Abstract

The consumerization of IT is gaining momentum. Employees bring their smartphones, notebooks and tablets into the workplace—and with these devices, a growing toolbox of applications. Google Apps, Skype, Dropbox and many others emerge, often pushing aside technologies provided by the IT department. In bypassing the IT department employees seize the power to decide which IT tool best fits their job need. In this study, we define and explicate the concept of IT empowerment, i.e., the level of authority an employee assumes in utilizing IT in order to control or improve aspects of his job, and test the resultant model in the context of IT consumerization. Surveying 529 employees, we find support for a multi-faceted construct, consisting of IT meaning, IT competency, IT self-determination and IT impact. We also find evidence that IT empowerment is a strong precursor for explaining the level of consumer IT usage within the organization.

Keywords: IT consumerization, empowerment, consumer IT
Introduction

Enterprise IT is witnessing increased competition from tools that traditionally have been developed for the consumer market. Among these are a diverse array of powerful consumer devices, including smartphones, iPads and notepad computers, along with application platforms, such as Yammer, Skype, Dropbox, Twitter, and Google Docs. Influenced by their personal experiences, employees adopt these tools and perceive them to be more useful, more up-to-date, easier to use and more enjoyable than the enterprise tools provided by the organization (e.g., Harris et al. 2012; Niehaves et al. 2012; Weiss and Leimeister 2012). In a study carried out in 2011, researchers found that 52% of employees worldwide were already harnessing the capabilities of consumer devices at least once during an ordinary work week (Harris et al. 2012); the same study revealed that the use of consumer applications is equally widespread (49%) at work (Harris et al., 2012).

In organizations, this shift towards consumer IT—referred to as “IT consumerization,” or the degree to which individuals deploy consumer tools in the workplace—presents management with both opportunities and challenges (e.g., D’Arcy 2011; Gens et al. 2011; Prete et al. 2011; Quaadgras and Mohammed 2011). Some IT executives embrace consumer IT; even encouraging employees to use their own IT with the expectation of increased productivity, innovation, and employee satisfaction (Harris et al. 2012). Others are in clear opposition, typically because of security and compliance reasons. Healthcare institutions, for example, often resist the idea of letting consumer IT onto their corporate networks, as the potential threat of violating HIPAA regulations (Health Insurance Portability and Accountability Act) is too high.

Security and compliance are not the only issues IT executives worry about. IT executives also are discovering that a shift in decision locus and, thereby, power is taking place (D’Arcy 2011). The individual user, traditionally viewed only as a consumer of technology, is becoming an active participant in the IT decision-making process. An employee who buys a smartphone and checks work email without the blessings of the IT department is equally at fault as an employee who utilizes one of many freely available, and non-sanctioned, Web applications for work. An employee does not have to be particularly tech-savvy to do so. Users are increasingly making decisions in a terrain that used to be the purview of the IT department.

With employees able and willing to bypass the IT department, a shift in IT decision-making is taking place—a amplified by the availability of consumer technologies in the market place. IT consumerization, willingly or not, has spurred the genesis of an IT revolution that gives employee an increased role in IT decision-making. Driven by both intrinsic motivation and by the plethora of consumer tools readily available, we propose that the influx of consumer IT has increased employees’ IT empowerment, defined as an employee’s tendency to appropriate authority for making one or more IT decisions as they relate to his or her job.

In this paper, we (a) conceptually develop the notion of IT empowerment, originally rooted in the context of participative management practices and employee involvement theories; and (b) create an IT empowerment model that explicates the usage of consumer technologies in organizations. Based on the results of testing the IT empowerment model via a sample of 529 full-time employees, we provide insights into the nature and impact of IT empowerment in today’s work environment.

Background

IT consumerization is still an amorphous term (Harris et al. 2012; Junglas and Harris 2013). It primarily describes the sanctioned or non-sanctioned use of consumer IT in the workplace. Mostly driven by personal experiences, employees are increasingly choosing tools that they have grown accustomed to in the personal context and applying them in work settings. Falling prices and worldwide distribution channels have made consumer technologies an accessible and affordable commodity across the globe. Employees can choose from a wide array of consumer devices on one hand, and consumer applications on the other.

This infiltration of consumer IT into the workplace gives rise to potential concerns. Sometimes referred to as a “bottom-up revolution” by the mass media (McLellan 2013), IT consumerization allows employees—tech savvy or not—to challenge decisions of the IT department. In the past, the revolution of the Personal
Computer in the mid 80s—was successfully contained by the entry of the IBM personal computer that put a halt to the movement by monopolizing the PC market and integrating PC computing with IBM’s more traditional IT offerings. Today, IT consumerization again challenges the authority of the IT department. The variety of devices is too broad and the availability of applications is too widespread for IT consumerization to be simply viewed as an isolated and temporary phenomenon. Nor is it geographically constrained; studies have shown (e.g., Junglas and Harris 2013) that the level of IT consumerization is steadily increasing at a global level. Worldwide—according to media reports—employees are feeling “empowered” by the omnipresence and promise of consumer IT (Schadler 2010).

The notion of empowerment is not new. In organizational behavior literature, theories of participative management emphasize the sharing of decision powers between employers and employees (Wagner 1994; Conger and Kanungo 1988; Wilkinson et al. 1997). Theories of employee involvement, similarly, advocate the sharing of information and incentives across all levels of the organizational hierarchy (Lawler and Mohrman 1989). Rooted in such theories, the empowerment of employees has gained significant attention among scholars as it is assumed to enhance organizational performance and work satisfaction (e.g., Liden and Arad 1996; Glick et al. 1986; Seibert et al. 2004; Zhang and Bartol 2010).

In its common usage, the verb “to empower” has multiple meanings. It might capture the notion of “giving official authority or legal power to”, or that of “enabling”, or “promoting the self-actualization or influence of” (Merriam-Webster 2013). It is therefore not surprising that management research has pointed out that psychological empowerment should be treated as a multi-faceted construct (e.g., Thomas and Velthouse 1990; Spreitzer 1995; 1996). Prior research has identified four cognitions that are contained in psychological empowerment: meaning, competence, self-determination, and impact (Conger and Kanungo 1988; Spreitzer 1995; Thomas and Velthouse 1990).

Competence comprises the notion of capability, or an individual’s belief in his set of skills to successfully perform his work (Spreitzer 1995; 1996; Bandura 1989). Self-determination captures “an individual’s sense of having choice in initiating and regulating actions” (p. 1443, Spreitzer 1995); it reflects autonomy and the extent to which an individual is driven to make changes to his work methods (Spreitzer 1995; 1996; Deci et al. 1989; Deci and Ryan 2000). Meaning captures the value an individual places on this or her work, as judged by the individual. In other words, it captures the meaningfulness of work (Spreitzer, 1995; 1996; Hackman and Oldham 1980; Rosso et al. 2010). And lastly, impact describes the extent to which an individual believes he can influence individual as well as organizational outcomes at work (Spreitzer 1995; 1996). All four cognitions are facets of empowerment, i.e., the lack of a single cognition will deflate—but not eliminate—the overall experience of empowerment (as shown by Spreitzer 1995; 1996). In that sense, “empowerment is the ‘gestalt’ of the four dimensions” (p. 57, Spreitzer 2008) and represents a dynamic multi-faceted composite.

With its four dimensions, psychological empowerment emphasizes an individual’s subjective experiences of empowerment. It relies on an individual’s own personal values, background experience and self-concepts as frames of reference in forming judgments about their work (Seibert et al. 2004). Psychological empowerment is described as an “ongoing ebb and flow of people’s perceptions about themselves in relation to their work... [it] is a continuous variable; people can be viewed as more or less empowered, rather than empowered or not empowered” (p. 1444, Spreitzer 1995).

Psychological empowerment has been shown to positively influence managerial effectiveness and innovative behaviors (Spreitzer 1995); it has also been shown to have an impact on work satisfaction, job-related strains, and job effectiveness (captured in the form of work-related performance measures, including performance standards, overall success, comparison to peers, and performance as a role model) (Spreitzer et al., 1997), employee turnover (Liu et al. 2011), organizational commitment (Borghei et al. 2010), creativity (Sun et al. 2012), and work place learning (Zahrani 2012). At the unit level, team empowerment has been shown to impact virtual team performance and to drive process improvement and customer satisfaction (Kirkman et al. 2004). Studies have also suggested that psychological empowerment is positively related to social structural antecedents (including low perceptions of role ambiguity, wide supervisory spans of control, sociopolitical support, access to information and resources, and a participative work unit climate) (Spreitzer 1996).
**IT Empowerment**

Our notion of IT empowerment is rooted in the theoretical underpinnings of psychological empowerment. While psychological empowerment takes into account an employee’s individual beliefs based upon cognitions about himself in relation to his work, IT empowerment extends the notion to consider the belief that an employee holds about his role in relation to his job and the technology available to get the job done. When experiencing IT empowerment, an employee wishes and feels able to shape his use of IT at work. While the concept of IT empowerment could apply in phenomenon other than consumerization, we specifically look at the context of an individual’s intrinsically assumed level of motivation in utilizing tools—such as consumer IT—in order to change, control, or improve aspects of his or her job.

IT empowerment is thus highly dependent upon the availability of IT in the workplace. Having a choice between systems provisioned by the IT department, and those available in the consumer market allows an individual to perceive that he has influence on the usage of the system that he perceives to be the best fit/benefit/match with the work task at hand. This aspect assumes that individuals have a choice, i.e., the use of a corporate technology is not mandated, but voluntary. Scholars have noted that even in a mandatory setting, usage can vary. An individual unwilling to comply with an organizational mandate might underutilize, obstruct or even sabotage the system (Hartwick and Barki 1994). As most technology acceptance models find their conceptual roots in the theory of reasoned action (Ajzen and Fishbein 1980), which was established to explain volitional behaviors (such as smoking or dieting), it is not surprising that the majority of IS adoption research has taken place in voluntary, rather than mandatory, settings (Brown et al. 2002). The opportunity of voluntarily adopting a technology, therefore, provides the foundation of IT empowerment to emerge. Without this flexibility in choosing the best tool to change, control, or improve aspects of his work, an individual cannot experience IT empowerment. It is the very existence of a tool choice that is vital in arousing IT empowerment.

IT empowerment is reflective of the same cognitive states as psychological empowerment. For example, in the state of IT empowerment, an individual experiences a heightened level of competence, which he believes to be an adequate, if not the best, arbiter in matching available technology to the task at hand. In the state of IT empowerment, an individual also experiences a heightened urge to try out, or to self determine, various technological alternatives so as to satisfy the task needs. Also, the individual experiences a heightened level of work meaning, simply by the fact that technology is able to provide instantaneous access, whenever and wherever necessary. And finally, in the state of IT empowerment, an individual also experiences a heightened belief that he is able to impact the outcomes at work when allowed to make his own technology decisions. In the following, we describe each component.

**IT Competence**

As part of psychological empowerment, competence describes “an individual’s belief in his or her capability to perform activities with skill” (p. 1443, Spreitzer 1995). It captures an individual’s judgment about his capability in relation to work, and also his desire to try out these capabilities. In essence, it describes an individual’s belief that he or she can mobilize the resources and actions required to get work done (Lee and Koh 2001).

Of essence is the understanding that competence refers to a work context. Self-efficacy, a very closely related concept, captures the more generic type of competence—one that is applicable to any situation, not just work (as specified by Conger and Kanungo 1988). Bandura, at the time (1986), described self-efficacy as an individual’s judgment of his or her capabilities to perform a particular behavior. Competence, on the other hand, is geared toward the work situation (Spreitzer 1995; 1996); it captures the perceived knowledge and skill that is necessary for getting it done, versus, for example, the actual knowledge and skill set that is measured as part of performance reviews.

Analogously, we define IT competence as an individual’s belief in his or her capability to deem a technology appropriate (or fitting) for his or her work. In other words, it captures an individual’s perceived skill set to evaluate a technology suitable for his work. As part of IT empowerment, IT competence captures an individual’s judgment of the interplay between technology and work. For example, believing that one is the best judge in determining which technology is most suitable to one’s
work context is reflective of IT competence; feeling in control to making this judgment call, as well as feeling comfortable doing so, are also evidence that an individual exhibits IT competence.

Analogously, the state of IT competence may be closely related to the trait of computer self-efficacy. Defined as “an individual’s perceptions of his or her ability to use computers in the accomplishment of a task” (p. 191, Compeau and Higgins 1995) or the “judgment of one’s capability to use a computer” (p. 192), it primarily captures an individual’s anticipated technological skill set when inexperienced with a particular software package. It has been effectively used to explain task performance by virtue of persistence, effort, goal commitment and computer anxiety—to name a few (for more information, see Marakas et al. 1998; 2007).

While related, IT competence, as defined in this research, differs from computer self-efficacy on at least three accounts. First, computer self-efficacy is more concerned with various contextual conditions (e.g., prior usage of similar software, presence of time, presence of an aide) and less about the constellation between task and technology. In contrast, IT competence is focused on the task at hand, the technology of choice, and the individual’s belief that he is the best arbiter to make this judgment call. Second, IT competence relies on experiences. An individual cannot make a judgment on which technology best suits the task without some prior understanding of both. And third, IT competence—in contrast to computer self-efficacy—has a power component; it captures the extent to which an individual, by virtue of utilizing a technology of choice, experiences a heightened level of control.

IT competence, as part of IT empowerment, is representative of an individual’s cognition that he has what it takes to judge—and feel comfortable doing so—the appropriate technology for the job. Without a sense of IT competence, an individual is unable to experience IT empowerment. We therefore hypothesize:

**H1a:** The level of IT competence an individual exhibits is reflective of IT empowerment.

**IT Self-Determination**

As part of psychological empowerment, self-determination describes “an individual’s sense of having choice in initiating and regulating actions” (p. 1443, Spreitzer 1995) and captures the extent to which an individual is able to see himself as the originator of his actions (Spreitzer et al. 1997; Shamir 1991). It captures an individual’s independence (or sovereignty) with regards to the initiation and continuation of work behaviors (Hackman and Oldham 1980; Deci and Ryan 2000) and shows itself in situations where an agent can (or must) make his own decisions in response to his work demands. It also shows itself in the level of autonomy one has to try out alternative options (Fatout 1995). For example, an individual can respond to a changing work demand by modifying his schedule, altering his work location or switching his resources. Alternatively, he might consider adopting one of several technologies available that best fit his work circumstances. In fact, recent research suggests that organizations are providing employees more and more autonomy in deciding not only how, but also when (or where) to accomplish assigned tasks (Hardwick and Salaff 2003). The use of mobile technologies or mobile applications plays a vital role in this context. The wide availability of mobile technologies, inside and outside the organization, at any point in time, allows an employee to choose between a plethora of tools, and experiment with each in order to gauge its effectiveness against his work content. This notion captures, what we term in the following as, IT self-determination. More specifically, it describes an individual’s belief that he has a choice in selecting and trying out new technologies.

While IT self-determination is primarily about having a choice, it is also about the possibility of exploration. An individual has to exhibit a heightened level of curiosity as well as a heightened level of persistency that allows him to compare and seek out the best technological alternative applicable. IT self-determination is reflective of an individual’s propensity to experiment with new technologies, but also how creative a person is in generating new solutions to work problems; it also captures how persistent or motivated a person is, as indicated, for example, by the amount of time he spends on sifting through information that helps him to generate new ideas. Apart from choice and creativity, IT self-determination therefore incorporates facets of the active perusal of various alternatives and its associated persistency.

Conceptually, one could argue that IT self-determination might be related to computer playfulness or personal innovativeness. Computer playfulness captures the “the degree of cognitive spontaneity in microcomputer interactions” (Webster and Martocchio 1992) and is measured by characterizing oneself by a list of adjectives when using technology. This list includes, for example, words like spontaneous,
flexible, inquisitive. Personal innovativeness, on the other hand, describes an individual’s “willingness [...] to try out any new information technology” (p. 206, Agarwal and Prasad 1998). Both concepts, while seemingly related, are sufficiently different from IT self-determination. Both capture traits, i.e., an individual’s innate characteristics. Unlike IT self-determination, which represents a cognitive state of mind that might change over time, the traits of personal innovativeness and computer playfulness are time-invariant.

As part of IT empowerment, IT self-determination is not only representative of an individual’s cognition that he has the autonomy to pursue technological alternatives but also the urge to do so. Without IT self-determination, an individual would believe he is simply following the orders of others—mostly that of the IT department—and has no sense of IT empowerment. We therefore hypothesize:

H1b: The level of IT self-determination an individual exhibits is reflective of IT empowerment.

IT Meaning

In psychological empowerment, meaning captures the value an individual places on his or her work (Spreitzer 1995; 1996). Its conceptual roots can be found in the research on job characteristics, which, for example, captures task meaningfulness as one of its central tenets (e.g., Hackman and Oldham 1976). While job characteristics measure objective aspects of work, psychological empowerment reflects on an individual’s psychological reactions to it. If an individual deems the meaning of his work to be high, it is typically viewed as the evaluative result based on given job characteristics (Kraimer et al. 1999). In that sense, meaningfulness can be used synonymously with “experienced meaningfulness” (Lee and Koh 2001) as it is less about job characteristics and more about the perceptions that are formed relative to job characteristics.

A big portion of today’s typical job characteristics involves the presence of technology. In fact, the field of IS focuses on the study of technology for work, and its various drivers and consequences. As pointed out by prior research, the existence of technology as part of one’s job influences a number of phenomena. For instance, the presence of technology can cause stress (Tarafdar et al. 2010) or provide a new means for innovation (Ahuja and Thatcher 2005).

In the work context, technology has the potential to either unearth or further the meaning of work for an individual; in other words, it provides an outlet for meaning to occur. A positive job meaning might be increased if the technology is capable of supporting an individual's heightened value of work. While technology is certainly not necessary for meaning to occur, and can even distract from it, its existence nevertheless has the ability to contribute to an individual’s experience of job meaning. In particular, the technologies that offer untethered and unconstrained access to information, whenever and wherever needed, allow employees to stay connected with their organizations at all times. Checking work emails before bed, for example, is one of the indicators that technology has bridged the private realm of individuals. Increasingly, employees find it difficult to switch off from work as the traditional work schedule is eroded by technology and connectivity. Consider individuals talking about their work on social and blog sites, thus proclaiming the value of their work to others; or the opportunity for an employee to seek out suitable apps that help them to get their work done. Such examples illustrate how technologies provide an outlet to evidence the meaning of work.

As part of IT empowerment, we therefore define IT meaning as an individual's value of utilizing IT to accomplish work goals, judged by an individual's in relation to his own ideals or standards. Without IT meaning, an individual is unable to experience IT empowerment. We therefore propose:

H1c: The level of IT meaning an individual exhibits is reflective of IT empowerment.

IT Impact

As part of psychological empowerment, impact describes “the degree to which an individual can influence strategic, administrative, or operating outcomes at work” (p. 1443, Spreitzer 1995). In other words, it describes an individual's belief of being able to make a difference at work – to leave a footprint behind. Impact assumes that employees have some control over their work and even over that of the organization (Ford and Fottler 1995; Benjamin and Scott-Morton 1992). Therefore, outcomes are twofold: they can either be of personal nature, or affect the organization as a whole. Individuals might either perceive
IT Empowerment

impact within their immediate vicinity (e.g., through comparing their own performance with that of their colleagues), or at the organizational level (e.g., by introducing a process change that is adopted throughout the organization). Also, it is possible to experience impact (and empowerment for that matter) even though the work content remains untouched at the organizational level.

The notion of impact reflects a break with past conceptualizations of work (Thomas and Velthouse 1990). Bureaucratic approaches leave no room for employees other than to comply with the strict controls and contingent rewards at work. Participative management, on the other hand, as well as employee involvement approaches opened a new paradigm in which emphasis is placed on the commitment to the task itself, which, in turn, has laid the foundation for an individual to experience impact.

IT impact describes the degree to which an individual perceives he can influence decision making about IT in his organization. IT impact assumes that technology—corporate or consumer IT—is available and can be utilized. The opportunity to select a technology is instrumental in the perception of the extent to which an individual can have an impact within the organization. With a sense of IT impact, an individual might perceive he can perform better or be able to do higher quality of work when provided the right tool set. Equally, an individual might perceive she is able to conduct more tasks in the same amount of time, thus contributing to an organization’s overall performance.

At the organizational level, an IT department can either hinder or support IT usage. By allowing the use of external IT, for example, an organization might embrace the idea of IT consumerization. In other instances, an organization might refuse to connect consumer IT to the corporate network, thus restricting IT only to that provisioned by the organization. At the operational level, employees might respond in kind. They may obey or reject the rules set forth by the organization. Some employees will choose to ignore those rules despite their awareness of them; in other cases, ignorance of those rules opens the door for trying out consumer IT.

As part of IT empowerment, IT impact is representative of the perceived difference an individual can make when allowed to use the technology of choice. Without IT impact, an individual is lacking a sense of progression toward a goal, and unable to experience IT empowerment. We therefore hypothesize:

**H1d**: The level of IT impact an individual exhibits is reflective of IT empowerment.

Like psychological empowerment, all four dimensions are viewed as separate components of IT empowerment. Each dimension adds a unique aspect to IT empowerment. An individual who experiences high levels of IT empowerment is expected to show evidence of high levels of IT competence, IT self-determination, IT meaningfulness, and IT impact. The following table illustrates and summarizes each IT empowerment facet.

<table>
<thead>
<tr>
<th>Psychological empowerment (as defined by Spreitzer 1995)</th>
<th>IT empowerment</th>
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<tr>
<td>Competence “an individual’s belief in his or her capability to perform activities with skill (Gist 1987)” (p. 1443)</td>
<td>An individual’s belief in his or her capability to deem a technology appropriate (or fitting) for his or her work.</td>
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<tr>
<td>Self-determination “an individual’s sense of having choice in initiating and regulating actions (Deci et al. 1989)” (p. 1443)</td>
<td>An individual’s belief that he has a choice in selecting and trying out new technologies.</td>
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<tr>
<td>Meaning “the value of a work goal or purpose, judged in relation to an individual’s own ideals or standards” (p. 1443)</td>
<td>An individual’s value of utilizing IT to accomplish work goals, judged by an individual’s in relation to his own ideals or standards.</td>
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<tr>
<td>Impact “the degree to which an individual can influence strategic, administrative, or operating outcomes at work” (p. 1443f)</td>
<td>The degree to which an individual perceives he can influence decision making about IT in his organization.</td>
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With “IT consumerization,” employees have been bringing in their own smartphones and tablets into the workplace and have been using applications that match, and often surpass, a wide spectrum of available corporate tools. The IT department is often bypassed in this decision process—so too are IT governance guidelines. The “individualization of IS”—as Baskerville (2011) refers to it—might soon become a reality, where individuals according to idiosyncratic needs and preferences are able and motivated to produce information products and/or services for themselves and others.

The notion of empowerment in the IS discipline has been addressed from a facilitative perspective, in line with the macro level focus placed on empowerment, as described earlier. Prior research has identified facilitating conditions that lead or support the development of empowerment. In one study, for example, information systems are viewed as facilitators that support decision-making, information access, communication, task automation as well as facilitation (Psonios et al. 2000), which in turn contribute to an employee’s empowerment. Another study followed the implementation of a corporate Intranet and showcased the emergence of empowerment and control among employees (Duane and Finnegan 2003). Yet another study found team empowerment climate to have a significant effect on an individual’s propensity to explore a new system’s features (Maruping and Magni 2012).

While this facilitation perspective is important, it differs significantly from the theoretical lens we have introduced in this paper. First, the facilitation lens does not capture empowerment as a psychological state or cognition, reflecting on an individual’s perceived level of empowerment. And second, it does not incorporate technology as part of this cognitive reflection. IT empowerment takes into account an employee’s belief based upon cognitions about himself in relation to his work as well as in relation to the technology that is available to him. In the state of heightened IT empowerment, an individual experiences a heightened level of IT meaning, IT competency, IT self-determination and IT impact. More specifically, an individual with a heightened perception of IT empowerment will have attributed a high value to technology as an expression of his work meaning; the same individual will also deem himself to be an adequate, if not the best, judge when matching available technology to the demands of his job; he will also experience a heightened urge to experiment with technological alternatives before making a decision; and also feel a heightened belief that he is able to change the outcomes at work when given the opportunity to make his own technology decisions.

Regardless of organizational mandates that might either prohibit or permit the use of tools outside the jurisdiction of the IT department, one can expect that an individual who experiences IT empowerment is more likely to make his own technology choices, given that viable alternatives exist. The market delivers those technological alternatives outside the IT department. Driven intrinsically and by the plethora of consumer tools readily available, an employee wishes—and feels able—to shape his or her work with the help of IT. He assumes—often gladly—authority for making an IT decision as it relates to his job. An employee’s heightened perception of his IT competence, IT self-determination, IT meaning, and IT impact, will foster his usage of consumer IT for work. A heightened state of IT empowerment is therefore positively related to an increased level of consumer IT usage that takes place within the organization.

H2: The level of perceived IT empowerment has a positive impact on the level of consumer IT usage within the organization.

Figure 1 depicts our resulting research model, incorporating IT empowerment as a new four-dimensional construct, and linking it to levels of consumer IT usage, or the usage of consumer IT for work purposes that takes place within the organization.
Research Method

The study was conducted as part of a comprehensive global research project on IT consumerization, designed to understand and study the breadth and depth of the phenomenon, its drivers, benefits and drawbacks, as well as strategies to manage it. As part of this comprehensive study, sponsored by the Accenture Institute for High Performance, we first conducted 47 in-depth phone interviews with business and IT executives representing a wide range of industries; we then surveyed over 4,000 full-time employees in organizations with more than 100 employees, from 16 different countries. To understand the executive perspectives, we also conducted a separate survey of more than 300 executives in four countries, including the US, the UK, France and India. While the model used in this study only uses a subsample, we as IS researchers had the unique opportunity to look at the IT consumerization phenomenon from a variety of angles: (1) from an user, or employee, perspective, (2) from an executive perspective, or those that make decisions about permitting (or prohibiting) consumer IT in the workplace, as well as (3) from a cross-cultural perspective. This comprehensive view allowed us to gain deep insights into the phenomenon and furthered the validity of our model.

A subsample of 529 employees, drawn from the exclusively English speaking countries in the data set, were used to minimize methodological (due to the survey’s use of different languages), cultural (due to different cultural values across countries) as well as economic disparities (due to a varying degrees of commercial and fiscal performance across countries). Researchers of prior studies in the psychological empowerment realm have also pointed out that using a non-managerial sample is crucial to ensure the robustness of results (Kraimer et al. 1999). Our sample contains an equal amount of employees from the US and Canada. Within each country, a sample of approximately 260 employees was randomly selected across a variety of industries (ranging from automotive to wholesale) and age groups (ranging from 21 to 80 years of age). All survey participants worked at companies with more than 100 employees (see demographic distribution in Table 2). In order to account for familiarity with technology, we measured each respondent’s average computer, laptop and smartphone usage per week, as reported in Table 2. Subsequent analyses found no sampling bias between the two countries.

<table>
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<th>Table 2. Country Demographics</th>
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<td><strong>Sample size</strong></td>
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<td>USA</td>
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<td><strong>Age</strong></td>
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<td>USA</td>
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<td>Canada</td>
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Measures of IT empowerment and consumer IT usage within the organization were developed as part of a rigorous scale development process, following the principles outlined by Moore and Benbasat (1991). Whenever possible, existing measures from prior studies were adopted; additional items were developed based on the interviews conducted. For example, IT empowerment was modeled as a second order latent construct, following the guidelines for psychological empowerment as specified, for example, by Spreitzer (1995; 1996), Kraimer et al. (1999) and Seibert et al. (2004) and adjusted for the IT consumerization context. It comprised four components: IT competence, IT self-determination, IT meaning, and IT impact. Initially, each component was measured by four to five items. However, due psychometric properties that were evaluated during a pilot test with 20 users (following Moore and Benbasat 1991), the number of items was reduced to three for each, using a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The level of consumer IT usage within the organization, in contrast, was measured on a scale ranging from never (1) to very often (5), following measures adopted from Harris et al. (2012) and Junglas and Harris (2013). Here, The resulting items are listed in the Appendix.

To control for an organization’s willingness or unwillingness to allow consumer IT to be used within the corporate firewalls, we captured the respective permission levels. More specifically, we captured if the usage of consumer IT was (a) prohibited, (b) tolerated (often due to an organization’s failure to provide official guidelines on the usage of consumer IT), or (c) permitted. Respondents that were unable to answer this question were eliminated from further analysis. The unit of analysis was the respective employee.

The final model was tested using SmartPLS (Ringle et al. 2005). PLS was favored over covariance-based SEM for several reasons. Among others, PLS is not contingent upon the normality of the data and its interval format, and it is deemed appropriate for testing theories in early stages of development (Fornell and Bookstein 1982).

**Measurement Model**

The strength of the measurement model was assessed through measures of convergent and discriminant validity. Convergent validity is typically evaluated through the composite reliability of the items and their variance extracted. In order for the shared variance between each question and the construct to exceed the error variance, the reliability score should be at least 0.7; acceptable levels for the variance extracted should be at least 0.5 (Fornell and Larcker 1981). Discriminant validity was assessed by examining cross-loadings and comparing the variance extracted against their correlations (Fornell and Larcker 1981).
As Tables 3 and 4 illustrate, all four first order constructs, i.e., IT competence, IT self-determination, IT meaning, and IT impact show sufficient convergent and discriminant validity; correlations between the four first order constructs range between 0.41 and 0.73; all composite reliabilities are greater than 0.8, and all Cronbach’s Alphas are above 0.7. For each of the constructs, the AVE is greater than their respective correlations, and cross-loadings indicate that items load on the respective construct that they are intended to measure. Furthermore, all four first order constructs load significantly on the second order construct; more specifically, IT competence shows a loading of 0.89, IT self-determination of 0.73, IT meaning of 0.75, and IT impact of 0.84 on IT empowerment.

Table 3. Measurement Model

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Loading</th>
<th>Average Variance Extracted (AVE)</th>
<th>Composite Reliability</th>
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</thead>
<tbody>
<tr>
<td>IT Competence</td>
<td>ITCompetence1</td>
<td>3.02</td>
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<td>.77</td>
<td>.66</td>
<td>.854</td>
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<td></td>
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<td></td>
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<td>1.00</td>
<td>.74</td>
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<tr>
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<td>1.01</td>
<td>.81</td>
<td>.61</td>
<td>.827</td>
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<tr>
<td></td>
<td>ITSelfDet2</td>
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<td>.84</td>
<td>.78</td>
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<tr>
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<td>.97</td>
<td>.77</td>
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<td>.67</td>
<td>.916</td>
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<td>1.16</td>
<td>.75</td>
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<td>IT Impact</td>
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<td>.91</td>
<td>.969</td>
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<tr>
<td></td>
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<td>3.24</td>
<td>1.01</td>
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<tr>
<td>Consumer IT Usage in the Organization</td>
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Table 4. Correlation Matrix

<table>
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<tr>
<th></th>
<th>IT Competence</th>
<th>IT Self-determination</th>
<th>IT Meaning</th>
<th>IT Impact</th>
<th>Consumer IT Usage</th>
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<tr>
<td>IT Competence</td>
<td>.81</td>
<td></td>
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<td></td>
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<td>IT Self-determination</td>
<td>.56</td>
<td>.78</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>IT Meaning</td>
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<td>.51</td>
<td>.82</td>
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<td></td>
</tr>
<tr>
<td>IT Impact</td>
<td>.73</td>
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<td>.46</td>
<td>.95</td>
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</tr>
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<td>Consumer IT Usage</td>
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<td>.52</td>
<td>.79</td>
<td>.46</td>
<td>.88</td>
</tr>
</tbody>
</table>

*The diagonal contains the square root of the Average Variance Extracted (AVE)*
**Structural Model**

With an adequate measurement model in place, the hypotheses were tested using the structural model. The variance explained for an individual's usage of consumer IT in the workplace is 55 percent. Significance of path coefficients was determined by the bootstrapping method. The path coefficient between IT empowerment and IT consumerization was deemed significant with a value of 0.74 (t=14.19). Figure 2 depicts the structural model for the overall data set.

![Overall Structural Model](image)

Figure 2. Overall Structural Model

In order to account for the fact that enterprise IT usage might be mandated by the organization, we categorized respondents into three groups: (a) employees whose company prohibited using consumer IT in the workplace, (b) employees whose company tolerated the use of consumer IT in the workplace, and (c) employees who were permitted to use consumer IT in the workplace. We compared the three structural models and ran a multi-group analysis in order to identify if significant differences exist between the path coefficients in one model when compared with another. The assumption, or null hypothesis, in a multi-group analysis is that both groups stem from the same population, i.e., path coefficient of sample n equals the path coefficient of sample m. The primary approach for group comparisons is a t-test, calculated by the following statistic (Keil et al. 2000; Henseler et al. 2009; Chin and Dibbern 2008; 2010; Qureshi and Compeau 2009):

\[
t = \frac{\text{path}_n - \text{path}_m}{\sqrt{\left(\frac{m-1}{m+n-2}\times SE_n^2\right) + \left(\frac{n-1}{m+n-2}\times SE_m^2\right)}}\sqrt{\frac{1}{m} + \frac{1}{n}}
\]

with m+n-2 degrees of freedom, m indicating the size of group sample m, and n denoting the size of groups sample n. The standard errors are calculated based on separate bootstrap analysis for each of the groups. Figure 3 shows the structural results for each group.
The statistical result of the multi-group analysis indicates that, while each is significant, the three groups differ from one another in their predictive power of the path coefficient. More specifically, differences exist between the permitted and prohibited group (t=55, p<.05), between the permitted and tolerated group (t=318, p<.05), and the prohibited and tolerated group (t=336, p<.05) in the IT empowerment model.
Discussion

We set out to develop IT empowerment as a new and unique psychological concept for the IS domain. Our ambition was to identify and shed light on its four dimensions, their theoretical underpinnings and their delineation from other, somewhat related, IS concepts. As part of an overarching model, our intention was also to showcase its effect on the level of consumer IT usage that takes place within the organization.

Numerous conclusions can be drawn from this study. First, the concept of IT empowerment has found empirical support. Its four dimensions, including IT competency, IT self-determination, IT meaning and IT impact, have shown to be fundamental facets that additively describe what it means for an individual to experience (psychological) IT empowerment.

Second, IT empowerment has been found to be a solid predictor of consumer IT usage within organizations. By doing so, it showcases its significant contribution as a driver that stands behind the IT consumerization phenomenon. It also indicates a shift in power from the IT department toward the individual in order to make and implement his or her own IT decisions. As Clutterbuck (1994) pointed out: “Empowerment is, in essence, the transfer of power within organizations from top management to middle management and so on, all the way to the front line employees” (p. 12). IT empowerment is no different; employees, given the choice between corporate and consumer IT, are motivated to assume a greater level of authority over their work and the technology that is needed to perform this work.

Third, IT empowerment, as a construct, holds valid for a variety of organizational mandates relating to consumer IT usage. In companies, where the usage of consumer IT is allowed, the IT empowerment model holds steady—likewise for organizations that only tolerate consumer IT, or even prohibit its usage. Its robustness across the various settings might indicate that a distinction between voluntary and mandatory usage in organizations could be waning in importance in the context of IT consumerization. In many organizations, employees, irrespective of the mandate, choose and use consumer IT to improve their work. It almost seems that the perceived state of IT empowerment overwrites any organizational restrictions that may or may not exist. Strengthening corporate usage policies therefore might not have a visible effect, particularly if enforcement is perceived as weak. This aspect is underlined by the fact, that the IT empowerment model yields the most explanatory power for companies in which consumer IT is tolerated. An employee may perceive that consumer IT is “tolerated” if he unaware of any organizational mandate, either due to a lack of information, but more likely because the organization has yet to produce a set or rules that govern the usage of consumer IT. (Note that unawareness is different from ignoring a mandate. In the case of ignoring a mandate, an employee knows about the content of the mandate and deliberately choses to ignore it.) In this “grey zone,” IT empowerment seems to be particularly strong in explaining consumer IT usage levels. In contrast, for situations in which the usage of consumer IT is permitted or prohibited, IT empowerment has less, yet still significant, impact on the level of consumer IT usage that takes place within the organization.

Overall, employees can no longer be viewed only as passive consumers of technology. They voluntarily accept responsibility in deciding which tech tool best fits their job needs, and by doing so, shift some of the fundamental tenets of IT governance. Companies have to wonder how to best address a new form of IT governance—one in which experimenting with ways to nurture and channel employees’ energy and enthusiasm for consumer technologies might take precedence. Some companies might even decide to use consumer IT as an incentive tool. One organization we interviewed, for example, provided its employees with an IT allowance, or a stipend they could use for IT related purchases throughout the year. For this to work, a company must either pursue an open consumer IT policy, or keep a current list of acceptable technologies.

In the future, an employee might not only feel empowered through IT, but also might be a producer of technology—as predicted by Baskerville (2011), for example. In Marketing, the notion of a “prosumer” has been used for some time (e.g., Toffler, 1980; Xie et al., 2008), a term that combines the words “producer” and “consumer.” More specifically, it describes a person whose inputs of time, effort and skills are viewed “as value creation activities undertaken by the consumer that result in the production of products they eventually consume and that become their consumption experience” (p. 110). An “IT prosumer” might therefore not only be able to choose from an array of IT tools, but also be able to shape them in a way
needed for work; it might even become part of his job description, making himself as well as his company more competitive. Ultimately, IT consumerization might be able to instill a culture of innovation.

Future research should therefore examine IT empowerment within a broader context of variables, particularly in the context of innovative behaviors that capture an individual's tendency to utilize technology for novel purposes. Some scholars have conceptualized the notion of “trying to innovate” (Bagozzi and Warshaw 1990; Ciborra 1992; Ahuja and Thatcher 2005; Xie et al. 2008), which captures an individual’s actions in actively pursuing and exploring a technological component that may or may not yield a successful outcome. In the process of trying to innovate, “individuals identify successful applications of IT that may optimize task performance or organizational processes” (p. 429, Ahuja and Thatcher 2005). Thus, we would speculate that IT empowerment has an impact on an individual’s tendency to use consumer technologies when trying to innovate.

Furthermore, future studies should look at the relationship between consumer IT usage and IT empowerment more closely by segmenting phases of pre- and post-adoption. A longitudinal examination of the various facets at work might instill a better understanding about the fluidity of the IT empowerment construct.

**Conclusion**

IT empowerment is central in explaining the level of consumer IT usage behavior currently taking place. Falling device prices, a blossoming plethora of consumer applications, ubiquitous connectivity levels, and an increased level of tech-saviness and tech experiences make it possible to turn an ordinary employee into an individual IT decision-maker. Technologically empowering employees by virtue of their perceived technological competence and self-determination, the meaning they place on technology and the impact their technology choice has on their job will allow organizations to better harness the benefits that the IT consumerization phenomenon has to offer.

**Appendix**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Competence</td>
<td>ITCompetence1</td>
<td>I am the best judge of what technology to use for work</td>
</tr>
<tr>
<td></td>
<td>ITCompetence2</td>
<td>I would feel comfortable making my own technology choices for work</td>
</tr>
<tr>
<td></td>
<td>ITCompetence3</td>
<td>If I were allowed to use my personal IT, I would feel more in control</td>
</tr>
<tr>
<td>IT Self-determination</td>
<td>ITSelfDet1</td>
<td>I like to experiment with new technologies</td>
</tr>
<tr>
<td></td>
<td>ITSelfDet2</td>
<td>I often come up with creative solutions to problems</td>
</tr>
<tr>
<td></td>
<td>ITSelfDet3</td>
<td>At work, I spend considerable time sifting through information that helps me to generate new ideas</td>
</tr>
<tr>
<td>IT Meaning</td>
<td>ITMeaning1</td>
<td>I check my work email before I go to bed</td>
</tr>
<tr>
<td></td>
<td>ITMeaning2</td>
<td>I talk about my work on blog and social sites</td>
</tr>
<tr>
<td></td>
<td>ITMeaning3</td>
<td>I spend time looking for suitable applications that make me better at my work</td>
</tr>
<tr>
<td>IT Impact</td>
<td>ITImpact1</td>
<td>If I were allowed to use my personal IT, I would be able to do higher quality of work</td>
</tr>
<tr>
<td></td>
<td>ITImpact2</td>
<td>If I were allowed to use my personal IT, I would make a bigger contribution to my organization’s success and performance</td>
</tr>
<tr>
<td>ITImpact3</td>
<td>If I were allowed to use my personal IT, I would complete more tasks on time</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Consumer IT Usage within the Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITConsumer1</td>
<td>I use my personal consumer applications for work related activities</td>
<td></td>
</tr>
<tr>
<td>ITConsumer2</td>
<td>I use my personal consumer devices for work related activities</td>
<td></td>
</tr>
<tr>
<td>ITConsumer3</td>
<td>I use non-work related applications to find the information that I need for my work</td>
<td></td>
</tr>
</tbody>
</table>

**References**


