BRING IT ON(E)! PERSONAL PREFERENCES AND TRAITS AS INFLUENCING FACTORS TO PARTICIPATE IN BYOD PROGRAMS

Uwe Ostermann
Goethe University, ostermann@wiwi.uni-frankfurt.de

Lukas Wiewiorra
Goethe University, wiewiorra@wiwi.uni-frankfurt.de

Follow this and additional works at: http://aisel.aisnet.org/ecis2016_rp

Recommended Citation
Ostermann, Uwe and Wiewiorra, Lukas, "BRING IT ON(E)! PERSONAL PREFERENCES AND TRAITS AS INFLUENCING FACTORS TO PARTICIPATE IN BYOD PROGRAMS" (2016). Research Papers. 47.
http://aisel.aisnet.org/ecis2016_rp/47

This material is brought to you by the ECIS 2016 Proceedings at AIS Electronic Library (AISeL). It has been accepted for inclusion in Research Papers by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.
BRING IT ON(E)!
PERSONAL PREFERENCES AND TRAITS AS INFLUENCING FACTORS TO PARTICIPATE IN BYOD PROGRAMS

Research

Ostermann, Uwe, Goethe University Frankfurt, Frankfurt a.M., Germany, ostermann@wiwi.uni-frankfurt.de

Wiewiorra, Lukas, Goethe University Frankfurt, Frankfurt a.M., Germany, wiewiorra@wiwi.uni-frankfurt.de

Abstract

Bring your own device (BYOD), as a subset of Consumerization, is referring to the diffusion of consumer devices and hardware into the corporate environment. We investigate how employees perceive different aspects of a BYOD policy and which of those factors influence their decision to participate in the BYOD program. To discuss how organizations can address these factors, we contrast the views of employees with the view of the management. To this end, we conduct a qualitative case study with interview partners from management and the workforce in a consultancy. We find that the employees’ decision to take part in a BYOD program can be broken down into two underlying categories: First, the preference to use just one device for work and private life and second the preference to use the own private device instead of a corporate device. Depending on the employees’ individual preferences, they make inter-class or intra-class trade-offs in their decision process. Furthermore, we find that worrying about a potential work-to-life conflict is the main inhibitor regarding BYOD participation in the decision process. If BYOD is beneficial from a management perspective (e.g. due to costs savings) addressing these concerns in the BYOD policy could raise participation.

Keywords: Bring-your-own-device (BYOD), Consumerization, IS Strategy, IS Governance

1 Introduction

Consumerization of information technology (IT) is described as the diffusion of consumer devices, software and services into the workspace (Harris, Ives, et al., 2012). Bring your own device (BYOD) is often described as a special case of Consumerization (Köffer, Ortbach, et al., 2014), referring only to the authorized use of consumer devices and hardware in the corporate environment. This on-going trend is seen as a major driver of change in the relationship between employees and the organization (Niehaves et al., 2012). In the classic view of organizations as socio-technical systems (Bostrom and Heinen, 1977), organizational IT was provided solely by the organization itself (e.g. IT department). However, due to the rapid development of consumer technology and the widespread adoption and use of innovative consumer orientated software and services, the phenomenon of Consumerization and BYOD is challenging the established top-down process of selecting and managing IT in a corporate environment. When people bring their own technology to the workplace to support the execution of their tasks, the organizational structures have to adapt to the new bottom-up driven phenomenon (Ortbach, Bode, et al., 2013). On the one hand, management has to define rules and policies to create and foster an environment that allows employees to integrate their private devices successfully into the corporate IT-infrastructure. In addition these rules and policies must also address topics like data security and financial risks when using private property for work related tasks (Harris, Patten, et al., 2012). Furthermore, such an ‘active approach’ of managing consumer IT can prevent the emergence of shadow IT structures (Ortbach, Bode, et al., 2013) in the organization.
A rich body of practitioners’ literature that deals with the phenomenon of Consumerization already exists. For a comprehensive overview the reader is referred to the review by Niehaves et al. (2012). The scientific literature concerned with Consumerization in general and BYOD in specific emerged in recent years. Harris, Ives, et al. (2012) were the first describing the phenomenon, categorizing the existing management strategies and discussing possible benefits. The authors distinguish between a laissez-faire, middle ground and authoritarian approach and conclude that Consumerization might lead to innovation gains and could increase employee satisfaction and productivity (Harris, Ives, et al., 2012). Köffer et al. (2014) on the other hand focus on the relationship between Consumerization and individuals’ job performance. As a result of their explorative work they propose five core categories that are assumed to have a direct positive and/or negative influence on work-performance as well as affecting each other. Those categories are functionality, IT competence, self-responsibility, work-life overlap, and work satisfaction. However, the authors consider consumer technology only in their aggregated form, which is always a bundle of hardware and software & services. Consequently, it is very difficult to disentangle the effect of employees intending to replace corporate software & services from employees intending to replace corporate devices on the actual decision to participate in a corporate BYOD program.

Our paper contributes to the existing literature by investigating the following research question (RQ):

RQ: Which factors influence the decision of employees to participate in a BYOD program and substitute corporate devices?

To address this question, we conducted an interview-based case study in a company, which has a codified BYOD policy that is communicated to all employees. Our case was carefully selected and exhibits some very important features, which altogether, allow us to draw clear conclusions with a unique and very high level of control:

Firstly, we selected a company where employees have to make a binding decision to participate in the BYOD program. In our case, employees participating in the BYOD program were bound to the decision for at least 12 months. Consequently, all interview partners made an informed decision with respect to their individual BYOD participation.

Furthermore, we made sure to select a company that endows employees participating in the BYOD program with a standardized software environment (sandbox) that is mandatorily installed on the consumer device. Consequently, the employees’ decision to participate in the BYOD program are not contaminated by additional intentions to substitute corporately deployed software & services with consumer software & services, because substitution is virtually impossible. Therefore, we can rule out that the decision to participate in BYOD is in effect driven by a confounding intention to substitute corporate software with consumer software & services.

Finally, our sample includes participants in the BYOD program, as well as non-participants. In addition to that, we cover the whole process of design, implementation and perception of the BYOD policy. To this end, we interviewed the manager in charge of designing and codifying the policy, the IT-administrator in charge of implementing the policy in the corporate IT landscape and employees confronted with the decision to participate in the BYOD program.

The remainder of our paper is structured as follows. In Section 2, we introduce the related work. In Section 3, we describe our research methodology, the setting of our case as well as the data collection and analysis procedure. In Section 4, we present the results of our evaluation. In Section 5, we conclude with a discussion and implications of our work.

---

1The sandbox is a separate and secure software environment on the device for the use of corporate mail, calendar, browsing and contact management. An export of data to other applications and the operating system is not supported.
2 Related work

Although the term Consumerization was first mentioned more than ten years ago (Moschella et al., 2004), no consistent definition exists so far (Köffer, Ortbach, et al., 2014). In our work we refer to the definition of Harris, Ives, et al. (2012, p. 99) who describe Consumerization as “[...] the adoption of consumer devices and applications in the workforce [...]”. BYOD on the other hand can be defined as “[...] consumerization focusing on devices –not on applications and services– [...]” (Loose et al. 2013, p. 2). Therefore we treat BYOD as a subset of Consumerization (Köffer, Ortbach, et al., 2014; Weeger et al., 2015).

The trend to BYOD influences all stakeholders related to the use, provision and operation of IT in corporations (Harris, Ives, et al., 2012; Koch et al., 2014). It has been shown that the perceived usefulness and ease of use of private devices are positive antecedents of BYOD intention; likewise the perceived ease of use of the enterprise device has a negative influence (Ortbach, 2015). In line with these findings an expected performance improvement has been found to lead to BYOD intention (Ortbach, Bode, et al., 2013). Furthermore, there is empirical evidence that social influence and habit to use private IT positively affect BYOD intention (Dernbecher et al., 2013). Feedback about BYOD experience of coworkers (Ortbach, Bode, et al., 2013) and social pressure (Ortbach, Köffer, Bode, et al., 2013) influence the intention to use private IT at work. Weeger and Gewald (2014) propose that when deciding whether to take part in a BYOD program, perceived risks can have an important influence on the decision. When it comes to the influence of personal innovativeness on the BYOD/Consumerization intention, the literature presents mixed results. A direct relationship has been proposed, but so far this relationship couldn’t be empirically confirmed (Ortbach, 2015; Ortbach, Bode, et al., 2013). Moreover Dernbecher et al. (2013) found an indirect relationship through the concept habit. They argue that people, who are innovative, are willing to adopt innovations in IT at an early stage and this can lead to an automatic use (habit). Habit has also a positive influence on Consumerization. Furthermore, Ortbach (2015) has shown that this effect is mediated by the perceived usefulness of both private and enterprise mobile IT.

Furthermore, it has been suggested that permitting Consumerization in organizations may have a positive effect on self-responsibility and autonomy of employees which would lead to a better job performance (Köffer, Ortbach, et al., 2014; Niehaves et al., 2013). On the downside, the usage of private mobile IT or consumer IT has been found to increase stress and negatively impact work-life balance by blurring the boundaries between work and private life (Köffer, Junglas, et al., 2014; Ortbach, Köffer, Müller, et al., 2013; Schalow et al., 2013). This blurring can be due to the use of corporate IT for private purposes and private IT for work purposes (Köffer et al., 2015).

However, organizations designing a BYOD policy have to trade-off a possible performance increase with new security risks and additional costs. According to the literature the performance can increase due to the use of innovative consumer technology, as well as an increase in the satisfaction of their employees (Harris, Ives, et al., 2012; Junglas et al., 2014). Security risks and additional cost arise while embedding heterogeneous and fast evolving consumer devices securely into the existing corporate infrastructure (Ortbach et al., 2014). It has been suggested that the higher the organization’s perception of risk and the lower its trust in the employees the more control is implemented in the BYOD policy (Ortbach et al., 2015).

3 Research Design

To gain a deeper understanding of the employees’ needs and motivations to participate in BYOD programs, our study builds on the existing literature. We derived a priori concepts (Eisenhardt, 1989) and collected empirical data from 14 semi-structured interviews. Our study is exploratory in nature and follows well-established guidelines for case study research (Dubé and Paré, 2003; Eisenhardt, 1989). In accordance with Eisenhardt (1989), we searched for a case where the subject of interest is transparently
observable. Our research approach allows us to study the phenomenon in its socially embedded organizational context to gain a deep understanding (Myers, 2009).

We investigated a case within a German consultancy. For confidentiality reasons, we call the consultancy GC.² GC has several departments all over Europe and employs 960 people, with most of them working in Germany. The organization provides their employees a selection of two corporate devices to choose from, a Blackberry with a classic keyboard and a Blackberry with only a touch-screen interface. They are free to use the corporate device for work and for private matters or to use the corporate device only for work and keep a separate device for private purposes.

GC introduced a BYOD policy in April 2014 that allows the use of privately owned devices at work under predetermined conditions. Due to the BYOD policy, employees had to decide whether they want to have a corporate phone (no participation) or bring their own device (participation). If an employee decides to ‘bring his/her own device’, the IT department will install a sandbox, to ensure a separate and secure workspace with all the software and functionality necessary for work. The use of additional privately owned software for core work tasks is prohibited.

Due to the level playing field, our case is transparently observable and provides control for the following factors: First, employees are committed to the decision to take part in the BYOD program for at least 12 months. For that reason, we assume that the decision of each participant is very deliberate, because of the long-term consequences. Second, motives of the participants are inherent to the device itself and the device operating system and not affected by consumer software substituting deployed corporate software in the workspace. Otherwise, we would not be able to tell apart consumers participating in the BYOD program because of better software available on a specific consumer platform from consumers participating in BYOD because of the devices itself. Moreover, there is no financial support for purchasing a private device. However, GC pays the telephone charges regardless of which device is used. Employees also have the opportunity to use a personal tablet computer under the same conditions.

We interviewed GC’s employees in the time between December 2014 and January 2015. In total, we conducted 14 in-depth semi-structured interviews. Of which 12 were employee-interviews with 5 interviewees using only their private device, 2 using only their corporate device and 5 using two separate devices. We made sure to interview employees from different levels in the hierarchy e.g. junior consultants, consultants and senior consultants. Two of the employees were only using their corporate device before the GC introduced the BYOD program. None of the 12 employees were involved in the development and implementation of the BYOD policy. At GC 160 employees (16.67%) are participating in the BYOD program with either a private smartphone or tablet-computer. In our case, we focus only on the participants bringing their own smartphone to focus on comparable decisions across employees. We cannot determine how many of the 800 non-participants at GC are using their corporate device for both private life and work.

To contrast the perception of the BYOD policy and the decision process of the employees with the intentions and goals behind the codified BYOD policy, we conducted two semi-structured interviews with representatives from the management and the IT-department. The first management-interview was conducted with the director of GC in charge of the overall corporate IT-strategy and the codification of the BYOD policy (hereinafter called ‘designer’). This interview allows us to analyze how the BYOD policy is related to the overall corporate IT-strategy and to understand the issues the policy was designed to address from a management perspective. The second management-interview was conducted with the IT administrator in charge of implementing the BYOD policy (hereinafter called ‘implementer’). By interviewing the responsible implementer, we can control for discrepancies between design and implementation of the BYOD policy. We conducted the interviews with the management in March 2015. The overall sample descriptives are shown in table 1.

---

² The authors are neither working for, nor in any kind affiliated with GC.
To structure the interviews, we employed a pre-designed guideline to elicit the motivations and the decision-making process of each interviewee. We derived the questions of the interview guideline from the related literature (see Section 2), but we also left room for deviations and open questions. All interviews were audio-recorded and transcribed afterwards. For data analysis we coded the transcribed interviews in an inductive-deductive manner following the recommendation of Miles and Huberman (1994).

<table>
<thead>
<tr>
<th>Interview</th>
<th>Age</th>
<th>Before BYOD</th>
<th>After BYOD</th>
<th>Employment</th>
<th>Interview length</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1</td>
<td>25-30</td>
<td>TWO</td>
<td>ONE PD</td>
<td>2 years</td>
<td>27 min</td>
</tr>
<tr>
<td>I2</td>
<td>50-60</td>
<td>TWO</td>
<td>ONE PD</td>
<td>&lt; 1 years</td>
<td>22 min</td>
</tr>
<tr>
<td>I3*</td>
<td>40-50</td>
<td>TWO</td>
<td>TWO</td>
<td>8 years</td>
<td>16 min</td>
</tr>
<tr>
<td>I4</td>
<td>25-30</td>
<td>TWO</td>
<td>ONE PD</td>
<td>2.5 years</td>
<td>22 min</td>
</tr>
<tr>
<td>I5</td>
<td>25-30</td>
<td>TWO</td>
<td>ONE PD</td>
<td>1 year</td>
<td>12 min</td>
</tr>
<tr>
<td>I6</td>
<td>25-30</td>
<td>TWO</td>
<td>TWO</td>
<td>3.5 years</td>
<td>26 min</td>
</tr>
<tr>
<td>I7</td>
<td>20-25</td>
<td>TWO</td>
<td>TWO</td>
<td>1 year</td>
<td>18 min</td>
</tr>
<tr>
<td>I8</td>
<td>35-40</td>
<td>ONE CD</td>
<td>ONE CD</td>
<td>&lt; 1 years</td>
<td>26 min</td>
</tr>
<tr>
<td>I9</td>
<td>25-30</td>
<td>TWO</td>
<td>ONE PD</td>
<td>4 years</td>
<td>22 min</td>
</tr>
<tr>
<td>I10</td>
<td>25-30</td>
<td>TWO</td>
<td>TWO</td>
<td>2.5 years</td>
<td>20 min</td>
</tr>
<tr>
<td>I11</td>
<td>40-50</td>
<td>ONE CD</td>
<td>ONE CD</td>
<td>14 years</td>
<td>20 min</td>
</tr>
<tr>
<td>I12</td>
<td>25-30</td>
<td>TWO</td>
<td>TWO</td>
<td>1.5 years</td>
<td>21 min</td>
</tr>
<tr>
<td>Designer</td>
<td>50-60</td>
<td>ONE CD</td>
<td>ONE CD</td>
<td>7.5 years</td>
<td>51 min</td>
</tr>
<tr>
<td>Implementer</td>
<td>30-35</td>
<td>ONE CD</td>
<td>ONE CD</td>
<td>4 years</td>
<td>56 min</td>
</tr>
</tbody>
</table>

One PD – Interviewee uses private device for private life and work
One CD – Interviewee uses corporate device for private life and work
Two – Interviewee uses two separate devices for private life and work
Grey – BYOD participants
*I3: Participating with a tablet computer only (treated as a non-participant)

### Table 1. Interview sample

### 4 Analysis and Results

#### 4.1 Employees

The analysis of our data revealed that the employee’s decisions to participate or not to participate in the BYOD program are driven by two underlying categories of factors. First, factors that determine the employee’s preferences regarding using just one device. Second, motives that determine the preferences for specifically bringing their private device (participating in the BYOD program). We also controlled for personal characteristics of the employees that might influence the other categories. Our coding scheme consists of ten codes we applied to tag the employees’ considerations with respect to their decision to participate or to not participate in the corporate BYOD program. Table 2 presents an overview of the coding scheme that we developed deductively as well as inductively. We started with an initial set of codes derived from the Consumerization literature and extended the set during the coding procedure based on the transcribed interviews (Miles and Huberman, 1994).
### Categories

#### Preference for one device

<table>
<thead>
<tr>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain of one device</td>
<td>The desire to carry, manage and maintain only a single device for work and private purposes.</td>
</tr>
<tr>
<td>Expected work-to-life conflict</td>
<td>Concerns that blurring the boundaries between private and work life has negative consequences. (Köffer, Junglas, et al., 2014)</td>
</tr>
<tr>
<td>Dissatisfaction with corporate IT</td>
<td>The perception that the provided IT is not state of the art.</td>
</tr>
<tr>
<td>Performance expectancies</td>
<td>The expectations to execute work tasks with a specific device better than with the other. (Ortbach, Bode, et al., 2013)</td>
</tr>
<tr>
<td>Social feedback</td>
<td>Co-workers’ and customers’ behavior, pressure and recommendations. (Ortbach, Bode, et al., 2013; Ortbach, Köffer, Bode, et al., 2013)</td>
</tr>
<tr>
<td>Expected risks</td>
<td>Expected risks, e.g. financial risks or security risks. (Weeger and Gewald, 2014)</td>
</tr>
<tr>
<td>Commitment</td>
<td>Long-term commitment to participation (one year).</td>
</tr>
</tbody>
</table>

#### Preference for private device (BYOD)

<table>
<thead>
<tr>
<th>Personal characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal innovativeness</td>
<td>Being innovative as a trait of character. (Ortbach, 2015)</td>
</tr>
<tr>
<td>Autonomy preference</td>
<td>The desire to decide by yourself which technology is the best for the actual tasks. (Niehaves et al., 2013)</td>
</tr>
<tr>
<td>Brand loyalty</td>
<td>The loyalty to a certain brand or provider. (Polites and Karahanna, 2012)</td>
</tr>
</tbody>
</table>

Table 2. Overview of identified categories for employees

### 4.1.1 Preference for one device

**Gain of using only one device**

We found that employees using two distinct devices for their work and private life (multihoming) are bearing additional costs due to carrying, charging or synchronizing them. Multihoming describes the behavior of consumers to participate in two separate networks to leverage the benefit of both. However, employees have to use at least a corporate device to execute their work. According to the empirical data, participation in the BYOD program (as well as using only the corporate device for work and private purposes) can avoid the inconvenience associated with multihoming. The gain of using only one device turned out to be a central aspect for the employees when deciding whether to participate or not. Most employees who in-fact prefer to manage just one device also participate in the BYOD program (four out of five). These employees want to substitute their business device with their private device, in order to reduce the number of devices they have to handle and thereby avoid multihoming and the resulting overhead.

“So, the essential factor was simply that I don’t want to have two cell phones in my pocket anymore. That is inconvenient and bulky. And I have to take care that the battery of both phones are charged all the time.” (I1)

“The main reason for me was actually: To have just one device in my hand, which I like to work with and do everything I want with […] both privately and professionally.” (I2)

One interviewee, who uses his corporate phone for work and private life, made the same argument for using only one device:

„Thank god, GC kindly allows us to use the corporate Blackberry also for private matters. Therefore, I don’t have a private cell-phone anymore. […] it annoyed me having to carry my private mobile with me all the time, continuously charge it but then rarely use it anyway.” (I8)
Therefore, the gain of using only one device is not exclusively related to participants of the BOYD initiative at GC. The design of the corporate IT guidelines at GC supports the use of a single device for all employees independent of device ownership.

**Expected work-to-life conflict**

Nevertheless, using a single device is also a reason for work-to-life conflict, work overload and an increase of stress. Therefore, employees who prefer a strict separation between private and work life use two different devices for each part of their life.

“[...] I want to separate it this way that I use my private device at the weekend and don’t read any company mails so that I can relax a little, when I have to work hard during the week anyway.” (I6)

“Well somehow you want to separate a little between private and business.” (I7)

4.1.2 Preference for private device

**Dissatisfaction with corporate IT**

Another factor that emerged from our data is that BYOD participants are dissatisfied with the provided corporate technology and think that it is not state-of-the-art.

“Because these days the Blackberry is no longer state of the art as it has some rough edges here and there.” (I1)

“Ultimately, the standard device is not one of those that is at the top of the device ranking lists…” (I2)

**Performance expectancies**

We also found statements that hardware characteristics may improve the performance perception that leads to the decision to participate.

“The entire handling is just more comfortable [...] I mean the bigger displays, than for example with the Blackberry.” (I5)

However, due to the sandbox solution, we couldn’t find indications of expected performance gains attributable to the substitution of corporate software. That result confirms that our case indeed excludes any software substitution effects, but inspection of the results indicates that software substitution otherwise would be a likely outcome.

“[...] as I have to work in this sandbox that [the device] can’t keep up with the functions of my operating system.” (I4)

On the other hand, some interviewees stated that they perceive complimentary software and services outside the sandbox on the private device as helpful. These software and services are not used for core work activities, but rather for supporting tasks complementary to the actual business software.

“It also helps me in my professional life, for example as support while travelling. It is an advantage being able to use that. Being productive just comes with it.” (I1)

“So I [...] just took a taxi and it has the MyTaxi app on it. That works a lot better with such a thing [the iPhone] than with the Blackberry. I don’t even know if it works on the Blackberry.” (I6)

If employees want to foster these expected performance gains, they can either choose to use their private device for work (BYOD) or to multihome. We also found evidence that substituting the corporate device with a consumer device would lead to an expected loss in performance, which was the reason for non-participation.
“Simply the situation that I might just be getting off the plane and the senior manager calls me but my phone battery runs dry. Just that was enough to convince me to take up the – in my opinion somewhat less pretty keyboard-thing.” (I12)

Social feedback
In our study, we coded three interview statements mentioning that the experience of and recommendations by colleagues influenced the decision-making processes. This holds true for participants as well as for non-participants. We also found that social feedback could be in favor of or against participation.

“Well at least the impression that I have is that the experiences of the colleagues who use their own devices is definitely not negative.” (I7)

“[…] I thought about getting an iPhone [in order to participate at the BYOD program]. But many colleagues said that it wouldn’t be very practical.” (I11)

Expected risks
When using their own device, some employees are afraid of losing or breaking the device. These employees perceive a financial risk, because they would have to repair or purchase a new device at their own expense. This financial risk therefore inhibits the participation.

“Well, there is the wear, and when it [the private device] breaks I have to pay for it by myself. So I don’t see any benefit for myself.” (I10)

Commitment for one year
Our case has the special property that the employees are bound to their decision to participate in the BYOD program for at least one year. This commitment may have a negative influence on the decision to participate. We found that one interviewee, thinking about participation, decided against it because of the long-term commitment.

“So, by the decision there is a commitment for one year […] Maybe, I could stand it for one year, but maybe not. I don’t know it yet. I have to still think about it.” (I11)

4.1.3 Personal characteristics

Autonomy preference
We found some interviewees, prevalent participants, expressing that the freedom to choose, complies with their preference for autonomy, but was not directly linked to their decisions.

“I observe that my employer also takes care of the employees’ wishes.” (I4)

“Surely that is a small note of attraction but of course no main argument. But in the end, that you offer this [BYOD] and have thought about this for whatever reasons […] and leave the choice to the employee is a very positive characteristic in my opinion.” (I2)

Brand loyalty
We also controlled for a relationship between brand loyalty and the decision to take part in the BYOD program. The number of interviewees with and without brand preferences was nearly equally distributed. Around 43% of the non-participants and 60% of the participants have a brand preference. Since there is no major difference between the two groups, we are not able to deduce a relationship of brand loyalty to the decision to participate in the BYOD program or not.

“Yes, I am brand-conscious and I live brand-consciously. For me, Apple is state-of-the-art.” (I3)
Personal innovativeness
In our study, we could not find a major difference between participants and non-participants concerning personal innovativeness. 11 out of 12 employees said that they are tech savvy and innovative.

“I think I’m open and excited towards new technologies. If there are new solutions, I really like testing them.” (I10)

4.1.4 Results and Summary of employee motives
Table 3 sums up the factors influencing the decision whether to take part in the BYOD program or not. The table shows that there are some dominant factors. The gain of one using only one device in interplay with dissatisfaction with the provided IT seems to lead to BYOD participation. In addition, two employees only use the corporate device. I8 wants to exploit the gains of one device but doesn’t use his device for private purposes very often. This is why he doesn’t perceive his corporate device as being inferior.

“In principle, I don’t attach value to the possession of a brand new smartphone, because I won’t use it a lot in my private life.” (I8)

I11 thinks about participation but got negative social feedback and is worried about the commitment for one year. As he already used only his corporate device before BYOD was introduced, he is hesitating to change something. A dominant aspect for the non-participants is the expected work-to-life conflict. If employees don’t want to mash up private and work life, they have to use two phones in parallel. For I5 the hardware benefits of his private phone were crucial. I10 was discouraged by the financial risk that comes along with using a privately owned device. This aspect might be more important to I10, since he is a young professional. For I12 expected hardware disadvantages of a consumer device were decisive and crucial. In general, one can sum up the decision in to two different trade-offs. One is the trade-off between the reasons for one and two devices. The second is whether to bring a privately owned device or not. Additionally, personal characteristics like autonomy may affect these decisions. However, we cannot confirm that tendency for brand loyalty or personal innovativeness.

<table>
<thead>
<tr>
<th>Device Choice</th>
<th>Factors</th>
<th>One device</th>
<th>Two devices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>Corporate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 12 14 15 19</td>
<td>I8 I11</td>
</tr>
<tr>
<td>One device</td>
<td>+ Gain of using only one device</td>
<td>x x x x</td>
<td>x x x</td>
</tr>
<tr>
<td></td>
<td>- Exp. work-life conflict</td>
<td></td>
<td>x x x</td>
</tr>
<tr>
<td></td>
<td>+ Dissatisfaction with corp. IT</td>
<td>x x x x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>+ Exp. performance gain due to private device</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Exp. performance gain due to private software</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>+ Positive social feedback</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>- Negative social feedback</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>- Exp. performance loss without corporate device</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>- Expected financial risk</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>- Commitment</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Private device</td>
<td>- Autonomy preference</td>
<td>x x x</td>
<td></td>
</tr>
<tr>
<td>(BYOD)</td>
<td>- Brand loyalty</td>
<td>x x x</td>
<td>x x x</td>
</tr>
<tr>
<td></td>
<td>- Personal innovativeness</td>
<td>x x x x</td>
<td>x x x x x</td>
</tr>
</tbody>
</table>

Table 3. Relevant factors and device choice of employees
4.2 Management

One of the reasons why GC introduced BYOD and allows the use of the corporate device for private purposes is to support the interweaving of private and work life. This goal is in line with some employee’s preference to use only one device. However, they assume that some employees might not want to mash up private and work life but think it is okay for the majority of their workforce, especially at a consultancy. With the BYOD policy, the management meets the needs of a part of their employees, but doesn’t address those who want a strict separation between work and private life.

“I like the image of interweaving [private and work life]. [...] This is why BYOD could relax situations, because you are reachable in any context and you are not forced to be present in your office” (Designer)

Before GC introduced the policy, the employees could decide whether they want to use two devices in parallel or use their corporate phone for work and private life. Consequently, employees, who wanted to use a new high-end device, complementary software (not available on the corporate device’s software platform) and wanted to have just one device, couldn’t find a suitable solution. This was one reason for increasing dissatisfaction.

“Well it was also partly motivated by a long felt neglect of the topic of modernizing IT.” [...] the pressure of the users of being allowed to participate in the [technological] development [...] (Designer)

On the other hand, the management does not think that a performance gain due to the private devices or complementary software is an important aspect of BYOD. They think the provided IT fulfills all important needs of a consultant. However, the BYOD policy addresses the needs of some employees, which the management did not anticipate.

“I would say productivity is not a main driver. [...] Let them install their private apps, which they think they might need. [...] But I don’t think that this is an important topic with regards to BYOD.” (Designer)

“[...] the thing that we do... ultimately it is, [...] the tools of the trade of a consultant, meaning a presentation, data, facts that are in the spotlight.” (Implementer)

Social feedback seems to be a factor that is underestimated by the designer.

„Because everyone is having the same possibilities, I don’t think that it [social influence] is likely.”(Designer)

The designer does not see the employees’ purchase of their own device by themselves as an inhibitor for participation. He actually assumes that there is a natural willingness to buy a new device regularly.

“I perceived that many people see the regular purchase of a new iPhone as standard costs, which you don’t focus on. You simply do it. There is always a new one and it’s expensive but you somehow have to buy it, so it somehow became a recurring standard cost. [...]I rather believe that Apple achieved it that you [...] somehow literally deduct it [the purchase price] because it ‘has to be that way.’” (Designer)

This presumption actually holds true for the majority of the employees.

“Honestly, my understanding is, when I’ve got a private device [...] I pay for it by myself.” (13)

On the subject of autonomy, the designer thinks that it does not have a direct influence. It was a conscious decision to give the employees the right to decide by themselves, but the designer sees it as a necessary means, which in turn prevents dissatisfaction.

“I would say it’s a hygiene factor. I think you have to have it nowadays, but nothing more than that.” (Designer)

Although we cannot confirm that brand loyalty has an influence on the employees’ decisions to participate in BYOD, the designer believes that it does matter. With the possibility to bring their private devices this point is addressed by the policy.
“That [brand loyalty] has an impact. There are fans. [...] And IT is full of dogmatists.” (Designer)

Concerning innovativeness, the designer sees the workforce as heterogeneous and thinks that the BYOD policy provides space for everyone.

“We got different characters working with GC, [...] also those who always like to have the most awesome and newest device.” (Designer)

Altogether, the designer explained that, while his main goal was to reduce dissatisfaction, he did not want to think through all of the different motivations and needs of his employees in detail.

“[...] I haven’t thought about all these topics. [...] I have to cover a set of motives as good as possible, without knowing all of them. [...] we’ve got a high degree of user satisfaction, because he/she sees his/her needs as satisfied and it makes it easier for me, because I don’t have to ask for each kind of motivation.” (Designer)

During the coding process, we found two further categories that the management mentioned. These two aspects are security requirements and costs of the BYOD program. The designer refers to the importance of IT security in particular by stating that there was a special emphasis on data security and protection in the design of the policy.

“We stand and fall with our reputation [...]. The aspect of security plays an important role; data protection and data security. This is why we used one to two years in advance to work on the topic IT security.” (Designer)

GC addressed the security aspect by implementing the sandbox. All the sensitive data is encapsulated and can’t be transferred out of the sandbox. By applying the sandbox GC found a compromise between allowing BYOD and ensuring security.

“This is actually the only solution [the sandbox] at the moment for companies like us, which on the one hand want to assure data security for business relevant data and on the other hand want to guarantee the highest level of freedom for their employees.” (Implementer)

The second restriction, which was taken into account while designing and implementing the BYOD program, were costs. In our data, we found two different kinds of costs: The costs of buying new devices and costs emerging due to the administration of private devices. The employees pay the investment costs for private devices. Otherwise, the organization would have to buy a variety of devices and would lose possible economies of scale. Nevertheless 75% of the interviewees mentioned to be satisfied with this arrangement, as the majority of the workforce sees the purchase of a smartphone as recurring cost. On the other hand, the company pays investment costs for the sandbox solution, as well as the administration costs to integrate the private device in the corporate IT landscape. However, the sandbox also minimizes support costs, as the technical support is only limited to the functionality of this solution. In addition, binding the employees to their decision for at least one year prevents avoidable costs due to employees switching back and forth.

“Well, with the private devices we can chose the easy way. [...] we can delete the container or reinstall it. We take care that your mails are on the device. But when e.g. you screen is flickering, we are not in charge, because it is a private device.” (Implementer)

5 Conclusion & Discussion

In this paper, we analyze how employees perceive a BYOD policy and which factors lead to a binding decision to substitute corporate IT with privately owned IT. Moreover, we discuss which motives can be considered by the management of an organization to raise participation. To this end, we carefully selected a single case with a high level of control. We conducted 14 semi-structured interviews with 12 employees, the designer of the policy as well as the implementer to get a holistic view of the case. We contribute to the existing literature by deriving a set of underlying factors and categories influencing
employee’s decisions to participate in a BYOD program. The gain of using only one device for both work and private life together with the desire to close the technological gap between private and corporate IT turned out to be the central aspects for many to decide in favor of participating in the BYOD program.

Our research extends the existing literature by identifying the avoidance of costs associated with multihoming as a driver for using only one device. This finding is in line with the multihoming literature (Doganoglu and Wright, 2006; Rochet and Tirole, 2003). On the other hand, our study supports the view, that using a single device is also a reason for a work-to-life conflict, work overload and an increase of stress, by blurring the lines between private life and work (Köffer, Junglas, et al., 2014; Ortbach, Köffer, Müller, et al., 2013; Schalow et al., 2013).

Dissatisfaction with the organizational IT was frequently mentioned by employees who substitute their corporate with their private device. According to Rogers (1995) an individual gets into an uncomfortable state of mind if he/she shares the knowledge about a new technology, also has a positive attitude towards adopting the technology but has not adopted (practice) this technology so far. The mismatch between attitude and practice is called KAP-Gap (Rogers, 1995). One strategy to dissolve this mismatch is to change actions and therefore change behavior (Festinger, 1957). In our case, employees know about newer generations of smartphones from their private life. They have the attitude to adopt this new technology at work but were not allowed to do so before the BYOD program was introduced. The perceived difference between expectations and the actual perception of the provided IT with respect to quality and capabilities may lead to dissatisfaction (Lapré and Tsikriktsis, 2006). Our empirical data supports the view, that social influence has both positive and negative effects on participation (Ortbach, Bode, et al., 2013; Ortbach, Köffer, Bode, et al., 2013). Moreover, our data reflects that financial risk can have an effect on participation (Weeger and Gewald, 2014). In addition to the related work, however very specific to this case, we show that the commitment to participate in the program for at least one year can be an inhibitor for participation.

Furthermore, we found support for the view, that permitting Consumerization in organizations can have a positive influence on self-responsibility and autonomy of employees (Köffer, Ortbach, et al., 2014; Niehaves et al., 2013), but could not find it to be decisive for participation. Concerning brand loyalty and personal innovativeness, our results are ambiguous.

Answering our research question, we can in general distinguish two categories of employees. Employees that make a trade-off between different factors (categories of factors) and employees that do not make a trade-off in their decision making process at all.

**Decisions without a trade-off**

All employees with a preference for one device (ONE+) and their private device (PD+) participate in the BYOD program. The same holds true for informant five who has no preference for using only one device in general but for his private device (PD+) in particular.

\[
\begin{align*}
I1, I2, I4, I9: & \quad \text{ONE+ and PD+} \quad \rightarrow \text{BYOD (Private device only)} \\
I5: & \quad \text{PD+} \quad \rightarrow \text{BYOD (Private device only)}
\end{align*}
\]

Two interviewees have a strict preference to use only one device (ONE+), but no preference for using their private devices, or even reasons against it. Consequently, they continue to use the corporate device for private purposes to leverage the gain of one device.

\[
\begin{align*}
I8: & \quad \text{ONE+} \quad \rightarrow \text{Corporate device only} \\
I11: & \quad \text{ONE+ and PD-} \quad \rightarrow \text{Corporate device only}
\end{align*}
\]

One informant has reasons against using his private device for work (PD-), but no further preferences with respect to using one device. Therefore, he continues to use two devices in parallel.

\[
\begin{align*}
I12: & \quad \text{PD-} \quad \rightarrow \text{Two devices in parallel (multihoming)}
\end{align*}
\]
Decisions with a trade-off

We categorize employees that made a participation decision including a trade-off between different factors into two sub-groups:

Most employees in our study made an **inter-class trade-off** between the dominant factor against one device (ONE-) and factors in favor of using the private device (PD+) at work. All these employees keep using two devices in parallel. Therefore, we can conclude that the expected work-life conflict dominates the factors calling for a participation in BYOD for all these employees.

\[ \text{I3, I6, I7: ONE- and PD+} \rightarrow \text{Two devices in parallel (multihoming)} \]

In contrast, one employee made an **intra-class trade-off** between factors in favor (PD+) and against (PD-) using the private device at work. However, we could not find any preferences for using only one device influencing the decision. The employee continued to use two devices in parallel.

\[ \text{I10: PD+ and PD-} \rightarrow \text{Two devices in parallel (multihoming)} \]

Moreover, we can conclude that the management covers a large part of the employees’ intentions with the BYOD policy and at the same time meets security and cost requirements. By creating the possibility to use a private device for both private and work life, they allow the employees to choose from a nearly infinite set of devices, which dissolves the dissatisfaction with the provided IT and at the same time enables the gains of using one device. Unintentionally, the management also meets the needs of some employees (I1, I6 and I10) who want to make use of complementary software, which indicates the gains of Consumerization in general. Management currently ignores these gains but allows employees to realize them through participation. However, realizing these performance gains and considering the broader effect of Consumerization in the design of a policy could be beneficial.

If it is desirable (e.g. from a cost perspective) to foster participation in BYOD, managers could explicitly address factors having a negative influence on participation. To counter a potential work-to-life conflict companies could enforce stricter rules such as restricted communication on weekends or in the evening. Another aspect could be financial support to address the financial risk of employees, which would imply sharing potential costs savings with participating employees.

Our study also has some limitations. First, we only observed one single case. Although we have taken all internal stakeholders at GC into account, there might be additional motives to participate in a BYOD program that we could not derive from the case at hand. In addition, since all 12 interviewees are consultants, a professional group that is very self-determined and works with a high degree of autonomy, our results might be biased. The usage of the sandbox enabled us to disentangle the effect of hardware and software on the decision to take part in a BYOD program. However, at the same time it rules out gains from ease of use or better features of private software for work tasks. Analyzing those software substitution intentions disentangled from the intentions to substitute hardware is a fruitful topic for further research. Furthermore, quantitative studies may contribute to a deeper understanding of how the different confirmed and newly identified factors enter the individual participation decision and how BYOD policies can successfully address employees’ preferences and corporate goals alike.
References


