


A close-up photograph of numerous small white plastic bags filled with various spices and powders. The bags are arranged in a grid-like pattern, and each bag has a metal scoop resting inside. The spices vary in color, including bright yellow, deep red, brown, and green. The lighting is bright, highlighting the textures of the powders.

The Genie Is Out of the Bottle: Managing the Infiltration of Consumer IT Into the Workforce

By Jeanne G. Harris, Blake Ives and Iris Junglas

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A close-up photograph of several chili peppers hanging from a green stem. The peppers are in various stages of ripeness, with some being bright red and others still green or yellowish. The background is a soft-focus green, suggesting a garden or field setting.

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Androids, iPads, Google Docs, Dropbox—these and other technologies are everywhere in enterprises today. Often, they enter the workplace with employees, not under the company's auspices. They may raise alarms, but they also present valuable opportunities to those who successfully harness them. Few companies have effectively tackled the implications of IT consumerization—here are some strategies for managing this growing trend.

The formerly sovereign territory of enterprise IT is being invaded by consumer electronic technologies lurking in employees' pockets, purses and briefcases. (See Figure 1.) The influx of consumer-originated devices and applications into the workplace is the second wave of an employee-driven IT revolution. Over 40 years ago, workers armed with Commodore Pet, Apple 1 and TRS 80 personal computers snuck them into the office, sparking the PC revolution. Today's rebellion has been triggered by a diverse array of powerful consumer devices, including smart phones, iPads and notepad computers, along with appealing application platforms such as Yammer, Dropbox, Twitter and Google Docs.

While today's IT leaders face challenges similar to those that arose during the early days of the personal computer, the stakes are exponentially higher this time around. The invasion of consumer devices seems irrepressible. These technologies are so numerous, diverse in their functionality and affordable, that employees can't help but embrace them. Moreover, devices come preloaded with a host of useful tools, with access to thousands more available from app stores hosted in the cloud. Developers who have the time, motivation and resources can quickly and inexpensively create a new tool and distribute it across an organization in minutes.

A US Army captain stationed in the Gulf discovered the advantages of these tools firsthand. He asked himself, "Why not use the same tool

that lets me stay connected to home to make me and my troops a little safer?" He invested \$26,000 of his own money to develop a smart-phone application for soldiers fighting on the battlefields of Iraq and Afghanistan. Intended to help service men and women locate the enemy, direct artillery fire and summon helicopters for evacuating wounded soldiers, the app was developed and deployed in just a few weeks.¹

Contrast this success with the experience of the U.S. Defense Department—which took 12 years to develop a battlefield-ready radio system. The system was predicted to cost tens of thousands of dollars per phone and weigh at least six times as much as an iPhone.²

The US Army captain represents the extreme end of a continuum—one where lives are at stake. But other organizations report equally creative uses of consumer technology by ordinary employees. One of the companies we talked to, a Canadian hospital, reported for example that a nurse's innovative use of her camera phone lowered costs, enhanced patient care and reduced staff frustration.

How did her innovation work? The nurse took pictures of a patient's healing lesion before rebandaging the wound. Often in the past, doctors happened to show up soon after a wound had been rebandaged to check on the patient's progress. Nurses would have to reopen the dressing, which wasted time and bandages. With the nurse's innovation, doctors could view the photos and assess the healing, without disturbing the freshly applied dressing. The hospital's IT group institutionalized the innovation by providing a wizard for dating, uploading and storing the images and linking them to a streaming viewer that enabled doctors to securely retrieve them.

As illustrated by these examples, IT consumerization—the adoption of consumer applications, tools and devices in the workplace—can enhance innovation, productivity and employee satisfaction. And it's here to stay. Employees (often accurately) see these tools as more powerful, more useful and more fun than enterprise IT. The devices are attractive; so too are the readily available Web-based services and million-plus mobile apps that these tools empower. Soon it will be a rare employee who doesn't use the cloud to find the right tool for the job.

This scenario raises red flags for senior executives, particularly in IT. A recent study found that 80 percent of IT professionals opposed the use of consumer technologies in the workplace.³ The prospect of employees bringing their devices to work has catalyzed concerns about data security and reliability, to say nothing of worker performance. Yet employees resent being prohibited from using the same apps and devices at work that enhance their life at home. As our research confirms, employees around the world view consumer IT as cheap, easy to use, quick to implement, leading edge and able to foster innovation. More important, increasing numbers of employees are using these technologies at work—with or without approval.

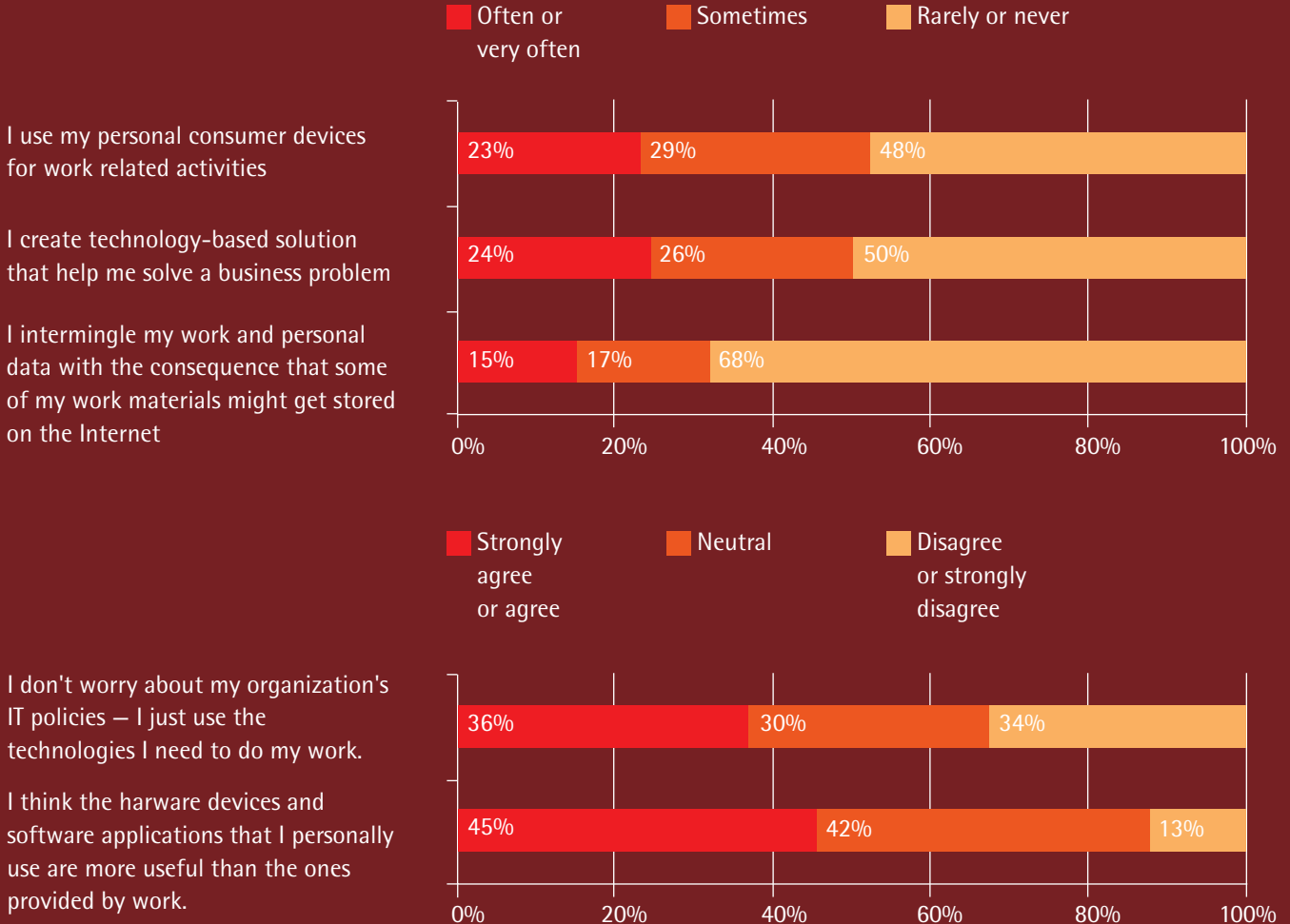
IT consumerization presents management with challenging questions: What kinds of consumer technology innovations are in the best interest of our business? To what extent should we permit or encourage adoption of consumer technologies in our workplace? Should our IT organization strive to control all aspects of our corporate data, hardware and software? If not, how should we responsibly meld consumer IT with enterprise IT?

Figure 1: Irrepressible IT consumerization

The Accenture Institute for High Performance conducted a research project on IT consumerization designed to understand the breadth and depth of the phenomenon; its drivers, benefits and drawbacks; and the strategies companies are using to manage it. We interviewed 47 business and IT executives from 30 firms that were mostly large or very large in size and that represented a cross-section of industries. This data was supplemented by a survey of almost 4,100 full-time employees in 16 countries,

speaking nine languages. Survey participants also came from a variety of industries and worked in organizations with more than 100 employees.

Our data reveal that employees all over the world are using consumer IT at work for a variety of reasons and often regardless of official company policies.



Tackling IT consumerization

Many executives, from the IT team and the business organization alike, fear what could happen if they relaxed their grip on their company's hardware and software environments even slightly. They thus feel compelled to erect or champion tight controls. But proponents of such controls are fighting stubborn brush fires. For example, they're trying to satisfy senior executives who insist on using iPads to view corporate information. And they're squaring off against employees who want to use social media to connect with customers.

Even organizations that sanction employees' use of consumer technologies are finding it difficult to keep current with those technologies while also managing data security. The typical IT organization is ill equipped to deal with the lifecycle of consumer technologies—which is far shorter than the enterprise IT lifecycle. Consider: Many professionals replace their cell phones every two years—or even sooner. Only 18 months ago, there was no iPad, and early tablets found limited traction. Today, the iPad is everywhere. The tens of millions of these devices that have been sold pose a real threat to the PC marketplace and raise serious questions about enterprise IT.⁴

Most executives acknowledge the growing use of smart phones and iPads at work. They've also noticed

that employees are using social media to achieve business objectives. And they know that the use of shared spaces outside the corporate firewall (for example, through Google Docs, YouTube or Dropbox) is increasing. But many executives view these as insular occurrences that are not related to one another. Consequently, only few organizations have created a cohesive strategy for treating IT consumerization.

Our interviews with senior executives across multiple industries reveal how organizations are tackling IT consumerization within their businesses. Depending on industry regulations, executives' expectations and employees' and customers' technical sophistication, each company in our study has applied one of three strategies: anarchy, authority or adoption. (See Figure 2.) Though adoption seems the only viable management strategy for most firms, companies are using a range of tactics to execute this strategy, as we'll see below. But first, it's useful to consider the first two strategies, since they represent hypothetical endpoints along a spectrum of conceivable approaches.

Anarchy

A company that uses the anarchy strategy lets devices and applications enter the enterprise without restrictions. Some such organizations have no policies, mandates or incentives in place; others may have them but don't enforce them. Employees are free to use their own technologies, and some organizations even provide IT support their use.

It might be argued that anarchy is not a strategy; rather, it's the result of failing to address IT consumerization. However, our research has shown that this option—voluntary or not—characterizes about 36 percent of organizations today. It seems to appeal to many employees as well. Forty-three percent of employees in our study feel comfortable making their own technology choices for use on the job, and appreciate the prospect of being able to get work done whenever and wherever they want, thanks to these devices and applications. Some start-up companies and universities let their employees choose their own technology; loose venture partnerships are also candidates for this arrangement.

Proponents of the anarchy strategy claim that freedom of choice promotes entrepreneurship and fosters a culture of innovation. It can also reduce organizational expenditures on IT infrastructure. However, these advantages come at the expense of concerns about data security as well as technology standardization and compatibility. Some organizations are not willing to take on these issues. Others, owing to regulations, cannot accept them.

Figure 2: Strategies for managing IT consumerization

IT consumerization management strategies include the extremes of anarchy and authority. Adoption, the middle-ground strategy, comprises tactics that companies can use to exploit the benefits of anarchy and authority and to manage the two strategies' drawbacks. While we found three strategies and four adoption tactics in our study, companies may be using additional approaches beyond those we've identified.

Anarchy

Management allows external devices and applications to enter the enterprise without restrictions



Authority

Management exercises tight control and restrict the number of devices and applications entering the enterprise

Adoption

Management works with end users to maximize the benefits and minimize the risks



Broadening the scope

Management gradually opens up the list of allowable consumer devices and applications

Enticing choice

Management provides employees with IT allowances as a job benefit

Segmenting by role

Management develops a consumerization profile for each role within the company

Advocating uptake

Management is proactively pushing cutting edge consumer technologies into the organization

Authority

Companies choosing the authority strategy are at the other extreme end of the continuum from those selecting the anarchy strategy. Such businesses (representing 37 percent of organizations studied) strive to limit or exercise tight control over the scope and number of consumer devices and applications used inside organizational boundaries. Motivations behind this choice include anticipated cost savings (achieved through standardization), easier maintenance and simplified security measures. Most organizations opting for this strategy have a corporate- or country-wide contract with a single desktop vendor, a limited set of hardware and software options, common desktop images and so on. Executives assume that the smaller the number of hardware and software options, the more cost-effective the IT will be. Carried to the extreme, the authority strategy results in a single organization-wide standard for each category of technology, including email, laptops, cell phones, tablets and productivity tools.

This strategy has been promoted by leaders who emphasize compliance and, until recently, by security specialists. The constrained technical choices appear to make security simpler to achieve and monitor, while formal policies and vigorous enforcement provide the consistency that a country's legal system demands. Nevertheless, personal phones and tablets—coupled with 3G or 4G access

and technically literate employees—have made it increasingly difficult to curb workers' use of these devices. In many organizations, executives recognize that employees want and expect degrees of freedom.

Still, the authority strategy remains popular in highly regulated industries where security and/or privacy are paramount, such as financial services, healthcare and government. But even in those environments, regulations often require less control over consumer IT than many executives assume. Mindlessly enforcing regulations can spark resistance from employees. Even President Barack Obama rebelled against what he saw as the unexciting phone technology the White House provided, insisting that he be allowed to use a smart phone like everyone else.⁵

Adoption

Between the extremes of anarchy and authority, a third strategy—carefully managed adoption, applied by approximately 27 percent at present—is emerging. In companies electing this strategy, executives have acknowledged employees' use of personal devices and applications for work-related activities and needs. And they have adjusted accordingly, because they have recognized consumer IT's potential in the workplace or they've accepted the inevitability of its use. But companies can use a number of different tactics to execute the adoption strategy. These tactics include broadening the scope, enticing choice, segmenting by role and advocating uptake.

Broadening the scope

Broadening the scope of allowable devices—say, by adding an Android phone or iPhone option to a list of acceptable phones—might be a simple first step to managing adoption of consumer IT at work. Rather than approving specific devices, some firms focus on technical requirements instead. For instance, one company in our study provided a set of required specifications (such as encryption, passwords and remote locking) for employee-owned phones that would be used on the corporate network. A nearby electronics retailer, eager to attract the firm's newly empowered employees, worked with the organization's IT department to build a list of phones that met these requirements.

Companies that use this tactic typically require employees to agree to an acceptable-use policy that allows the corporation to remove all company and non-company related data from the device should it be lost or should the employee resign. Adding to the complexity of device management is the fact that the legality of such policies varies from country to country. In particular, the question of who owns corporate data stored on a device that an employee purchased generates different answers in different countries.

To address concerns about data security, many IT executives are counting on the next generation of phones. These devices are equipped with multiple independent processors that virtually split the phone into two containers: one half contains the employee's personal data and applications; the other half hosts the corporate email, address book and calendar.⁶ On phones with this feature, work-related data could be made available for viewing only and would not be downloadable to the device. Security features including encryption, remote locking and wiping would be available for corporate information and applications, but not for personal data stored on the device. As devices increasingly support the container model and as cloud services become more widely adopted and standardized, this strategy will become less risky, and therefore more acceptable, to businesses with strict security needs.

In addition to devices, organizations may choose to widen the range of applications that employees can use for work purposes. As long as employee-chosen consumer applications do not interfere with existing enterprise systems, companies seem more willing to add them to their portfolio. For example, in lieu of an existing CRM system, Facebook is often chosen by small companies to keep in touch with customers. In other organizations—small or large—

Yammer is a prominent tool that provides an outlet for employees to discuss and answer ad-hoc questions that the corporate knowledge management system often cannot.

Sometimes, however, employees' choices interfere with enterprise standards. For example, staff members at a properties management company in our study had independently chosen a free consumer app that let engineers and clients share drawings. Management later asked employees to use another consumer application that, while more expensive, seemed to offer greater data security.

Broadening can constitute a first step toward embracing IT consumerization within the corporate firewall. Indeed, the majority of our interviewees who have chosen the adoption strategy are using this tactic to execute it. They see broadening as a safe way to venture into an unknown territory. However, there's a downside. Constantly updating the list of acceptable devices and applications is tedious. It requires a series of approvals across all organizational levels. And the devices and applications involved can quickly become obsolete.

Enticing choice

Another adoption tactic is to provide employees with IT allowances as a job benefit. Through this tactic, employees receive a stipend that lets them pay for their own IT devices (which may include smart phones, laptops or tablet PCs), app subscriptions or new software releases. The stipends usually come with constraints—often, employees are confined to a list of allowable items to choose from. Companies may also include this option as part of a cafeteria-style

extended-benefits program: some employees will choose a health-club membership or a new bike; others, an allowance for a new laptop or a monthly cell-phone bill.

One high-tech enterprise we studied has used this approach for several years. The company gives its U.S. employees a stipend of \$2,000 a year, and gives different amounts to employees in other countries, based on local economics. The firm maintains a master list of acceptable choices covered by the "gadget budget" as well as a process for approving new ones. iPhones and iPads are currently on the list, while the Kinect thus far is not.

For this tactic to work, companies must keep the list of acceptable technologies current as well as establish an efficient approval process. All this takes time and effort. But the benefits are worth it. As Accenture's Susan Cantrell and David Smith have argued, providing employees with options—including technology options—is important to creating a "workforce of one" culture in organizations today.⁷

The enticing approach works well if employees are technically literate and expect to be able to use current technology to manage their job. In the high-tech organization described above, employees are familiar with leading-edge technologies and know which technologies the company's customers are adopting. Moreover, thanks to their technical sophistication, they are well

positioned to provide technical support for themselves and their colleagues. These talents could free the company's IT support team from some of its traditional duties, leaving more time for innovative projects.

Segmenting by role

Employees have different levels of need for, and interest in, using consumer technology in the workplace. For many organizations, it therefore makes sense to segment the workforce by roles and job descriptions, and to tailor consumer IT policies to their needs. If the CEO wants an iPad, for instance, he'll get it and IT will support it. But a tablet may make sense for other employee segments as well—like pharmaceutical sales reps. These reps often conduct quick meetings with physicians in hospital corridors. A convenient tool that lets them demonstrate and discuss products could be a boon in these settings. In a clinic, doctors might need tablets to view medical images, while nurses, who mostly deal with text, might be better served with smart phones.

One consumer products firm in our study identified 10 different role categories and developed an IT consumerization profile for each. Employees in one segment are permitted to purchase one of several smart phones at company expense. Those in another segment can buy a phone and an iPad. Workers in a third segment can select from a set of

acceptable phones and, if they sign on to the security policy, may be partially reimbursed for the cost of the device and the monthly bill.

This tactic works well for companies that have a diversified workforce with varying technological needs. While it requires substantial planning and development, it promises to align job content with technological tools efficiently and effectively.

Advocating uptake

Some firms see real business advantages in aggressively advocating use of cutting-edge consumer electronics in their organizations. Take the British Standard Chartered Bank, which gave iPhones and iPads to its 15,000 employees.⁸ Through apps downloaded from the bank's internal app store, employees can now remotely tap into the company's back-end systems and communicate with increasingly tech-savvy customers from anywhere, anytime. Similarly, a law firm selected iPads to enable its attorneys to read, mark and edit the plethora of legal documents involved in their work, thus developing richer interactions with the firm's high-tech clients.⁹

The advocating tactic is particularly appropriate for organizations that want to demonstrate how technology can be employed in new, and perhaps unanticipated, ways. It can also prove valuable for enterprises that recognize these technologies' power to quickly enhance—even transform—their business processes.

Consumer IT is here to stay

As one executive from our survey put it while discussing IT consumerization in the workplace, “The genie is already out of the bottle.” Consumer IT will play a growing role at work as the capabilities of consumer devices continue to outpace those provided by enterprise IT. Consumer devices will become ever smaller, cheaper, more capable and faster. Indeed, app stores are swiftly evolving into low-cost engines of innovation and into simple, cheap distribution channels for useful applications that can bypass traditional enterprise IT’s oversight.

The marriage of consumer devices, app stores, the cloud and a technically proficient workforce signals a tipping point after which consumer IT will fundamentally—and irreversibly—transform enterprise IT.

IT consumerization will present one of the biggest tests—and most exciting opportunities—for business and IT executives within in the next five years. Ignoring it (through the anarchy strategy) and resisting it (via the authority strategy) are not viable options for most organizations. In fact, both of these responses are tantamount to capitulation.

To carefully manage adoption of consumer technologies in your company, a good first step is to learn just how extensively such IT has

insinuated itself into your workforce. Consider the risks and opportunities presented by the situation. Ask yourself which tactics—alone or in combination—will best help you manage adoption of consumer IT within your company’s boundaries. Experiment with ways to nurture and channel employees’ energy and enthusiasm for consumer technology. Start updating your consumer IT policies and educating your workforce on why the policies matter. The goal: to develop thoughtful, pragmatic strategies regarding consumer IT that will attract the best employees to your workforce and sharpen your company’s competitive edge.

The pathway of IT infiltration

Our study shows that consumerization of IT in the workplace follows a certain pathway. By understanding the four steps that make up this pathway, executives can evaluate where they stand on the road of IT consumerization.

1. Corporate email accessed from smart phones. Employees begin accessing work email from their own smart phones. Organizations can easily set up access to an Exchange account, which most smart phones will support. Today, almost 22 percent of employees use their personal phones routinely to check their corporate email.

2. Web-based corporate applications and databases. In this step, which may occur in parallel with step 1, the organization reconfigures its back-end

infrastructure to allow employees remote browser-based access to applications, including the corporate intranet or ERP system. In one recent survey, 14 percent of employees reported regularly accessing corporate apps and databases from consumer devices.

3. Non-corporate applications accessed or downloaded for use in the company. About 25 percent of the employees who participated in our survey report spending considerable time looking for suitable applications that they believe will make them more effective at work. As much as 26 percent use or download existing apps from the Internet, and 32 percent recommend such apps to colleagues. The Internet, as the primary delivery mechanism for consumer applications, makes it easy for employees to find and use apps. It’s also more accessible than comparable tools provided by a company’s IT department.

4. Employee-driven technological innovation. Of our survey respondents, about 24 percent say that they come up with their own technical solutions to help solve a business problem. The U.S. Army captain, described earlier, is one such example. A U.S. Marine pilot further embodied this trend. The pilot replaced a chartbook filled with maps of Afghanistan with an iPad. The simple innovation quickly caught on among his fellow pilots and those of other squadrons and has spread to commercial airlines, including Alaska Air and United.¹⁰ Similarly, doctors in a hospital we studied were already using iPads to display patient information including diagnostic images, MRIs, lab tests, surgical notes and reference materials. Soon, the clinicians will begin using the device to show illustrations of human anatomy and physiology while describing upcoming procedures to patients.

About the authors

Jeanne G. Harris (jeanne.g.harris@accenture.com) is an executive research fellow and director of research at the Accenture Institute for High Performance. She leads the Institute's research agenda in the areas of information, technology and analytics. With Thomas H. Davenport and Robert Morison, she is the co-author of *Analytics at Work: Smarter Decisions, Better Results* (Harvard Business Press, 2010). She is based in Chicago.

Blake Ives (bives@mac.com) holds the C.T. Bauer Chair in Business Leadership at the University of Houston. A distinguished scholar in the field of information systems, he has held prestigious fellowships at Harvard Business School and Templeton College, Oxford University. He has designed many executive management programs and is the author of more than 100 research articles and case studies. He is based in Houston.

Iris Junglas (iris.a.junglas@accenture.com) is a research fellow at the Accenture Institute for High Performance and the author of more than 40 research articles on technology innovation and adoption behaviors. She is based in Boston.

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