories related to user acceptance are often coupled with the assumption that users have the tendency to resist new technologies (Vodanovich et al., 2010). Instead of resistance, IT consumerization adoption behaviors resemble the idea of human agency that "humans are relatively free to enact technologies in different ways" (Boudreau & Robey, 2005, p. 3). To this end, theories of human agency can assist in explaining situations where individuals deviate from approved practices to increase their performance, even though they risk being sanctioned. For instance, our case study findings propose conformity with the concepts of Emirbayer and Mische (1998), who suggest that taking choices allows actors to consider past practices, project future situations, and evaluate practical normative judgments. Drawing on this reasoning, we argue that the increased IT competence or self-efficacy of knowledge workers has enabled employees to act more as individual human agents (Bandura, 1982). Our cases provide many examples where employees tried to evaluate potential consequences of their technological choices. However, to further understand the theoretical connection between IT consumerization and human agency, we need to perform additional empirical analyses.

Taken together, the cases show several examples in which ownership and freedom of choice exerted effects on job performance. In addition, we see effects from the market origin of IT consumerization (i.e., enhanced consumer IT functionality that better targets employees' individual needs; for example, with easier use or better communication functions). The core categories work-life overlap and work satisfaction combine the market origin and ownership perspective. For instance, consumer IT facilitates the electronic integration of individuals' work and life because they use same devices and software for both private and work tasks. Furthermore, our case data suggest that people enjoy using consumer IT, both because of its features and because it is their own tool. Figure 8 summarizes the aforementioned concepts and relates them to the core categories.
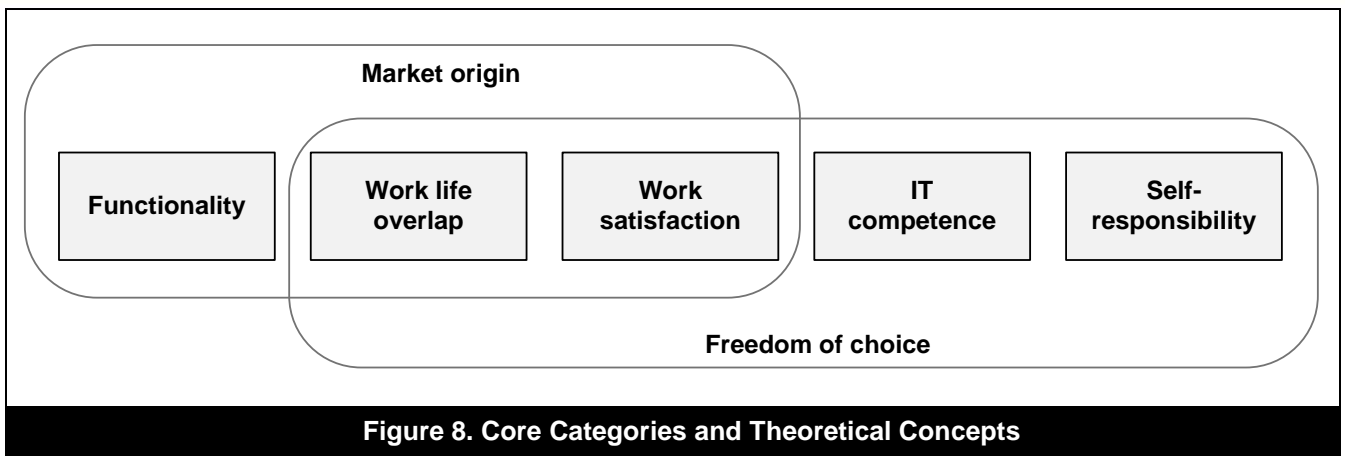
Figure 8. Core Categories and Theoretical Concepts

Implications for Research

Our findings show numerous connections to the body of IS literature that sharpen our construct definitions and raise the theoretical level of the results. Among others, we identified three major areas where our framework will inform different research streams that deal with the consequences of individual IT use at work.

First, we propose that privately owned hardware and software in the work context are, by definition, part of an ongoing IS individualization. We think that IT consumerization is one observable indicator of the fact that individualization will be a prevailing IS practice. The idea of individual IS offers a variety of commonalities with the concepts identified in our theoretical framework. For instance, Baskerville (2011a) notes an increasing work-life overlap related to the IS that individuals use and differentiates personal activity systems from professional activity systems. He further argues that individuals are "building complex and…relatively large-scale individually owned-and-operated IS" (Baskerville, 2011b, p. 252). Thus, he addresses the dimensions of ownership and choice in the context of individualized IT, from which we derive a clear link to IT consumerization. In this sense, individual information systems represent a helpful theoretical lens that illustrates individual behaviors among the superior trend of IT consumerization (Ortbach et al., 2013). Research that focuses on explaining such systems will be of value to research and practice.

Second, prior IS research on technology adoption has been inclusive about the effect of voluntariness and freedom of choice on system use (Wu & Lederer, 2009). However, several authors have found a stronger importance of the salient beliefs ease of use and usefulness in voluntary settings, and less importance for social influence from peers (Hartwick & Barki, 1994; Venkatesh, Morris, Davis, & Davis, 2003). While this sounds promising for job performance, the relationships must be questioned in light of IT consumerization. For example, social influences for using private IT for work is probably higher than ever before since it has become common practice for many people (Harris et al., 2012; Sun, 2013). Moreover, prior adoption studies rarely consider an experimentation phase with new technology, which is a constituting characteristic of individual IS (Baskerville & Lee, 2013). In this context, Carroll, Howard, Vetere, Peck, and Murphy (2002) developed a model of appropriation that explicitly draws on modern technologies and tech-savvy users outside the organizational context. The model suggests that people experiment and evaluate a technology if it overcomes an initial filter of attractors and repellents, such as convenience or affordability. Both voluntary IS adoption and technology appropriation studies are likely to inform future research that investigates effects on self-responsible IS use in organizations.

Third, the relationship to job performance of the core categories self-responsibility, work-life overlap, and work satisfaction could be further investigated by drawing on stress theory. In an organizational context, stressors can emerge when individuals cannot cope with a high workload or new technologies (Cooper, Burgoon, & Roter, 2001). Drawing on work-home conflict theory, high workloads and strong overlap between work and life are also likely to create work-home conflict since work and life become mutually incompatible in some situations (Greenhaus & Beutell, 1985). With more and more people using technology for both private and work purposes, the question arises about how far individual preferences on work-life segmentation can still be satisfied (Köffer, Junglas, Chiperi, & Niehaves, 2014). Drawing on aforementioned theory, future studies could define rigorous quantitative models to deeper investigate the relationships of market origin and ownership on work satisfaction and job performance.

Implications for Practice

Our case study suggests that there are considerable differences between individuals when it comes to consumer IT use and its effect on job performance. The "typical IT user" who can be targeted with "one-fits-all" strategies no longer exists because IT values and desired functionality are becoming more and more heterogeneous (D'Arcy,

2011; Junglas et al., 2008). This development resembles the idea of separating the workforce into meaningful groups of employees with regard to the practical feasibility of individual IS (Andriole, 2012; Harris et al., 2012). Such segments are most likely influenced by a variety of factors (e.g., their level of IT competence). Moreover, individual IT use in the private realm will more and more be influenced by professional aspects; for instance, the intention of users to use a device for both work and private tasks. Such procedures and developments may lead the way to upcoming process changes in organizations. As IT consumerization and its changes in ownership make it almost impossible to stand out from the paradoxes of mobile IS (Jarvenpaa & Lang, 2005), it increases the demand for organizational rules that separate work from life activities. Such rules should not solely be driven by data security concerns but also by individual preferences.

Considering the increased heterogeneity of user requirements with regard to our findings, it seems inevitable that CIOs must become used to the idea that decentralized technological responsibility and enabling choice is necessary to optimize employees' job performance. A positive and direct relationship between autonomy and job performance has already been demonstrated in the IS literature (e.g., Ke & Zhang, 2010), and freedom of choice in the context of system interfaces has been positively associated with ease of use (Murray & Häubl, 2011). Hence, organizations should be aware that, besides concerns about data security, increasing employees' self-responsibility with technology is ultimately good for the organizations (PricewaterhouseCoopers, 2011). It will be an important task of the future to identify successful individual IS in the private realm that can be transferred to the professional world that will thereby become even more valuable because individuals' price and resource limitations will no longer apply.

In turn, it is unlikely that all employees will enjoy unlimited freedom and autonomy. Considering the relationship between control and knowledge, employees with too much freedom, ownership, and control will cause dysfunctional effects on individual performance (Pierce, Kostova, & Dirks, 2001). Despite the increased IT proficiency of the workforce, it is still "an important corollary…that individuals maybe uneducated in IS" (Baskerville, 2011a, p. 7). For instance, self-management for non-routine tasks is often difficult in terms of scheduling and managing work (Davis, 2002). Because tasks related to IT consumerization are often non-routine (e.g., making personal technology choices), it is likely that performance effects differ among individuals and depend on their individual self-organization skills.

Limitations and Outlook

This study has limitations that also open up avenues for future research. First, qualitative research is interpretative in nature, and it therefore must be conceded that other researchers may generate different findings from our cases. Second, our analysis focuses on the individual and, thus, does not address important organizational challenges of IT consumerization, such as security concerns or support complexity. It is clear that a comprehensive profitability analysis of IT consumerization for an organization must take those factors into account. Third, our analysis does not include a differentiation in terms of the organizational approval of consumer IT because respondents did not elaborate much about their use of IT without permission. Future research could address this aspect by drawing connections between shadow IT and job performance.

Taken together, we cannot claim that the IT consumerization phenomenon and its relationship to job performance has been treated exhaustively. For instance, based on the consumer IT employed, detailed functional elements of hardware and software may exert a specific effect on performance. Moreover, our empirical study was restricted to two individual cases of pilot projects about IT consumerization. For this reason, we do not claim to have created a proven substantive theory. Further substantial research is required to demonstrate whether or not the different relationships in our framework are sound. In any case, our results have encouraged us to proceed with research activities that concentrate on further theory development and testing related to the phenomenon of IT consumerization. We believe that our theoretical framework can serve as a starting point for achieving this goal.

ACKNOWLEDGMENTS

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Editor's Note: The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that:

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APPENDIX A: MAIN QUESTIONS

Table A-1 shows the main questions that guided the interviews. The last four questions represent additional questions for the *City* case that have been added after the conclusion of the first case study at *CouplingCo*.

Table A-1: Main questions for a semi-structured interview
Which hardware and software do you use for professional purposes?
Which hardware and software do you use for private purposes?
To what extent are you available for your employer outside working hours (e.g., weekend, holiday)?
To what extent do you perform professional tasks in your free time?
Which of your private hardware and software do you also use for professional purposes?
Which professional tasks do you handle using your private IT?
What policies exist in your organization concerning the use of privately owned IT?
How does the use of private hardware for professional purposes create advantages for you?
How does the use of private software for professional purposes create advantages for you?
How does the use of private hardware for professional purposes create disadvantages for you?
How does the use of private software for professional purposes create disadvantages for you?
How does the use of private hardware for professional purposes create disadvantages for your organization?
How does the use of private software for professional purposes create disadvantages for your organization?
Do you know the best practices in which the use of private IT was helpful to enhance business processes?
How important is it for you to be able to select your personal IT by yourself?
Only *City*: Which IT problems do you have, when performing professional tasks?
Only *City*: Can you describe requirements of your job that cannot be fulfilled with the company-provided IT?
Only *City*: If you could decide freely, how would you adjust your current IT equipment?
Only *City*: How do you use your (smartphone, tablet, social network, …) for professional purposes?

APPENDIX B: EXEMPLARY OPEN CODES

Table A-2: Overview of concepts and related open codes	
Category	**Exemplary open codes (in alphabetical order)**
Being up-to-date	corporate IT is not always up-to-date, inspire their employees to keep up-to-date, not lag behind current technology standards, private IT has a short life span, stay tuned to IT developments, keep abreast with smartphone technology
Better communication	come faster to date agreements, consumer IT improves communication channels, contact to externals with social media, private Voice over IP software, tablet use more appropriate during meetings, use of social networks for first contact
Costs for employees	private device breaks during business tasks, end user can save costs through company money, increased costs for the employee, paying for damages, privately paid devices, responsible for the security on his private IT, wear and tear of private devices
Dual use of private IT	administration of contacts, answer mails in between, giving the company access to private data, increasing impact of business on private life, no segmentation of work and life possible, not carrying two devices, receive business calls on private phone
Easier to use IT	own tools are faster, ease of private smartphone usage, easier handling, faster tablet computers, higher productivity on journeys, operations become easier, save time
Freedom of choice	choose the hardware they want to use, enjoy choice, higher independence, insert own elements, users feel less patronized, want to use favorite IT, work more autonomously
Interoperability	access with multiple devices, bad interfaces create problems, integrate additional IT, make it impossible to access corporate applications, no access to business data
IT satisfaction	buy IT at their own expense, decrease in motivation due to bad corporate IT, IT requirements, positive effects on satisfaction
Lack of enterprise support	handle replacements themselves, loss of productivity through hardware failures, need for help with disturbances, no support for private software, responsible for private IT, reliability of private IT not guaranteed, solve problems on their own
Perform private tasks at work	advantages on long journeys, better structure daily tasks, distraction is only short term, higher percentage of private tasks during working time, provide access to private data, save time, something private in between
Substitute for missing enterprise IT	better computer screen display, compensation of missing IT, make it impossible to access corporate applications, printer at home, solve work tasks at home, use private IT that company does not provide
Transfer of private knowledge	accustomed to their private IT, associations from private life, faster adoption, feel familiar with private IT, good knowledge of devices, higher satisfaction through known software, use private skills in business environment

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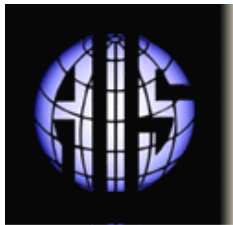
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