IT Consumerization and New IT Practices: Discriminating, Firefighting and Innovating

Full Paper

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Abstract

This paper investigates the impact of IT consumerization on the internal IT department faced with managing it. IT consumerization is employees wanting to use their consumer devices (e.g., iPads, iPhone, SurfacePros) and applications (e.g., iCloud, LinkedIn) for work purposes. Using case studies of organizations in three different stages of consumerizing the workplace, the study highlights the different practices that internal IT departments deploy in each stage. In the conversion stage IT departments discriminate; in the use stage they firefight; and in the competitive stage they innovate. The study offers implications to the IT literature, much of which focuses on a top-down approach to IT implementation. In contrast, our study takes a bottom up approach where end-users introduce new technology to the organization. This bottom up approach likely explains some IT practices uncovered in this research like internal IT departments getting out of the support business, testing less and embracing failure.

Keywords

Consumerization, BYOD, IT department, Innovation.

Introduction

IT consumerization encompasses the phenomenon of employees expecting to use consumer devices and tools for work purposes (Harris et al. 2012). These consumer devices and tools may include various smartphones and tablets as well as social media and cloud storage applications. Given that both employees and their supervisors are demanding to use consumer devices at work, more and more organizations are consumerizing the workplaces. Gartner predicts that by 2018 at least 25% of large organizations will have an explicit strategy toward IT consumerization (Gartner 2015).

Embracing IT consumerization requires tremendous organizational and IT department efforts (Niehaves et al. 2012; Harris et al. 2012; Bernnat et al. 2010). For example, organizations have had to develop

strategies to cope with the direct and indirect effects of consumerization on IT business value, IT capabilities and the IT function (Köffer et al. 2015b). Practitioners also highlight the governance challenges that consumerization imposes on IT departments (Raj et al. 2013). More importantly, IT consumerization will have far-reaching consequences on IT departments that have historically valued control, security, standardization and support (Koch et al. 2014).

To add insight into how IT departments manage IT consumerization, we investigate consumerization's impacts on internal IT departments (hereinafter IT) faced with managing it. Historically, IT has met the strict cost reduction and efficiency standards that management places on it by limiting the technology employees can use (Bernnat et al. 2010; Koch et al. 2014). Embracing consumerization forces IT to build the infrastructure and platforms to support a consumerized workplace and approve the various applications and tools that end-users introduce (Bernnat et al. 2010; Castro-Leon 2014). Statistics show that empowering end-users to select their own technology tools and applications raises IT management costs (Healey 2012). Introducing technology choice is likely to have far reaching consequences on IT. To better understand consumerization's impacts on IT, this study seeks to answer the following question: *how does embracing IT consumerization impact the practices of internal IT departments faced with managing it?*

The paper proceeds as follows. The next section introduces process theory and a stage model to help us understand the process of creating a consumerized workplace. The methodology section describes our three cases. The findings section uses the stage model to frame our findings. We conclude our paper by highlighting its theoretical and practical implications.

Theoretical Background

In order to study the impacts of consumerization on IT practices, we draw upon process theory (Soh and Markus 1995). Soh and Markus developed process theory in their study of IT business value. Process theory explains how IT initiatives create business value in a series of phases or stages. There are three stages linking IT initiatives to business value: IT conversion, IT use and the competitive stage (see Figure 1). The outcomes of each stage serve as the starting condition of the next stage. The actions and decisions taken in the IT conversion stage impact the success of the IT use stage, which in turn serves as the input to the competitive stage. These three stages together account for the process of creating business value from IT initiatives (Soh and Markus 1995).
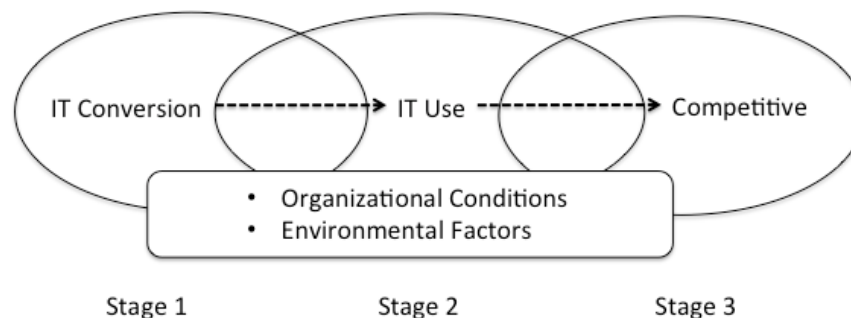
Figure 1. Stages of IT Consumerization (adapted from Soh and Markus 1995)

This stage model fits well with our research question because an organization's efforts to consumerize the workplace are likely to occur in stages and each stage will have different impacts on IT practices (Koch et al. 2014; Carter and Petter 2015; Stagliano et al. 2013). The *IT conversion* stage refers to when an organization begins replacing its existing technology with new technology. For example, conversion occurred when organizations began phasing out corporate-issued Blackberries and allowing employees to use iPhones. In the *IT use* stage, employees begin using the technology and the IT department is faced with supporting this use. This might involve IT maintaining the necessary infrastructure and applications so that employees can use their consumer devices (Bernnat et al. 2010; Stagliano et al. 2013). During the *competitive* stage the organization and IT begin thinking about how they can use the technology to gain a competitive advantage or achieve business value. Research suggests that consumerization may impact

employee productivity and organizational innovation but we know little about how this happens (Köffer et al. 2014; Köffer et al. 2015a). Collectively, this stage model provides a framework to understand how consumerization could impact IT practices over time as organizations progress through each stage of the model.

In process theory, organizational and environmental conditions also impact each stage's outcomes (Soh and Markus 1995). Organizational conditions may involve employee expectations, employee skills and knowledge and senior management support (Soh and Markus 1995). For example, an educated workforce will likely develop technology skills in the spare time and then use these skills at work (Köffer et al. 2015a). On the other hand, environmental conditions reflect external factors such as changes in industry competition, regulations and economy (Soh and Markus 1995). In the consumerization arena an environmental condition might be the constant wave of new consumer technology (Gartner 2015) or laws remunerating employees for using consumer devices during their personal time (Stagliano et al. 2013). Hence, drawing upon process theory allows us to study IT practices with consideration of the organizational and environmental context that influences the outcomes of these practices.

To summarize, the stage model of process theory provides an appropriate framework to guide our study of consumerization's impacts on IT practices. The next section describes our selection of organizations in three different stages – i.e., IT conversion, IT use and the competitive – of implementing consumerization.

Method

To understand how allowing employees to use consumer devices and tools at work impacts IT practices, we conducted case studies at three different companies: CompanyA, CompanyB and CompanyC. We chose these companies because they were in different stages of adopting IT consumerization. CompanyA just started allowing employees to use consumer devices and tools at work. CompanyB was building corporate infrastructure to support and encourage employees to use consumer tools at work. IT consumerization had become the norm at CompanyC. Employees had been using consumer tools since 2009.

Each company is a Fortune 500 organization with a large internal IT department responsible for supporting operations including IT infrastructure, application development and end-user support. CompanyA is a supply chain company with nearly $50 billion dollars in annual sales. It delivers groceries, fast food and liquor to convenience stores, mass merchants and restaurants. CompanyB ranks in the Fortune 100's top-tier. Its business is finding and producing oil and natural gas. CompanyC is one of the largest professional services organizations in the world. Its primary services include assurance, tax advisory and financial advisory.

CompanyA is in the early conversion stage of its IT consumerization journey. It has updated its' BYOD policy to allow selected employees to use consumer devices for work. CompanyA purchases senior management and on-call IT employees iPhones, pays their monthly bill and allows them to use iPhone for personal as well as business use. Since CompanyA's IT department is still determining how to manage and support BYOD, it does not advertise that it will allow employees to purchase devices and connect to the organization's network. CompanyA has developed one mobile application for expense reports.

CompanyB is in the use stage. It began implementing consumer devices in January 2013 as part of efforts to promote company-wide innovation. CompanyB has revised its technology policies and updated its infrastructure to support mobility. Employees can either request a company-owned mobile device or receive a stipend for using their own consumer devices at work. CompanyB currently supports iOS devices and plans on supporting any and all consumer devices in the near future. CompanyB has created a mobility team. It is crowdsourcing application development ideas and has a list of employee-recommended applications. CompanyC is in the competitive stage, employees have been using consumer devices at work since 2009. CompanyC provides employees consumer devices and develops applications that run on the devices. Table 1 further describes the three cases and compares their consumerization stages.

	CompanyA	CompanyB	CompanyC
Stage	*Conversion*	*Use*	*Competitive*
Stage	Determining how to	Aggressively pursuing IT	Fully implemented, has

Description	manage IT consumerization	consumerization	embraced IT consumerization since 2009
Bring Your Own Device (BYOD) Policy	Purchased devices for executives and on-call employees, just revised the bring your own device policy so that employees could use consumer devices and tools at work	Exempt employee can choose between the company purchasing their devices and owning their own devices with reimbursement	Employees can choose from an ever expanding list of company-owned devices
Infrastructure	Has not updated infrastructure to support all employees using mobile devices	In the process of upgrading IT infrastructure to support mobility	Up to date infrastructure
Applications	Implemented 1 mobile expense application	Crowdsourcing mobile application development ideas and recommended applications	Embraced agile development and developing mobile applications

Table 1: Cases and Three Stages in the Consumerization Journey

Data Collection and Analysis

We gained access to these organizations through our university advisory board relationships. Once the initial contact at each organization approved the study, the contact arranged interviews with the IT professionals that were involved with each organization's IT consumerization strategy. We conducted most of the CompanyA and CompanyB interviews face-to-face in IT department conference rooms at each organization's headquarters. Because CompanyC's IT employees are dispersed globally and frequently travel, we conducted these interviews over the phone. Data collection began in February 2013 and included semi-structured interviews, unstructured interviews and observations. We conducted our most recent interviews and field visits in February 2016.

Table 2 provides interview details. Most interviews lasted about 1 hour. Thirty interviews were semi-structured, tape-recorded and transcribed. So that the interviewees could prepare for the interview, we provided an executive summary and interview guide in advance. Interview guide questions dealt with the interviewee's role supporting consumer devices, how IT consumerization has changed the IT department's policies and procedures, and IT consumerization success stories and challenges. We tailored the interview questions, which were open-ended and exploratory, to each IT professional's role. We wrote extensive field notes describing our other unstructured interviews and interactions with the interviewees.

Organization	Interviewee Job Title	
CompanyA	• Chief Financial Officer (3 interviews) • Vice President of Information Systems (2 interviews) • Information Security Manager • Help Desk Associate • Special Operations Specialist (2)	• Enterprise Developer/Architect • Director, Security and Telecom • Application System Manager • Special Operations Analyst • Special Operations Director
	• Director, Client Computing • Director, Application Development • Supervisor, ADS Architecture COE	• IT Planning Coordinator • Business Analyst (2) • Mobility Supervisor

CompanyB	• IT Knowledge Management Analyst • Associate Business Analyst • IT Security Intern • IT Security Analyst	• Infrastructure Architect • Manager, IT Infrastructure and Operations • Recruiting Coordinator • Business Analyst-Drilling
CompanyC	• National Technology Director • ITS Application Development • Information Technology Services	• Application Development (2) • Information Security Manager

Table 2. Semi-structured Interview Details

To analyze our data, we followed a three-stage process consisting of open coding, selective coding and theoretical coding (Urquhart 2013; Corbin and Strauss 2008). Our open coding involved reading our data and assigning a code to each line of text. Using QSR NVIVO 11 allowed us to organize our data and visualize the emerging open codes. This visualization showed many codes describing how consumerization impacts IT department practices. We conducted selective coding by grouping our open codes into higher-level categories describing the IT departments' new practices. These include discriminating, firefighting and innovating. After iterating between our data and the literature we determined that process theory would provide an appropriate theoretical framework. Using theory in this stage allowed us to create an initial theoretical framework that informed our initial coding categories and considered previous knowledge from the literature (Klein and Myers 1999). Specifically, our theoretical framework explained that organizations go through implementation stages. These different stages became the main categories around which we further coded (Charmaz 1983).

Findings: IT Consumerization Creates 3 Stages of New IT Practices

The paragraphs that follow show that embracing consumerization has far reaching consequences on the daily work practices of IT departments responsible for managing the organization's technology. IT consumerization's impact differs depending on where the company is in its IT consumerization journey. Each company was in a different stage. Table 3 below shows that in the conversion stage IT departments discriminate. As more employees begin using consumer tools, IT departments firefight. Finally, once IT departments get a handle on consumerization they innovate. The paragraphs that follow discuss each stage.

Conversion Stage: Discriminating	Use Stage: Firefighting	Competitive Stage: Innovating
CompanyA	*CompanyB*	*CompanyC*
• *Employee type:* IT limited the use of consumer devices in the workplace to certain types of employees • *Ownership type:* IT provided support to only company-owned devices • *Device type:* IT only allowed employees to use approved iOS devices with certain versions • *Application development:* IT chose to develop applications only for Apple	• *Speeding up:* 1) IT disbanded some cumbersome project approval processes; 2) IT reduced the device provisioning process by letting users set up devices; 3) IT sped up applicant development by conditionally eliminating project approval processes • *Scrambling:* IT had to deal with consumer vendors differently than traditional enterprise IT vendors • *Embracing uncertainty:* IT encouraged its employees to test less and try new things	• *Focusing:* IT focused on innovation via delegating hardware and support issues to end-users and vendors • *User-experience:* 1) IT began thinking about design first and functionality second; 2) IT disbanded tools that built applications automatically without considering application appearance; 3) IT began collaborating with artists and musicians to imagine user experience. • *Developing killer apps:* IT developed apps that created significant business value

Table 3: IT Consumerization's Impact on IT Department Practices

Conversion Stage: Discriminating

CompanyA was in the conversion stage of IT consumerization. It was just converting from a restrictive BYOD policy where employees could not use mobile devices to allowing employees to use the devices. Unfortunately, while the new BYOD policy was in place, the IT infrastructure was not. Therefore, to get a handle on IT consumerization, CompanyA's IT employees adopted discrimination practices. IT made consumerization support decisions favoring certain types of employee types, ownership, devices and applications. By practicing discrimination, CompanyA's IT obtained a buffer period where it could pilot platforms, devices and applications with a small user group. The following paragraphs discuss CompanyA's discrimination practices.

At CompanyA, IT didn't advertise that you could use consumer devices and rather allowed executives to use them on a case-by-case basis. "*Once you reach a certain level – again, it's not 100 percent – but the majority of the managers and higher ups have an ability to go to the portal and shop for a device.*" Additionally, this discrimination permeates employee level. Only certain *employees* could use mobile devices in the workplace, as illustrated by the following quote from Vice President of Information Systems at CompanyA:

> "*So we're only going strictly with salaried employees. They have to get manager's approval and they also have to have the IT VP's approval. So we kind of have to have two approvals just to make sure everything is kosher, there. And I think the managers look for: okay, is there really a use for it? Do they have a need for it?*"

The employee type discrimination permeated into device ownership discrimination. CompanyA adopted device ownership discrimination to control device support costs by not supporting employee-owned mobile devices. IT monitors and controls how employees use company-issued mobile devices. For example, IT staff provided services to employee with company-owned devices. IT "*sent notes to users who are starting to reach the capacity of their data plan," "set-up international plans for employees traveling abroad,*" and "*put employees on an unlimited text plan instead of a metered plan if their use of text messages creep up.*" Regarding to employee-owned mobile devices, the director of telecom procurement and network security stated: "*We don't really care what they do with it.*" He went on to say that the company benefits from employee-owned devices because it does not have to pay for or support these devices but still get the benefit of the employee using the device for work.

Unfortunately, the plethora of *different devices* (e.g., Apple, Android) that employees wanted to use created challenges for CompanyA's IT department. IT was faced with device level challenges such as multi-platform device support, network connectivity for various devices, and device and usage monitoring. In our case, CompanyA went through a rough patch in its early period of BYOD, struggling with questions about which development platforms and devices to support. To cope, CompanyA began discriminating based on devices and development platforms. In the quote below, CompanyA's security manager mentioned that IT only piloted iOS devices and only allowed employees to use approved device versions.

> "*Android is not secured. Android is all open source and there are, I think last year, I want to say there was like 75,000 malwares, and iOS had one last year. So we decided to pilot with iOS devices only……So we said it had to be IOS version 5 or higher, and now, eventually, we're going to move it to 6. So if you have anything older, you can't use it.*"

Despite the device type discrimination, increasing numbers of employees began using mobile devices and demanding that the IT department build *applications* for their mobile devices. The challenge was that each device type had a different development platform, since CompanyA only supported iOS devices it decided to only develop for iOS. CompanyA's mobility manager comments, "*We design for Apple first and then everything else second because right now, we don't support everything else so there's no incentive to do that.*" Additionally, from an IT perspective, IT departments like consistency. Thus, the choice to develop applications only for Apple was an easy one to make for CompanyA because Apple devices are more consistent and easier to support than other platforms such as Android. As can be shown by the following quote:

So the reason we went with Apple was because they were a lot more mature in several areas of mobility that we can manage them better, not great but better. Android is completely fragmented all over the map in terms of what people have so you have different versions of Android and then you have different manufacturers. You have HTC, Samsung, Motorola, whatever, and then you have all the different carriers. So between those three combinations you never know what you are gonna get. And there's just no consistency.

Use Stage: Firefighting

CompanyB's internal IT department was in firefighting mode. IT had to speed up, scramble and embrace uncertainty. This occurred because CompanyB's IT department empowered end-users to use consumer devices. IT abolished policing practices, encouraged choice and promoted end-user support. IT stopped ensuring that end-users were only using standard, company-issued technology and regularly scanning technology to remove unauthorized applications. IT now empowered end-users to choose their own technology, deploy useful applications and work directly with technology vendors. IT built end-users internal technology shopping portals and crowdsourced application suggestions for its' internal application store. These stores included both company-built and externally available applications and provided employees a place to shop for applications that would help them perform their job.

IT promoted end-user support by developing knowledge sharing communities and encouraging user-vendor interaction. CompanyB's IT department leveraged the company's longstanding knowledge sharing communities to build a consumer technology network of excellence. On this network, end-users could post consumer technology problems and seek solutions from peers. In cases where the network couldn't solve the problem, IT encouraged its end-users to bypass the help desk and work directly with consumer technology vendors.

As a result of this direct interaction with consumer technology vendors, end-users began expecting IT to deliver like consumer technology companies. IT had to *speed up* its processes for project approval, device provisioning, and application development. At CompanyB, management disbanded some cumbersome project approval processes to launch its consumerization initiative. In fact, CompanyB's CIO plead with the executive team to "take a leap of faith" when the necessary architecture upgrade did not meet the traditional financial benchmarks. This leap of faith bled over into provisioning devices and mobile application development. IT could now issue devices and stipends to all employees with business needs. As the quote below shows, the employees pressured IT to hastily approve new devices.

As soon as the device comes out, there's already pent up demand. There are already people going my life is going to end if I don't have the iPhone by Monday. The work will perish, etc. etc.

CompanyB's IT department reduced the device provisioning process by pushing the process to end-users. Instead of IT setting up devices, end-users now had to follow a 32-page document to set up their phones. IT sped up applicant development by eliminating project approval processes for projects that cost less than $250,000. As a mobility supervisor explains, "*Historically, IT had cumbersome project approval processes that prevented end-users from coming out on the other end. This way IT didn't have to do the project.*" With the approval process lifted, IT was building and implementing a lot more applications. This was compounded by management allowing IT employees to work on any project they wanted as long as it was less than 40 hours.

Unsurprisingly, this speed of approving projects, devices and developing applications left CompanyB's IT department *scrambling*. A major issue was the difference between enterprise IT vendors (e.g., Microsoft) and consumer technology vendors (e.g., Apple). The quotes below illustrate that consumer technology vendors introduce updates and new technology much faster than enterprise IT vendors.

Microsoft would send you beta releases so you could install it maybe even a year before it was out, and they would provide you lots of guidance about, "Here's what to expect," and sort of hand hold you through each phase and make sure that each release worked well with their software distribution network, etc. So it's fairly slow moving, high enterprise level support. There are no big surprises and then Apple comes in and totally ignores the enterprise. – CompanyB, Manager IT Infrastructure and Architecture

Blackberry has always sold itself on we're for business. Apple has taken the approach of "we're glad you buy it for business, thank you much, but we're really a commercial and consumer product company and live with it." So Apple is devilishly clever about what they reveal to us. They basically say, okay, we're bringing out the next iPhone. We ask, can we get a couple of devices so we can do our security testing? And they're like sure. Just walk into an Apple store the day we release it and you can buy them there.

As the quote above illustrates, consumer technology companies leave internal IT departments *scrambling* because they privilege their end-user, consumer relationship before their relationship with IT departments. This is further illustrated in the quote below:

IOS 7 almost broke most of our apps with some of the changes they introduced. Apple, I guess their own decision, will not acknowledge flaws in their OS for any reason. We have come up with some doozies just from our own testing. We reported these back to Apple and couldn't even get a thank you much.

Given the way consumer technology vendors treat IT departments, IT has had to embrace *uncertainty*. CompanyB's IT Infrastructure and Architecture Mangers explains:

So we haven't tested as much as we used to. We have talked about "learning while doing" and "failing fast." It's interesting. We've had parts of the organization react negatively. People who have been here for years are like, "You guys are moving too fast." We got a lot of negative feedback from some parts of the organization at the speed we were doing these things. They were like, "We weren't ready for this. We didn't have any time to test it. We didn't have any time to talk about this to people."

The quote above illustrates that embracing uncertainty has created IT practices encouraging IT employees to test less, embrace failure and try new things. Trying new things spawns innovation within CompanyB's internal IT department. The next section discusses innovation as a key practice when organizations enter the competitive process stage of IT consumerization.

Competitive Stage: Innovating

CompanyC's IT department was focusing on innovation in the competitive stage of its IT consumerization journey. Having started its IT consumerization journey in 2009, CompanyC had progressed through both the conversion and use stages. In this process, IT "got out of the hardware and support business." By delegating hardware and support issues to end-users and vendors, IT was free to concentrate on innovation. Two new innovative IT practices emerged: focusing on user experience and developing killer applications.

End-user expectations spawned CompanyC's focus on *user experience*. After years of experience with consumer technology companies, CompanyC's end-users began pressuring IT to practice like a consumer technology company. In particular, end-users wanted IT to deliver great end-user experiences. An IT engagement manager explains, *"The first design must be beautiful."* To build beautiful applications quickly IT changed a few practices. First, it began thinking about design first and functionality second. This changed how IT interacted with its end-users. As the following quote from the engagement manager explains, IT now focuses on the main things the customer wants and then relies on updates to deliver additional functionality:

So what we're doing today is we're identifying the main three things that need to be delivered from initial functionality. If you think about the time entry app, I mentioned a lot of different functionalities we've already talked about, using the time, or using that integration calendar, using GPS. We don't have to have it all in the first build.

Additionally, IT took two more steps to focus on user experience. First, IT disbanded many tools that automatically built applications. Second, IT began collaborating with artists and musicians to imagine user experience.

Thinking about the user experience leads IT to move beyond fulfilling user application requests to imagining how IT could leverage consumer technology features to develop killer apps. Killer apps solve the problems that would generally stay off the radar of functional departments' process improvement

requests. Two examples of killer apps CompanyC's IT department developed are a time entry app and a conference room reservation app. While neither of these may sound like killer apps, they were for CompanyC. CompanyC's business model depends on its more than 75,000 mobile employees immediately logging and assigning their time to clients and most of these employees work remotely. Reserving conference rooms to meet with clients, team members and work is the norm.

The time entry app utilized consumer devices' mobility, GPS and calendar functions to automatically tie time entry with location. This automated some of the time entry process and made other parts more convenient. Employees could now log work times from their phones - rather than following the tedious process of signing in to the corporate networks. Interestingly, a solution architect came up with this app during his vacation in New Orleans. He was trying to log into the system and did not feel like going back to the hotel. The conference room application combines location-based and social searching features. CompanyC employees can use their mobile phone to reserve conference rooms at any CompanyC location worldwide. Once a meeting is called, the app provides end-users all available data about the other participants. A solution architect explains that this is a killer app, because CompanyC's success depends on assembling the right team and knowing its clients.

Implications

These findings offer theoretical and practical contributions to our understanding of IT consumerization and IT department practices. First, by using process theory to frame our study, this study provides a holistic and theoretical approach, which is missing from the consumerization literature (Ruch and Gregory 2014). We expand the boundaries of Soh and Markus's (1995) IT value theory to user-driven IT initiatives. We utilize Soh and Markus's (1995) process model to show the stages IT departments go through as they enable end-user consumer device use. As organizations are converting to consumer devices, IT departments buy time by discriminating with regard to which employees can use IT consumer tools and which tools IT will support. As more and more employees begin using consumer tools, firefighting becomes a normal IT practice. Once IT gets a handle on consumerization, IT enters the competitive stage where it starts to innovate. This stage model offers implication to our understanding of IT practices. To the best of our knowledge, this is one of the first papers to discuss how IT departments discriminate and IT department's moving away from testing in the firefighting stage. One explanation is that most IT research takes a top-down approach, where the IT department is forcing technology on the end-users (see Venkatesh et al. 2003 for a review). In contrast, our research takes a bottom-up approach where users are forcing technology on the IT department. Gartner predicts that by 2020, end users will drive most IT initiatives (Gartner 2015). This area of user-driven IT initiatives deserves future research.

This research offers practitioners insight. By analyzing three companies in different stages of consumerizing the workplace, this study offers insight to IT departments regardless of their current stages with IT consumerization. By highlighting IT discrimination, firefighting and innovation practices, this study will help IT departments become aware of and manage these practices. Discrimination and innovation may both deal with IT resources. Our cases link limited resources to discrimination, whereas innovation occurred when IT eliminated some tasks. Furthermore, as IT consumerization becomes mainstream, IT has to educate end-users that it can no longer provide the support and reliability users enjoyed when IT only dealt with enterprise vendors.

Conclusion

Naturally, this study is not without its limitations. First, although process theory fits well with our study, we recognize the drawbacks of relying on a single theoretical perspective. Future studies drawing upon other conceptual perspectives may provide other explanations and complement our findings. Second, while we select and apply a multiple-case design to our study, there may still be generalizability questions. Future research using quantitative and/or other methods will extend and deepen our knowledge of the practice impacts of consumerization on IT departments.

Despite the limitations, this research analyzes three distinct company cases with different IT consumerization levels. We adapted process theory to explain how employee's using consumer tools and applications changes IT department practices in the conversion, use and competitive stages of our model. Our data suggests that the *IT conversion* stage starts with multiple levels of discrimination, while the *IT*

use stage employs practices to firefight consumer IT use issues. IT innovation characterizes the *competitive* stage. Our work adds to the consumerization literature by adopting a holistically and theoretically congruent approach, while adding user-driven elements to the original understanding of process theory. Finally, this study provides a set of empirical implications designed to help practitioners in amalgamating consumer devices with IT department practices.

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