

Mary C. Lacity  
Leslie P. Willcocks

# A New Approach to Automating Services

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BY MARY C. LACITY AND LESLIE P. WILLCOCKS



## THE LEADING QUESTION

How can companies get the most out of robotic process automation?

## FINDINGS

- ▶ Use software robots to amplify and augment human strengths.
- ▶ Enlist support from top management.
- ▶ Help employees understand the benefits of service automation and how it affects them.

FOR MORE THAN 130 YEARS, managers have, in effect, been trying to get humans to act like robots by structuring, routinizing, and measuring work — all under the guise of organizational efficiency.<sup>1</sup> The automation software that is being developed today<sup>2</sup> enables a reversal of this process. We are now able to use software robots to amplify and augment distinctive human strengths, enabling large economic gains and more satisfying work. However, given the widespread skepticism and fears about how many types of employment will fare in the future, managers are in a difficult spot. Media headlines such as the “Rise of the Robots: Technology and the Threat of a Jobless Future”<sup>3</sup> and “A World Without Work”<sup>4</sup> only serve to fuel the anxiety.

Although the term “robot” brings to mind visions of electromechanical machines that perform human tasks, the term as it relates to service automation refers to something less threatening: software that performs certain repetitive and dreary service tasks previously performed by humans, so that humans can focus on more unstructured and interesting tasks. Service automation includes a variety of tools and platforms that have various capabilities. While conducting research for this article, we interviewed people who used a variety of terms to discuss service automation. (See “About the Research,” p. 42.) To help make sense of the landscape, we classified the tools along a service automation continuum based on the specific types of data and processes. (See “The Service Automation Landscape,” p. 43.)

This article focuses on what we call *robotic process automation* — software tools and platforms that can automate rules-based processes that involve structured data and deterministic outcomes. The great majority of the 16 cases we researched involved robotic process automation. We focus on this area (as opposed to a more advanced automation technology known as cognitive automation) because this is where most companies today begin their service automation journeys.<sup>5</sup>

How do companies apply robotic process automation? A broad range of service tasks are suitable for such automation. Companies we studied used robotic process automation for tasks including those associated with validating the sale of insurance premiums, generating utility bills, paying health care insurance claims, keeping employee records up-to-date, and even generating news stories. Consider the example of Xchanging plc,<sup>6</sup> a London-based business process and technology services provider that has clients across a variety of industry sectors. For one of its clients in the insurance sector, Xchanging processes insurance premiums so insurance brokers get paid. When brokers sell an insurance policy, they submit notices using a variety of inputs (email, fax, spreadsheets, etc.) to Xchanging, which manages the multistep process of validating the sale.

Previously, Xchanging's human operators managed the transactions manually. They organized the data, checked it for completeness and accuracy, worked with the insurance brokers to correct errors, extracted other necessary data from online sources, and then

created and posted the official sales records. Humans still handle the unstructured parts of the work, such as formatting the inputs into structured data, passing the data to the software robots, and interacting with insurance brokers. However, the structured parts of the process, including finding the errors, retrieving the online data, creating the official sales record, and notifying brokers when the process is complete, is managed by the robotic process automation software.

Whereas it used to take a team of humans several days to complete 500 notices, today a properly trained software robot working with the help of a few humans can do the same amount of work in around 30 minutes. The software can be scaled up and down to meet changing workloads. Beyond this particular process, Xchanging has developed an enterprisewide service automation capability in other areas as well, which it has deployed on clients' processes as well as on its own. By early 2016, Xchanging had automated 14 core processes and deployed 27 software robots; collectively, these robots were processing 120,000 transactions per month, with cost savings averaging 30% per process.

Xchanging isn't alone in experiencing benefits from robotic process automation. Similar gains were reported by other organizations we studied. Typically, companies indicated that they saw returns on investment of 30% or more during the first year of robotic process automation implementation;<sup>7</sup> however, because of the nature of our study of early adopters, we can't say whether or not such returns on investment are typical. (See "About the Research.")

## ABOUT THE RESEARCH

We conducted empirical research on service automation to answer three questions: (1) Why are companies adopting service automation? (2) What outcomes are they achieving? and (3) What practices distinguish service automation outcomes? To answer these questions, we conducted two surveys of professionals attending the International Association of Outsourcing Professionals world summits in 2015 and 2016 and conducted interviews with 48 people, including service automation adopters, software providers, and management consultants across the major business sectors.

In the course of our research, we collected 16 service automation adoption stories: 14 companies adopted robotic process automation, and two adopted cognitive automation tools. Depending on the subjects' availability and

preferences, we conducted interviews in person, over the phone, and through email. We posed a number of questions pertaining to their service automation adoption, the business value delivered, and lessons learned. We also interviewed software provider representatives to discuss their companies' automation capabilities, challenges they help their clients overcome, and the future they envisioned for service automation. We asked advisors questions pertaining to client service automation adoption, effects on outsourcing, automation tool capabilities, and the future of work as a consequence of automation. Of the 16 research sites we focused on, seven companies were headquartered in the United Kingdom, five in the United States, and one each in Germany, France, the Netherlands,

and Russia. The organizations represented 11 industries, including health care, energy, telecommunications, media, financial and accounting services, and transportation.

This research was conducted with support and funding from the Outsourcing Unit at the London School of Economics and Political Science; Information Systems Group, a technology advisory services company based in Stamford, Connecticut; and Blue Prism Group plc, a U.K.-based robotic process automation software company. Blue Prism introduced us to 10 of the companies we used for case studies; we conducted our interviews at those companies independently. The remaining company case studies were also developed from interviews we conducted independently.

Beyond the financial benefits, the automation solutions improved service speed and quality, expanded service availability to 24 hours, and increased regulatory compliance. Software robots executed structured tasks precisely and quickly — and did so without the need to eat or sleep. When the software robots were partnered with humans, the combined human-robot teams were high-performing. Moreover, they easily scaled to take on a higher volume of structured work when needed, with humans filling in the gaps that required on-the-fly problem solving and hands-on customer care.

By studying organizations that were early adopters of software robots, we saw how companies could generate tangible benefits via service innovations. They achieved benefits in three ways: (1) by developing an approach to service automation supported by top management, (2) by initiating effective processes that deliver value to customers and employees, and (3) by building enterprise-wide skills and capabilities. Managers interested in capturing the benefits of service automation need to pursue all three avenues.

## Developing a Service Automation Strategy

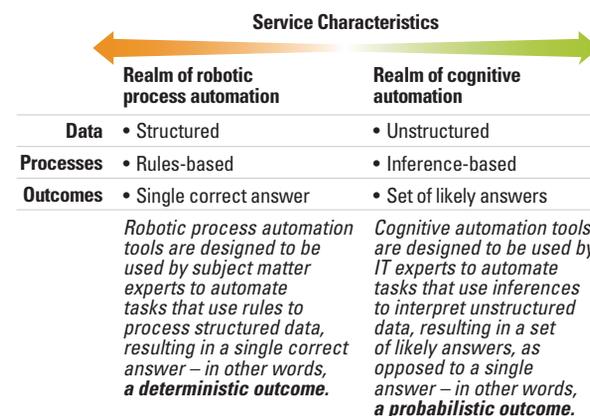
Companies that captured the full benefits of service automation took a long-term view. Whereas some companies approach service automation as a way to achieve quick wins for the business, we found that those that undertook it as part of a broader and more integrated business strategy were able to achieve more substantial gains.

**Service automation enables a broader business enterprise strategy.** Our experience indicated that the businesses with the best outcomes didn't have a service automation strategy per se; instead, they had strategies that defined the organization's long-term goals, such as creating a more flexible workforce or expanding services without expanding head count. These strategies were driven by management and enabled, in part, by service automation; it was a key component of the business transformation.

The Associated Press, a New York City-based news cooperative, offers a good example. In 2014, the AP began offering its newspapers and other media organizations automated corporate earnings reports. The AP was eager to find ways to expand its news coverage

## THE SERVICE AUTOMATION LANDSCAPE

The plethora of software tools and terms to describe software designed to automate services can be very confusing. To help make sense of the service automation landscape, we suggest avoiding the jargon and instead focusing on the service characteristics that the tools are designed to help automate. We consider two broad classes of service automation tools: robotic process automation and cognitive automation. Each class of tools is designed to deal with specific types of data and processes.



without increasing costs and to enhance its brand. Lou Ferrara, then an AP vice president and managing editor, spearheaded a service automation initiative. He found that reporters preferred to cover stories that required creativity and that this was how they added the most value. Most reporters disliked assignments that were highly structured, such as reporting on corporate earnings. By automating the corporate earnings reports, the AP was able to expand its coverage at no additional cost. In fact, the volume of its earnings reports rose from 300 reports per quarter when humans wrote them to more than 3,700 reports with a software robot. In addition to producing more content, the automation freed up time for the equivalent of three full-time reporters. The company's unionized journalists kept their jobs, and clients were happy with the quality and the quick delivery. After the AP introduced the automated corporate reports, it initiated a similar automation project to expand coverage of college sports news.

**Strategic service automation requires support from senior management.** Organizations where the C-suite supported and promoted service automation tended to achieve more strategic benefit from service automation than those where the support was at the divisional or IT level. Without support from the top, there isn't sufficient breadth of influence or application, and people from other

parts of the organization may treat the robotic process automation project as a curiosity.

The experience of a major European gas and electric utility that we studied highlights this point. Eager to improve its service and control its operating costs in order to reduce the need for rate increases, the utility's senior management, led by the company's CEO, embraced automation beginning in 2008. One nagging issue the utility had grappled with was how to verify the meter readings household residents submitted on paper rate cards or by phone, or that came via independent meter readers. (See "How Humans and Software Robots Work Together at a Utility Company.") After meter readings were submitted, this information was digitized and entered into a system that asked if the information made sense. Did the reading fall within normal energy consumption ranges? Was there anything incongruous about it (such as a user adding electricity to the grid rather than consuming it)? The outliers were spit out as exceptions and sent to humans for verification. Some of the readings were easy to sort out; others required calling customers. With robotic process automation, only the truly unusual cases required human intervention. In the division where automation was first implemented, the utility was able to reduce the number of humans assigned to this activity from 30 to about 12.<sup>8</sup> In addition to payroll savings, the organization was able to improve quality, consistency, and speed of problem resolutions. By early 2016, the utility was deploying hundreds of software robots, which allowed it to automate about 25% of its back-office work on meter management, customer billing, account management, consumption management, segmentation, and exception processing.

In this organization, the CEO became an evangelist for the transformation programs and the ways in which technologies, including robotic process automation, contributed to them. He gave regular pep talks to divisional managers about the strategic importance of such automation to the future of the company, and that has played a critical role internally.

**Service automation can deliver multiple benefits.** Organizations can use service automation to generate multiple business benefits, including cost savings, improved customer experience, and, as we

saw in the case of Xchanging, higher employee satisfaction.

The experience of Telefónica UK Ltd., a telecommunications services company doing business under the O2 brand in the United Kingdom, offers another excellent example. (The company is owned by Telefónica S.A., a Madrid-based telecommunications services company that has operations in Europe, Asia, and the Americas.) Some managers at O2 expected automation to result in major opportunities to reduce the company's employee head count, accelerate response time to customer queries and activation of phone services, and reduce the number of customer calls inquiring about service status. The company began in 2010 by automating the structured tasks associated with two processes: the process that updated digital records to reassign a customer's phone number from his or her old phone to a new phone; and the process used for applying precalculated credit amounts to verify that a customer had sufficient credit to permit orders to be processed in advance of payment.

In the space of five years, O2 had automated nearly 35% of its back-office services. In 2015, the company's software robots were processing between 400,000 and 500,000 transactions each month. For some customer-facing processes (for example, phone activation), turnaround times that previously were measured in days were cut to just minutes. What's more, the service automation enabled greater workforce flexibility. To support a new product launch, for example, the "robotic" workforce could be doubled almost instantly and then scaled back after the initial market surge.

**Organizations seeking to automate services have multiple sourcing options.** A peculiarity of our research sample was that all of the organizations we examined adopted service automation themselves and relied on the help of a service automation tool provider to get started.<sup>9</sup> For example, when the European gas and electric company adopted robotic process automation, its tool provider trained a handful of client employees and provided mentoring, consulting, and codevelopment for the first set of automated processes. Initially, about 80% of the robotic process automation team was from the tool provider's staff, with the rest from the utility's staff. As the utility gained experience over the next nine months and automated additional

processes, the ratio of outside staff to inside staff flipped. However, our survey data (along with our prior research on business process outsourcing<sup>10</sup>) has led us to think it's important for organizations that are considering robotic process automation and other service automation technologies to evaluate a broad spectrum of sourcing options to determine what meets their needs best. The options include:

- **Insourcing:** buying service automation software licenses directly from a service automation provider;
- **Insourcing and consulting:** buying licenses directly from a service automation provider and engaging a consulting firm for services and configuration;
- **Outsourcing with a traditional business-process outsourcing (BPO) provider:** buying service automation as part of a suite of integrated services delivered by a traditional BPO provider;
- **Outsourcing with a new provider:** buying service automation from a new outsourcing provider that specializes in service automation; and
- **Cloud sourcing:** buying service automation as a cloud service.<sup>11</sup>

In our survey, we found that insourcing enabled client organizations to achieve high levels of control and allowed them to keep whatever cost savings they generated. However, other options offer benefits as well. For example, many traditional business-process outsourcing providers have developed significant automation capabilities. The benefit of engaging an experienced service provider is that such a provider often has a suite of integrated services that combines low-cost offshore labor, process excellence, experience in managing change, and technology expertise. There are newer companies that also specialize in service automation. Whereas traditional business process outsourcing providers integrate automation into their overall service delivery, the new players are focused on helping customers learn about and apply the new breed of robotic process automation tools. The most promising option involves placing software robots in the cloud, where they can be copied and deployed across the network. Indeed, if it can take months to train a software robot to master a complex task, it might only take a few minutes (or even seconds) to transfer its capabilities to another software robot in the cloud.

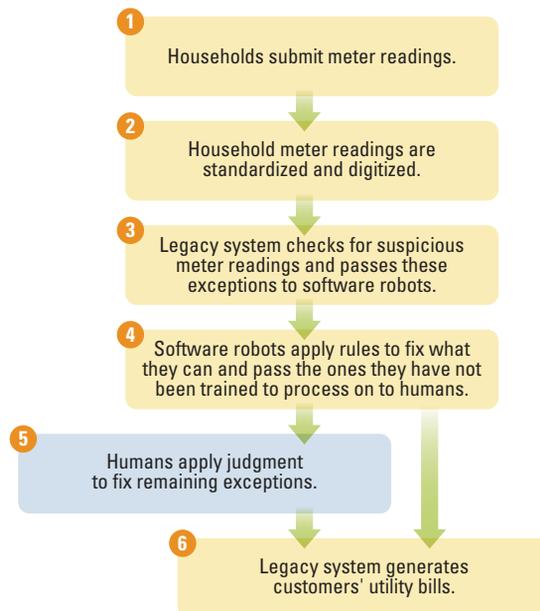
## Initiating Effective Automation Processes

Once executives have developed their strategies, they must enable execution. They need to have committed middle managers who can help deliver the service automation vision. To ensure that the best processes to automate are identified, it's also important that business operations, rather than the IT department, leads the service automation initiative. However, organizations should involve IT professionals early to avoid risks to the organization, such as exposing customer data. Along the way, companies need to pay close attention to internal communications to inform employees about the service automation strategy and timing and its effects on employees.

**Identify sponsors, program champions, and program managers.** A successful robotic process automation project requires multiple levels of management support. To begin with, projects need sponsors — people who initiate the idea, underwrite the resources, and push for the technology's

### HOW HUMANS AND SOFTWARE ROBOTS WORK TOGETHER AT A UTILITY COMPANY

The European utility company we studied verifies household meter readings before generating a customer's utility bill. After robotic automation was applied to the process, the software robots could handle enough exceptions to free up 60% of the humans from this task; those who have continued working in this area work on only the most unusual exceptions.



adoption and use. Depending on the company's ambitions, the sponsor might be part of the C-suite or a middle manager in charge of a department such as shared services.

Whereas a sponsor might only spend 2% to 3% of his or her time on a project, program champions take a more hands-on role, spending anywhere from 40% to 80% of their time communicating the vision, maintaining motivation among team members, and interacting with stakeholders, including senior management. In addition, projects need strong program managers who know how to get the projects delivered within budget and on schedule. At Xchanging, the project sponsor was the CEO of the company's insurance business. The project champion, for his part, had lots of experience in leading lean process projects; he served as both project champion and program manager.

**Allow business operations to take the lead.**

People preparing to embark on service automation projects often ask, "Where should service automation originate — in business operations, IT, or outsourcing provider companies?" The companies we featured above — Xchanging, AP, Telefónica UK (O2), and the utility — initiated their service automation projects in business operations. Since we were studying the automation of business processes (not the automation of IT processes), it makes sense that business operations should lead this kind of service automation. In fact, several of the people we interviewed were adamant that business operations needs to own these automation programs.

Business operations tends to be in the best position to select tasks within their processes that are most suitable for automation. Managers in these areas know which processes fit the minimum criteria for automation: The managers can identify tasks that use structured data, have explicit and well-documented rules, churn out high transaction volumes, and are stable.<sup>12</sup> As we saw with the European utility's and Xchanging's work in the insurance industry, business operations selected structured tasks associated with end-to-end processes for automation and left the tasks requiring judgment and social interaction for humans. Business operations groups are also in the best position to prioritize automation projects that will yield the best outcomes for customers and employees.

**Pinpoint what you're trying to achieve and how it will be perceived by customers and/or employees.** Many new technologies overpromise and underdeliver. Before you embark on a service automation project, make sure stakeholders such as customers and employees are attracted to the supposed benefits. In the case of the AP's automated earnings reports, customers liked the idea of expanded corporate earnings coverage, and journalists were positive about the reframing of their job responsibilities.<sup>13</sup>

VHA Inc., a health care network of not-for-profit hospitals based in Irving, Texas, provides services such as centralized procurement to its affiliate hospitals, which results in lower costs than the individual hospitals could negotiate on their own. When VHA's robotic process automation champion learned that the organization's business operations staff was spending a substantial amount of time searching the Internet for product specification data, he pushed to automate the information-search process and to link it to procurement. The savings came quickly: In a few short months, the automated process pulled more than 360,000 product descriptions from the Internet, freeing staff to work on other activities related to sales and revenue generation. By targeting a painful and visible task, the company not only received buy-in from employees but also stirred enthusiasm for increased service automation in general.

**Involve IT early.** The IT department can be an important contributor to the success of an automation program. In our research we learned that in several instances, champions, including the champion at Telefónica UK's O2, attempted to introduce service automation without involving IT. There were two main reasons: (1) executives saw service automation as a business operations program in that it required process and subject-matter expertise, not IT programming skills, and (2) they worried that IT would add too much bureaucracy and slow the rate of adoption. What some executives overlooked was the valuable knowledge IT can bring. IT can vet service automation software to ensure that it is safe, develop access rules to prevent software robots from exposing sensitive data, and maintain software robots on a safe, fully backed-up infrastructure. What we saw suggested that the

pluses from including IT early far outweighed the minuses. As an executive at one service provider noted: “The minute we engage with business owners, we insist on speaking with the IT function. When we talk to IT, we explain that we have a product that is designed to appease their requirements for security, scalability, auditability, and change management.”

**Recognize that many employees are wary about the impacts of automation.** Across our case studies, we saw companies using service automation tools to do repetitive and boring work. In the organizations we studied, the automation affected parts of jobs more than entire jobs,<sup>14</sup> and the effects on employment involved increases in productivity and reductions in hiring or outsourcing rather than layoffs of full-time employees.<sup>15</sup> Often companies redeployed internal employees to other business activities; service automation allowed them to avoid expanding their head counts. In fact, managers at the companies we studied reported that their employees were largely positive about the changes. Rather than feeling threatened by automation, many appreciated having fewer repetitive tasks and more opportunities to assume customer-facing responsibilities.

Nevertheless, it’s common for employees to be apprehensive about the potential impacts of service automation on their jobs, and it’s naive for executives to think otherwise. Prior research has found that communicating the intended effect on jobs early in the process is critical. In an information vacuum, employees tend to overestimate the ill effects; in some cases, staff members have panicked and even sabotaged new initiatives.<sup>16</sup>

Therefore, it’s important for companies to be as forthcoming as possible about the implications for employees. Xchanging, the business-process provider, took an open approach to internal communications, using internal newsletters and regular

presentations and road shows. These made robotic process automation developments visible quickly to everyone on the company’s insurance staff. Management tried to make sure that operations teams were engaged in supporting projects and that they understood what service automation meant in terms of opportunities six to 12 months down the line.

## **Building Mature Service Automation Capabilities**

For many companies in our study, the goal was to build an enterprisewide automation capability. They expected automation to become part of the fabric of their business, much as computers and the Internet have become ingrained in organizational processes. Accomplishing this requires having a centralized command center that serves as a shared organizational resource. It requires organizations to rethink talent development and develop mechanisms for constant learning.

**Establish a command center.** A centralized command center helps business units across the organization identify automation opportunities, prioritize projects, build the solutions, and monitor the software robots once they take over tasks. A command center also establishes standards and best practices and tracks the business performance of service automation.

Among the organizations we studied, the European utility had the most mature service automation capability and provides the best example of what a centralized command center can be. The center (which the company referred to as its “center of excellence”) managed the high demand for automation that came from customer transformation programs and from operational teams across all of the company’s business divisions. When business operations teams proposed processes for automation, the center assessed their suitability and, if the



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project seemed promising, developed the business case. Once the case was approved and funded by management, the center was responsible for developing the automation solutions, testing them, and controlling the software robots once they were working on real data.

One of the best reasons for a centralized command center is that it can efficiently reuse software robots to scale quickly and to reduce development costs. For example, by reusing robots that were trained to log on to a particular system or to prepare a high-volume email from a customer database, the utility was able to reduce its development times by 30% to 40%. As one robotic process automation software provider explained, “The more processes you automate, the more objects you build in your robotic library. The more reuse you get, the more economic it is to assemble and deliver the new processes.”

**Rethink the talent development and skills needed for an enterprise automation capability.** As organizations build automation capabilities, they need to rethink the skill sets needed to perform business services; different service automation roles require different skill sets. In the robotic process automation implementations we studied, companies added new roles, such as developers to build automation solutions and robotic process automation controllers to schedule, run, and monitor the software robots. For example, the utility company set out to recruit robotic process automation developers among people on its own operations staff who had a strong understanding of the business, process experience, and, preferably, systems analysis backgrounds. According to the company’s robotic process automation project manager, the most important requirement was an ability to extract logical structures from disparate business data to build algorithms. IT skills were also seen as critical. He noted, “We’re not IT staff, but we have staff with IT skills.”

In contrast, for robotic process automation controllers to staff its control room, the utility targeted people who were organized, methodical, and logical and who had a consistent approach to work. It also sought people with good communication skills who could interact effectively with business operations people when they spotted any issues or

anomalies. At peak times at the utility, two human controllers orchestrate the work of 300 software robots that do the equivalent of what more than 600 people once did.

Beyond considering the skills of the command center staff, it’s also important to understand the capabilities of the retained human workforce. If robots are performing all of the repetitive and structured tasks, the humans will need to have more creativity, problem-solving skills, judgment, and emotional intelligence to tackle the unpredictable requirements of unstructured tasks.

Recently, there have been plenty of predictions about the effects of automation on the nature of human work. Some pundits have predicted that automation will take over more and more functions, leaving very few tasks for humans other than lawn mowing and hairdressing.<sup>17</sup> However, our research has led us to anticipate a different future for the automation of knowledge work.<sup>18</sup> In the next five years, we expect that more and more work groups will be composed of both humans and software robots, each performing tasks for which they are best suited. The robots will very quickly extract, consolidate, and rearrange data for humans to assess and act upon. Humans will deal with new business requirements (which humans may later teach to the software robots), troubleshoot and solve unstructured problems, positively envision services for customers, and build relationships with customers. We are already seeing some of this today, but going forward, robots won’t need as much pre-configuration or as much detailed instruction as tools evolve and as robotic process automation moves to the cloud.

Of course, the field of service automation is progressing rapidly. Many case study participants told us that the next horizon would be tackling unstructured data with cognitive automation tools. They want software robots to read unstructured text, such as text messages or emails, and to decipher what the data means. Software robots are very fast; they have the ability to process huge amounts of data and present an interpretation almost instantly, which could enable a big step forward for customer service. In practice, it would mean that an agent on the phone with a customer could ask a software robot to mine huge quantities of data to help

customers solve problems in a few seconds. The present state of service automation puts us on the path toward this vision.

**Mary C. Lacity** is the Curators' Distinguished Professor at the University of Missouri-St. Louis College of Business Administration in St. Louis, Missouri. **Leslie P. Willcocks** is a professor of management at the London School of Economics and Political Science. Comment on this article at <http://sloanreview.mit.edu/x/58120>, or contact the authors at [smrfeedback@mit.edu](mailto:smrfeedback@mit.edu).

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