

Challenges for a Smart Availability Assistant - Availability Preferences

Completed Research

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Abstract

The use of communication technologies (CTs) are blurring the traditional boundaries between work and private life. Practice suggests that employees experience both beneficial and detrimental outcomes associated with ICT-enabled availability. Alarmed with the detrimental effects of ICT-enabled availability many labor representatives and politicians intended to address these issues with different technological approaches. However, evidence suggests that these methods do not necessarily meet the employees' approval since they are too strict and do not provide a flexible solution for the different needs of employees. Aiming to broaden the current state of research on availability management, this study presents valuable insights into the management of employees' availability and key requirements for a Smart Availability Assistant. Based on our quantitative approach, in which we study 821 individuals, we conclude that a Smart Availability Assistant is desirable in case of inadequate enterprise availability management. Further, we posit that such an Assistant should not only focus on regulating the extent of ICT-enabled availability but rather aim at reflecting the diversity and complexity of individuals' availability preferences.

Keywords

Availability preferences, Smart Availability Assistant, constant connectivity, boundary management.

Introduction

Contemporary information and communication technologies (ICTs) such as e-mail, instant messaging or web-meetings are ubiquitous in our working and personal lives (Sayah, 2013; Galluch et al., 2015). As ICT-enabled availability can become a "double-edged sword" for employees (Diaz et. al., 2012), understanding positive and negative effects is necessary. First of all, employees have the option to carry out work-related tasks outside of the traditional office space or work time, take part in team meetings via video conferencing even if they are stuck in a traffic jam, or respond to email messages during a flight. Flexibility and freedom to organize work schedule can increase job satisfaction and employment commitment (Nam, 2013). Moreover, many employees benefit from cross-border communication (e.g., with family or friends during work time, and communication after work with boss or clients after work) (Clark, 2002) when they can call their children and check if they come back safe from school to home or modify a presentation for a customer

over the weekend. At the same time, ICTs may become what previous researchers have suggestively termed as the “electronic leash” (Olson-Buchanan and Boswell, 2004). Because the pervasiveness of technology reduces an employee’s ability to detach themselves from their work commitments, the boundaries between work and personal life are blurring (Mann and Holdsworth, 2003). Furthermore, research points to detrimental consequences of constant connection to work. Individuals are increasingly feeling overloaded (Karr-Wisniewski and Ying, 2010; Barley et al., 2011), fear of missing out (Przybylski et al., 2013), socially isolated (Baruch, 2001; McPherson et al., 2008) and overworked (Galinsky et al., 2001; Middleton and Cukier 2006, Prasopoulou et al., 2006). In addition, the “always on” culture can lead to technological stress - in information system literature also referred to as “technostress” (Ayyagari et al., 2011) – a type of stress that can cause health issues, such as burnout (Ragu-Nathan et al., 2008; Diaz et al., 2012). In fact, the results of surveys among knowledge workers are alarming: data suggests a worldwide trend of constant connection to work. In Europe, for instance, 40% of knowledge workers commonly get work-related requests outside their regular working hours (Arlinghaus and Nachreiner, 2013). Even during holidays, 64% of knowledge workers in Germany indicated to be available for work by phone, e-mail, or messenger. Six out of ten professionals (61%) read short messages via iMessage or WhatsApp during their free time. 57% remain available for their boss, colleagues or customers and one in four (27 %) reads work-related e-mails (Bitkom, 2018).

Employee problems become company problems. Over the last few years, labor and unions representatives, as well as politicians, started to address the ICT-enabled constant availability and its potential detrimental outcomes. Several businesses are taking the initiative in this regard by integrating either resolute technological approaches or tightened availability policies. Automobile manufacturers, for instance, pioneer limited availability by automatically blocking incoming e-mails and messages after the employee’s regular working hours (from 6.15 pm until 7.00 am) by switching off the e-mail servers (Handelsblatt, 2011) or by deleting all incoming e-mails while employees are on holiday (Daimler AG, 2014). Other several companies try less stringent approaches by setting up informal regulations, e.g. by simply encouraging senior managers to avoid contacting their staff after work or on holidays (Deutsche Telekom AG, 2012; Evonik, 2014), by setting agreement with work council regarding availability (BMW Group, 2014) or by providing employees with guidelines about options to effectively disconnect from work (E.on. 2014; Continental AG, 2014). At the same time also the political awareness about employees’ availability problem is increasing. Under pressure from trade unions, France has introduced a labor law that is supposed to guarantee employees the “right to disconnect” from work-related e-mails and calls (The Guardian, 2016). Similarly, Italy and the Philippines have also updated their labor laws regarding employees’ availability (Senato della Repubblica, 2017; The Manila Times, 2017).

In addition to all these countermeasures driven by organizations and politics, employees also have the possibility to take self-regulating actions in case the employer’s measures are perceived to be insufficient. In this regard, providers of ICT-based services offer certain applications (e.g., Moment, Offtime, Social Link, Mental Balance) for a range of technical devices that are geared towards supporting users in monitoring their ICT-use and managing their availability. Such applications can restrict the use of a smartphone while blocking calls, messages, and notifications for a specified period of time. However, these solutions’ effectiveness to improve work-life balance varies across segments of employees because they do not map the complexity of individuals’ availability preferences (Schneider et al., 2017). Organizational behavior scholars indicated that employees vary in the degree to which they wish to segment or integrate their work- and private-related spheres (Kreiner, 2006; Kossek and Lautsch, 2012). Accordingly, there seems to be no all-in-one solution available yet, because existing approaches focus on restricting the extent of availability and do not meet all facets of employee needs (Hammer et al., 2009; Keeney et al., 2013; Schneider et al., 2017). Against this backdrop, it becomes clear that a more sophisticated availability management is needed. In this context, we aim to advance the development of a Smart Availability Assistant (SAA) that will reflect the complexity and variety of peoples’ availability needs. Considering the paradoxical character of ICT-s (Jarvenpaa and Lang, 2005), we are convinced that while mobile communication technologies can produce work-life conflict, they should also be used as a tool for managing the work-private boundary (Golden and Geisler, 2007; Kreiner et al. 2009). In this paper we present the results of a quantitative study of users’ preferences for a technological solution, that is supposed to support employees in effectively managing their availability. The basic idea of SAA is that the assistant will delay the delivery of incoming communication (mails, phone calls, short messages etc.) based on the content (e.g. natural language processing, deep learning) and examine incoming messages according to a rule-based system

(person, time, role, location etc.) that reflect employees' availability needs (Laufs and Roßnagel). Through a user study with 821 participants we point out important desires, demands and influencing factors for acceptance and use of an SAA. Our goal is to communicate these outcomes and its implications for information systems and organizational behavior research as well for organizations and employees.

Theoretical Background

There is a variety of methodologies through which we can conceptualize the relationship between work and non-work facets of individuals' lives. The most widespread is the work-family conflict perspective, which indicates incompatible demands between an individual's work and family roles (Marks and MacDermid, 1996; Barnett, 1998). Because we are interested in the use of ICT not only for work but also for private purposes, we focus on variables going beyond the boundaries of the traditional work – and address also the non-work context. For this purpose, the perspective utilized here is boundary theory, which describes how individuals create and operate their boundaries surrounding their various life spheres and behaviors (Nippert-Eng, 1996; Ashforth et al., 2000; Kossek and Lautsch, 2012). The central assumption of boundary theory is that employees may have very different preferences with regard to the shape of their work and private life boundary, and these preferences can change according to their day-to-day choices and behaviors. Moreover, it must be highlighted that for many individuals the relationship between the work and private domains is complex, with the boundary between these aspects often being indistinct (Warhurst et al., 2008; Hislop and Axtell, 2011). More specifically, research suggests that employees can be classified into five dominant work-life boundary management styles (integrators, cyclers, separators, work firsters, and private life firsters), or approaches that people use to differentiate work and private lives, considering their personal identities. Different characteristics, values, and life contexts lead to different desired levels of availability, and thus, to different boundary management styles (Kossek, 2016). Considering the constant availability, ICTs play an essential role for employee's boundary management. On the one hand, mobile technologies can be used as a tool to applicate the preferred degree of segmentation or integration of boundaries' permeability, for instance by using availability management tools. On the other hand, ICTs enable also a violation of individuals' desired degree of boundaries' permeability and flexibility, for example by enabling work-related phone calls during son's first football match (Kreiner et al., 2009; Schneider et al., 2017).

Due to our overall aim of broadening and bridging research on an availability management, fostering the use of SAAs, as well as the resulting exploratory character of our study, we focus on a broad range of theoretical concepts in relation to employees' availability behaviors. Our aim is to give an overview on availability management, rather than to concentrate on specific additional theoretical concepts. To summarize, we address the following research question: What are the main drivers for usage of SAA?

Method

The data for this study was collected via a cross-sectional survey design with a sample of knowledge workers. Knowledge workers are employees whose main capital is knowledge (Reinhardt, 2011). As mobile technology use represents a central part of their work (Wacjman and Rose, 2011), we consider knowledge workers as a particularly relevant participant sample. The completion of the survey took on average 25 minutes.

From a total of 1,600 invited participants, the survey yielded a response rate of 54% - i.e., 864 completes. However, data cleansing excluded some answers of participants who completed the survey unrealistically fast e.g. in less than 10 minutes. The final sample entails 821 individuals. The invitations to participate in our study were sent using traditional digital communication like e-mail and other messaging applications, such as WhatsApp, Messenger, or Skype. Public posts on social media platforms spread the questionnaire as widely as possible. Accordingly, the sample consisted of participants who are employed in 30 different countries, but mainly in Germany (85%), Poland (4%), Romania (2%), the USA (2%), and Italy (1%). The average age of the respondents was 34,6 years (SD = 12 years) with a quite equal gender distribution – 49.6% women (N=408) and 50.4% men (N=413). Since participants work for companies of different sizes and in various industry sectors (e.g., information & communication technology, consulting and finance), our study presents a broad perspective regarding stakeholders' preferences towards the SAA. In their current job position, 31% of participants exhibit leadership responsibility. Furthermore, 74% of the

participants indicated to be in a relationship and the remaining quarter report to be single. Altogether, 29% of participants have children. The average number of children is two with an average age of 15. 46% of those participants with children indicate to be the one that takes mainly care of at least one of them. Lastly, 5% of participants report to care for relatives at home. The weekly work time according to employment contract was between 31 and 40 hours (61%). Because we wish to include only persons with a certain degree of current work experience, the pool of participants is limited to employed knowledge workers with at least 20 working hours per week.

Questionnaire Design

The survey contains 87 questions divided into 4 thematic blocks. The first part collects demographic data, the second part deals with the participant's current employment, the third part covers the research questions about individual availability behaviors and preferences, while the fourth part comprises the stakeholder preferences towards the development of a SAA. We included an array of demographic variables as controls: age, gender, and family status. The existence of children might have implications for dealing with availability, therefore, the questionnaire inquired whether the participant has children, how many and how old. Furthermore, because having multiple young children might not have any implications on the participants' availability preferences if he or she is not the main person caring for the kids, we asked the participants to indicate whether they are the primary carer for the kids. Similarly, we asked the participants to indicate whether they care for any relatives at home (e.g. elderly parents). The second part of the questionnaire documents the participants' current employment. In case the participant is having more than one job, she was supposed to refer to it as the main job. The first questions are related to the employer itself. To gain a broad overview of the participants' working environment, participants were asked to indicate the size and industry of the employing company. Here, the answer options were based on the industry categorization of business media (Wirtschaftsforum, 2018) while complemented with further categories (e.g., education and consulting). The third part of the questionnaire captures the participant's management of personal availability. The collected data are mainly supposed to help to identify and cluster potential users of the SAA and their individual preferences. In this context, the questionnaire introduced the topic of the separation and integration of work and private life since boundaries between them can be permeable in different ways. Therefore, the participant was presented with five pictures of different boundary management styles (Kossek, 2016). Firstly, the participant was asked to indicate the picture that matches her present, actual state best, while the second part asked for the preferred boundary management style. Subsequently, the participant's availability strategies were investigated in more detail. Questions based on an extended version of Batt and Valcour's (2003) items of Flexible Technology Use, in which newer technologies were included. Additionally, questions about availability behavior were adapted from the questionnaire designed by Pauls et al. (2017). The fourth and final part of the questionnaire is related to the actual product design analysis of the SAA. The upcoming 29 questions were mainly deduced from a qualitative analysis of stakeholder preferences and concentrated on the possible features of the availability assistant. In the end, to investigate a possible demand and usability for our technological solution, the participants were asked how useful she thinks such software would be and how likely they would actually use such technology to manage their personal availability. In case that the participant indicated that it is rather unlikely or very unlikely to use the SAA, another multiple-choice questionnaire appeared, asking for the respective reasoning. The last question of the questionnaire gave the participant the opportunity to leave further comments on any desired topic.

Results

In total, our analysis considers the answers of 821 participants. Related to the participants' current employment situation it is notable that 21% of participants work for an employer with less than 50 employees, 15% work for an employer with 51-250 employees, 15 % work for an employer with 251-1,000 employees, and 49 % work for an employer with more than 1,000 employees. The most represented industries of the employers are services (15%), education (11%), information & communication technology (10%), consulting (10%), and finance (10%). Regarding the job position, 31% of participants indicated to have leadership responsibility. Furthermore, required interaction levels seem to be high on average: participants indicate that their job requires interaction with colleagues, customers, or supervisors more than 10 times per day (31%), five to 10 times per day (23%), two to four times per day (25%), once a day (8%), not daily but weekly (9%), and less than once a week (4%). According to the employment contract,

most participants (61%) work from 31 to 40 hours per week. In comparison, the actual work time appears to be longer: 12% work 20 to 30 hours, 30% work 31 to 40 hours, 39% work 41 to 50 hours, 8% work 51 to 60 hours, and 3% work more than 60 hours per week. Overall, it became apparent that more than 50% of participants work on average more than agreed in their employment contract. In addition, the participants were asked about their attitudes towards and experiences with work-related matters in their spare time. While 25% of the participants indicated to not have any problems with availability at their current employment, the remainder of participants' opinions are divided: On the one hand, 30.8% of the participants advocate the constant availability for work even though three-fourths of which feel stressed about it sometimes. On the other hand, 39.6% of the participants generally do not want to be available for work-related matters in their spare time. In fact, only a mere fraction of participants (3%) reported that most of their work-related contacts need to be addressed immediately. The attitudes towards the separation and integration of work and private life vary among individuals. Most of the participant desire either a complete separation (37.3%) or an interactive integration (35.7%) of work and private life. However, the desired states of availability often differ from the actual states. For instance, only half of the proponents of a complete separation achieve this availability in actual practice. In turn, every fifth participant (19.7%) has work-related interruptions in their private life whereas only 3.8% of participants really desire it. Overall, the mismatch between actual and desired availability is substantial: one of two participants (50.3%) does not achieve his or her desired level of availability in actual practice. Moreover, the participants were asked about their behaviors towards work-related matters during non-work time. One-third of the participants (33.3%) indicated that they are expected to be available for work-related emergencies outside their regular working hours. The next results are similarly distributed. One-third of the participants (35.3%) stated to bring their business IT devices with them even on holidays. Moreover, half of the participants (50.2%) actually do not have any clear arrangements that clarify one's availability while only one-third of the participants (32.6%) do have them in place. In terms of work-related e-mails and text messages, behaviors are somewhat heterogeneous. Half of the participants (46.7%) check and read incoming e-mails in their spare time where even four-fifths of those participants (79.4%) usually reply. In the end, of those participants that also reply to work-related contacting, the vast majority of the participants (87.3%) is doing so because otherwise, they would not be able to successfully manage their workload.

All the above mentioned results demonstrate a need for availability management. However, only a small number of participants (6.4%) already had experiences with an availability management software, even though the corresponding examples given by participants do not really comply with the description of the actual SAA. Given examples range from webmail and calendaring services (e.g., Microsoft Outlook, IBM Notes) over instant messengers (e.g., Skype, Jabber) to simple flight mode settings on technical devices. Analyzing the participants' preferences towards potential functions of a SAA, the general tendency reflects the results of the previously conducted qualitative study. Accordingly, the introduction of certain default modes was mainly supported. In detail, most participants considered the following settings to be useful: the user can only be contacted in an emergency (76.9%), the user can only be contacted by a specific group of people or topic of issue (73.9%), the user can only be contacted by text message (71.2%), the user is not available at all (62.3%), or the user can only be contacted by phone call (49.1%). Furthermore, many participants (60.8%) consider it useful for the assistant to make suggestions for a change of the user's current availability setting. However, considerably fewer participants would like the assistant to independently change user's availability settings by simply informing the user by message (44.2%). In case a message gets delayed or a phone call gets blocked, participants predominantly consider it useful that the assistant informs the sender about when the user can be reached again (87.1%), how the user can be reached alternatively (61.3%), and why the user is not available in the first place (59.8%). In this context, most participants do not differentiate between the specific groups of senders: the notification about the user's unavailability is considered useful similarly for the employer or supervisor (76%), colleagues (67.4%), and customers (70.7%). Throughout the group of participants, there is no clear consensus from which time delay on the sender of a delayed message should be informed about that particular delay. However, slightly more participants indicated that senders should be informed about every delay (23.8%) or about a delay of at least 30 minutes (20.4%) during working hours. Regardless of the user's current availability setting, participants want the SAA to let through private emergency calls (81.9%) as well as work-related emergency calls (70.7%), albeit with less support. Moreover, most participants (73.4%) consider it useful to be able to rate the decisions of the assistant so that it can learn from these evaluations and deduce enhanced future decisions. In contrast, only a narrow majority of the participants (54.1%) want the SAA to interpret the content of a message automatically in order to assess its urgency. The usage of a software to regulate

availability is considered useful or very useful by most participants (55.9%), while, in contrast, few participants (21.1%) consider it not useful. When asked how likely it is for the participant to personally use such a software, the tendencies are somewhat evenly distributed. A great number of participants indicated a high likelihood (36%) or a moderate likelihood (27.5%), while 36.5% of our participants show a low likelihood to actually use the availability assistant. Subsequently, participants that indicated a low likelihood were asked for their reasoning. The most frequently stated reasons are given in descending order: the lack of necessity for availability management in current professional context (60.3%), the personal belief that better availability management cannot be achieved by using a software (31.2%), the fear that such software could be abused (19.6%), the intention not to restrict the personal availability (17.4%), and lastly the expectation that the employer (9.8%), the customers (7.6%), or the colleagues (5%) would not tolerate a restriction on availability.

Data Analysis

We analyzed the data using R, version 3.5.1. Due to removing outliers, we had to exclude out nine observations, leading to a final sample size of N=812. The descriptive statistics indicate a clear tendency; slightly more than half of the participants (53.7%) rate the SAA as useful. In this context, we investigate potential factors that might influence the perceived usefulness rating. Accordingly, we used three categories of independent variables: demographic, work-related characteristics as well as availability behavior – in order to get a boarder picture of the possible influencing factors. By running traditional multiple linear regression (Aiken et al., 2003), we found some statistically significant associations (cf. table 1).

	β	SE	T	p
Intercept	2.8569	0.2239	12.759	< .0001 ***
Age	-0.0152	0.0052	-2.929	.0035 **
Male	0.0221	0.0886	0.249	.8031
Single	0.0602	0.1038	0.580	.5622
child care	-0.1517	0.1496	-1.014	.3109
elder care	0.0580	0.1358	0.427	.6695
SC	-0.2730	0.0873	-3.126	.0018 **
CCC	0.0543	0.0887	0.612	.5407
LR	0.1733	0.1021	1.697	.0900
HO	-0.0055	0.0926	-0.059	.9526
SCE	0.1037	0.1074	0.965	.3347
MBS	0.1967	0.0880	2.225	.0264 *
WFT	0.2678	0.1387	1.930	.0539
EFT	0.2186	0.1268	1.725	.0850
CFT	0.3507	0.1115	3.146	.0017 **
SNCCFT	0.1053	0.1077	0.978	.3284

Multiple R-squared: 0.0861; Adjusted R-squared: 0.0688; p-value < .0001

Signif. codes: *** p<.001; ** p<.01 * p<.05

Note: β = Estimated regression coefficient; SE = Estimate Standard Error; T = t-value; p = p-value; SC = Small company (50 employees or less), CCC = clear company culture, LR = leadership responsibility, HO = home office use, SCE = sizable need of communication exchange in job, MBS = Mismatch - boundary style, WFT = work in free time, EFT = emails in free time, CFT = calls in free time, SNCCFT = sizable number of critical contacts in free time.

Table 1. Multiple linear regression for perceived usefulness of SAA.

After that, we used stepwise regression and removed by the backward selection model some variables, table 2 describes the results. Moreover, to assess the relative importance of each variable better, we performed a dominance analysis (Budescu, 1993). This analysis has the advantage that it produces meaningful results even with correlated variables and reports intuitively comprehensible weights (general dominance weights) for each variable. Such a generality domain weight describes the proportion that a variable takes on the variance explanation of the entire model while the sum of all general dominance weights corresponds to the variance explanation of the model (Budescu, 1993, Azen and Budesco, 2003). As can be seen in Table 2 shows, general dominance weights were rather low for all variables, with age being given the highest importance, followed by company size and work-related calls received during the individual's free time.

	β	SE	T	P	GDW
Intercept	3.0960	0.1654	18.724	<.0001 ***	
Age	-0.0184	0.0038	-4.833	<.0001 ***	.0282
SC	-0.2785	0.0860	-3.240	.0012 **	.0127
LR	0.1990	0.09957	1.999	.0460 *	.0039
MBS	0.1990	0.0857	2.322	.0205 *	.0083
WFT	-0.2507	0.1363	-1.839	.0663	.0031
EFT	0.2230	0.1250	1.788	.0742	.0092
CFT	0.3844	0.1063	3.615	.0003 ***	.0169

Multiple R-squared: 0.08221; Adjusted R-squared: 0.07422; p-value < .0001

Signif. codes: *** p<.001; ** p<.01 * p<0.05

Note: β = Estimated regression coefficient; SE = Estimate Standard Error; T = t-value; P = p-value; GDW = general dominance weight of dominance analysis; SC = Small company (50 employees or less), LR = leadership responsibility, MBS = Mismatch - boundary style, WFT = work in free time, EFT = emails in free time, CFT = calls in free time.

Table 2. The stepwise regression and general dominance weight of dominance analysis

The empirical analysis of the data collected reveals that the essential factors driving the usage likelihood of SAA of our participants are age, size of the company, leadership level, mismatch between desired and actual boundary style and a number of work-related calls after hours. Gender, partnership status, parental status, and elderly care were non-significant. In addition, variables like company culture, home office use, communication exchange level, as well as an array of availability conditions were also non-significant. In our study, the usage likelihood of the SAA correlates highly with the age of knowledge workers ($p<.001$). The older the participant the lower the usage likelihood rating. These findings are in line with Czajas' Adoption of Technology Model, according to which user's decision to accept or reject new information systems strongly depends on the user's age (Czaja et al., 2006). Moreover, we found that some work-related characteristics like company size ($p<.01$) and leadership responsibility ($p<.05$) also have a statistically significant association with the usage likelihood of SAA. It became apparent that especially participants working in companies with more than 50 employees and those who have leadership responsibility are more likely to use the SAA. What is more, especially employees with a boundary style mismatch indicated a desire to use the SAA ($p<.05$).

Last but not least, regarding availability behavior conditions it became apparent that a number of work-related calls after hours has a high significant association with usage likelihood of SAA ($p<.001$). Thus, the more work-related calls participants receive during their spare time, the higher their usage likelihood. Equally notable is also that similar conditions like work time after hours or number of work-related emails after hours were non-significant. These findings are in line with results from our previous qualitative study (Saternus and Rost, 2018), where we found that in contrast to email or text messages, phone calls after hours are especially unwanted by participants. This was justified by the asynchronicity of the e-mail and text messaging channels and the high information density. Because a text message does not require an immediate response, the recipient has the freedom to decide whether and when she responds to such a message.

Summary and conclusions

Nowadays, ICTs allow individuals to remain more connected than ever before (Boswell and Olson-Buchanan, 2007; Nansen et al., 2010). Since ICT-enabled availability has both assets and liabilities for users any solution geared at alleviating damaging effects by restricting the availability bear simultaneously the risk of inhabiting preferred availability, they actually hinder employees to profit from its beneficial effects. In this context, the present study extends to the current academic knowledge and provides new insights into individuals' availability management and user preferences regarding the development of SAA.

On the one hand, our quantitative study shows an alarming reality that one in two knowledge worker does not achieve the individually desired availability - precisely 50.3% (413) of participants does not achieve the desired level of availability in the actual workplace. Moreover, in the extension of boundary theory (Kossek, 2016) our study results provide valuable insights into how employees abstract their individual boundary style and translate into availability preferences. The results clearly show that there is no fixed model regarding the attitudes towards the separation and integration of work and private life. Most of the participant desire either a complete separation 37.3% (306) or an interactive integration 35.7% (287) of work and private life. Individuals vary in their availability preferences regarding their life domain, context, and contact, meaning that the work and private life boundary is shaped through an individual's day-to-day decisions, needs, and obligations.

On the other hand, the results indicate that the technological solution that allows differentiated adaptive management has the potential to contribute to individuals' well-being. Practice indicates that actual employers do not respond adequately to the diverse needs of their employees since present solutions concentrate only on regulating the extent of availability. In this context, there is a need for a technological solution that will reflect the diversity and complexity of peoples' availability preferences. Under these circumstances, the SAA shows great potential in successfully managing and regulating individual availability, as it supports users' flexibility and autonomy. Specifically, the majority of study participants 55.9% (452) validate the underlying concept of the SAA by perceiving it as useful and declaring to eventually use it. Furthermore, our analysis demonstrates that this kind of assistant will support particularly employees with a mismatch between their actual and preferred boundary style; leadership responsibilities; from big companies and/or those who receive work-related calls during spare time. Differently, the results indicate that older employees are less likely to adopt this technology solution. It shows the need for more information and awareness regarding smart availability management, as well as training concepts for employees.

Potential limitations of this study relate the study participants, as well as the form of our questionnaire. First and foremost, the sample profile might not result in entirely universal conclusions; i.e. the study only considered knowledge workers in an organizational context. However, availability issues affect individuals from all backgrounds as well as the scope of a SAA could go far beyond such specific context. By the same token, most participants of the study live and work in Germany 85% (697), thus complicating international comparisons. Moreover, as is the case with most work-life and organizational behavior research, our study relies on cross-sectional, self-report data and is thus subject to common method variance (Podsakoff et al., 2003). In designing this study, we followed recommendations described by Conway and Lance (2010) to reduce the likelihood of common method variance biased results. Finally, the depth of the study's research questions resulted in an extensive and exhausting questionnaire: on average, participants completed the questionnaire in 20 to 30 minutes. Therefore, it is conceivable that with increasing processing time particularly the final questions received less attention so that, in the end, the results might be slightly distorted. Given these shortcomings, future research is invited to replicate and extend our study. So far the usage and preferences regarding SAA have been discussed only on a theoretical level. However, it would be useful to understand and closely measure what effects can actually be observed in practice using SAA, i.e. how much of the potential benefits can be realized, and to what extent the technical solution can help to solve availability issues. For this purpose, we suggest a long-term study to examine not only a snapshot but rather the evolution from before to after the introduction of the SAA. This type of study would be especially valuable, as it could evaluate an availability assistant that effectively supports employees in managing their availability in line with their individual preferences, by facilitating desired availability while inhibiting unsolicited availability and contributing to users' well-being.

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