

A HARVARD BUSINESS REVIEW ANALYTIC SERVICES REPORT



**Harvard
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Review**

THE BUSINESS CASE FOR MANAGING COMPLEXITY

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The digital economy has clearly arrived. And while digital technologies offer businesses a new set of opportunities to create value, the digitalization of the business world is pushing traditional IT to its limit.

Over the years, growth in transactional databases and other data sources as well as their associated systems have complicated enterprise applications and infrastructure. As we see in this report, IT complexity delays the delivery of new tech capabilities, raises capital and operational costs, and makes it harder for IT to help the business. However, technology can be a liberating force that helps companies reinvent themselves.

SAP S/4HANA is the next-generation business suite designed to run simple in the digital economy. It was designed to break the limitations of the past by simplifying IT with massive simplification and innovation. It is built on the most advanced in-memory platform today, SAP HANA, and offers a personalized user experience with SAP Fiori. Deployable in the cloud or on premises, SAP S/4HANA is built to drive instant value across lines of business and industries.

- > **Reimagined Business Models:** Simplicity to connect to people, devices, and business networks in real time to unlock the potential of the digital economy and deliver new experiences and value to customers. The Internet of Things and big data become accessible to any business—no more complex business collaboration and interactions.
- > **Reimagined Business Decisions:** Simplicity to get any insight on any data from anywhere in real time: planning, execution, prediction, and simulation are now all done on the fly at the highest level of granularity to drive faster business impact—no more complex data consolidation through spreadsheets.
- > **Reimagined Business Processes:** Simplicity to focus on the essential tasks in real time and gain flexibility and agility to change business processes as needed for new efficiencies—no more extensive batch processing.

Now is the time to spend less time managing complexity and more time leading the enterprise digital transformation. SAP S/4HANA represents the digital business foundation of the 21st century to help drive this transformation across industries, business functions, and roles with the ultimate sophistication: simplicity.

MARKUS SCHWARZ

Senior Vice President and General Manager

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THE BUSINESS CASE FOR MANAGING COMPLEXITY

Underpinning the global economy is a vast infrastructure that is inherently complex. However, excess complexity that manifests itself in lack of innovation or poor customer service is a significant problem causing real and quantifiable business damage today, according to a survey of 749 business managers conducted in 2015 by Harvard Business Review Analytic Services.

The good news is that many organizations acknowledge they have a problem with excess complexity, and many have taken steps to better manage it. (For additional information about the methodology and demographics, see methodology on page 12.) Complexity is defined in the survey as decision making, business processes, and information management technologies that force employees, customers, or business partners to perform too many manual steps, wait too long for results, or struggle too hard to get information.

THE SCOPE OF COMPLEXITY

Based on the survey results, the scope and severity of the complexity challenge are profound and are harming organizations where it hurts the most: future growth. An overwhelming 86 percent felt their business processes and decision making had become so complex as to hinder their ability to grow in a digital economy. [figure 1](#)

Complexity is such a significant problem that half of respondents say they have an initiative in place to manage it. Yet the difficulty in managing complexity is shown by the fact that only 10 percent of respondents report being successful. Even more disquieting from a management point of view is that more than twice as many respondents—25 percent—say they have failed in their efforts to tame complexity.

Despite the scale of the problem, there's a belief that complexity can be managed. A small number of best-in-class organizations (about 10 percent of our sample) have placed complexity management substantially higher on their corporate agendas than others. They report having faster-responding IT systems and more engaged, proactive IT departments. A much larger number (25 percent of respondents) are classified for purposes of this report as “laggards,” characterized by inadequate IT systems and a lack of leadership around managing complexity.

A POTENTIAL COMPETITIVE WEAPON?

In an increasingly interconnected and technology-enabled world, some level of complexity is unavoidable. But for best-in-class organizations that learn to simplify, a certain level of complexity can be “an opportunity to add value” and distinguish yourself from competitors, says Martin Mocker, a research affiliate at the MIT Sloan Center for Information Systems Research and professor of business administration and information systems at Reutlingen University.

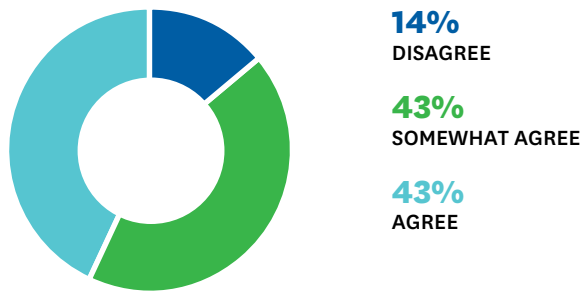
For example, ING DIRECT Spain evolved from “one of the simplest companies on the planet” to offer everything from loans to investment and brokerage services and life insurance. As the company became more complex, it worked to hide excess complexity from customers and minimize

FIGURE 1

COMPLEXITY IS HINDERING BUSINESS GROWTH

The extent to which respondents agree with the following statement about their organization. [SCALE OF 1-10; 1 = STRONGLY DISAGREE, 10 = STRONGLY AGREE]

“The business processes and decision making at our organization are so complex that they are hindering our ability to grow our business in a digital economy.”



the internal complexity of providing new services, says Mocker. Today, the benefits of this carefully managed complexity include significantly improved financial performance. Those customers with more than one ING product have nine times the lifetime value than those with only a savings account.

For many organizations, though, the barriers to managing complexity remain steep. They are so formidable that four out of ten survey respondents predict that complexity will stay essentially unchanged or even get worse in the next two years. According to Rob Asen, CIO advisory leader at global IT, consulting, and business process services firm Cognizant, the addition of new systems through mergers and acquisitions, regulatory requirements, and new business models are all driving continual complexity. “That’s why it’s hard to get ahead,” he says. “Things never stay static.”

THE COST OF COMPLEXITY

The survey responses are striking in the range of critical functions they say are made more difficult or costly by excess complexity—and in their description of how complexity makes it hard to meet some of their most pressing business challenges. For example:

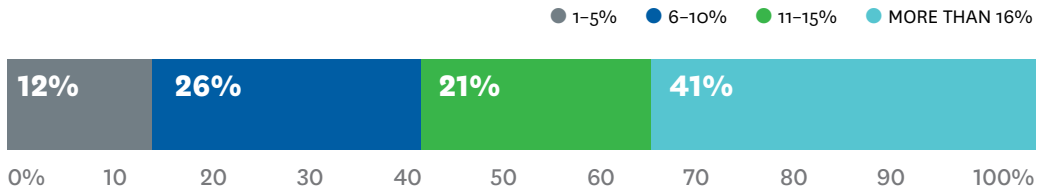
- Six out of ten say complexity increased operational costs by at least 11 percent. [figure 2](#)
- Almost half say their IT systems cannot respond quickly enough to deliver innovative business models or processes.
- Forty-three percent say complexity slows growth, impedes their ability to respond quickly to competitive threats, and interferes with effective decision making.

Respondents know firsthand that complexity places a heavy toll on both internal operations and outward growth initiatives. For example, the survey shows that of the areas most harmed by complexity, the two mentioned most often—employee satisfaction at 67 percent and operational costs at 58 percent—involve inward-facing measures. The costs to the organization are somewhat hidden, involving such factors as increased recruiting costs and higher support costs, but very real nonetheless.

FIGURE 2

COMPLEXITY INCREASES COSTS BY AT LEAST 11%

Respondents estimating the degree to which business and IT complexity drive up overall organizational operating costs in their organization.



The inward-looking costs of complexity are followed by the outward-looking metrics of customer satisfaction and competitiveness. Both factors were cited by about half the respondents as being harmed by excess complexity. And both carry a high cost in terms of market share gains and growth.

THE TAX ON INNOVATION

Perhaps most troubling is the fact that complexity hinders a company’s ability to innovate, especially in today’s fast-changing markets, where innovation is key to generating new product and revenue streams. It is telling that only 11 percent of respondents felt their organization is a top innovator in their sector, and that only a quarter of the best-in-class respondents felt they were top performers in their ability to innovate. [figure 3](#)

The drag excess complexity imposes on performance can be seen in how best in class, laggards, and an average group called followers rank their performance in key business areas. For example, 43 percent of best-in-class respondents—those that ranked the importance of complexity management substantially higher than others—scored themselves as top performers in brand value and reputation. This compares with only 26 percent of followers and 21 percent of laggards.

Excess complexity also places organizations at a competitive disadvantage. Relative to competitors, 85 percent of respondents said internal complexity hurts their organization’s performance. Of the industries surveyed, respondents in the health care/pharmaceuticals sector were most likely to say complexity had the greatest negative impact, followed by the government and not-for-profit sectors. [figure 4](#)

FUNCTIONAL COMPLEXITIES

When asked which business functions are most harmed by it, 41 percent identified IT, followed closely by general management, such as strategy development. [figure 5](#) One explanation of this result is that the reality of the digital economy puts pressure on the traditional IT infrastructure, which cannot keep up with the demand for real-time, data-driven decision making, agility, and speed. Given the high priority managers place on responding quickly to changing business conditions, anything that interferes with strategy development is considered a major red flag. Other business functions hurt by complexity are customer service, HR, product development, and logistics/supply chain.

Important capabilities that all employees need regardless of business function are also harmed by complexity. Many of these are considered vital for organizations struggling to adapt to changing

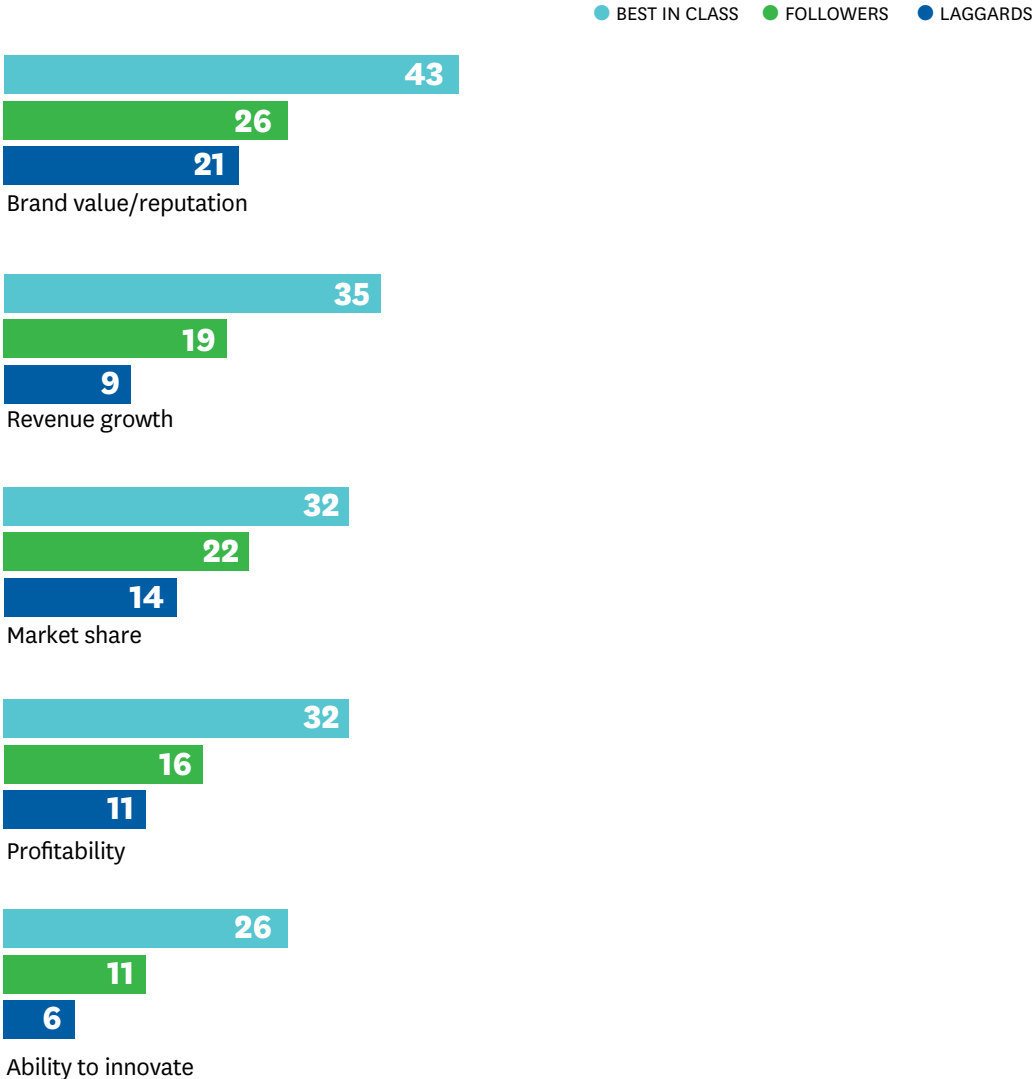
business needs. For example, almost half say that their ability to make insight-driven decisions is hindered by complexity. Among the top ways respondents believe they can solve the problem are by:

- Simplifying and harmonizing the user experience for employees to access information,
- Implementing real-time business processes, and
- Providing access to more up-to-date, real-time information from anywhere.

FIGURE 3

COMPLEXITY DAMAGES PERFORMANCE, ESPECIALLY IN INNOVATION

Percentage rating how well their organization performs relative to competitors in their sector in each of the following areas. [SCALE OF 1-5; 1 = LAGGING FAR BEHIND, 5 = TOP PERFORMER IN YOUR SECTOR; THOSE SCORING 5]



ENABLERS OF SIMPLIFICATION

To understand how simplicity would help their organizations, respondents were asked to identify those areas where a focus on managing complexity would do the most good.

The factor cited most often, by almost seven in ten respondents, is the “flexibility and agility to change business processes as needed.” This was ranked by respondents as the most important.

[figure 6](#) Similarly, simpler deployment, integration, and use of IT systems were rated by business executives as quite high in importance for managing complexity.

“To innovate in the marketplace, both business and technology functions must have an incredible degree of fluidity,” maintains Corey Booth, a partner at The Boston Consulting Group Inc., who leads the firm’s “Simplify IT” topic area. This in turn requires a simple IT infrastructure on which to build.

FLEXIBILITY IS KEY

Best-in-class companies that have managing complexity under control pay attention to achieving flexibility in their IT. For example, ING DIRECT Spain simplifies the delivery of new products with a layered application architecture that allows it to deploy new business processes without changing its core banking applications. It also, says MIT’s Mocker, creates reusable software components for common functions such as authentication and auditing, simplifying the process of developing, testing, and deploying new capabilities.

The next tier of drivers considered important by 64 percent of business managers includes the ability to connect people, devices, and networks in real time, and the ability to manage and utilize “big data”—the large data sets that many organizations are building with the goal to discover patterns and other useful information.

The importance respondents place on big data and analytics comes as no surprise to Narendra Mulani, senior managing director at Accenture Analytics. “Businesses today understand the data-driven advantages analytics can offer,” he says. But with continual increases in the amount, types, and sources of data to manage, “transforming this data into insight can seem like an overwhelming challenge.”

To simplify the process, Mulani recommends creating a “data supply chain to seamlessly move the data across the business, and eventually its ecosystem of partners.” This may include, he says, “a data management platform combined with enterprise data and emerging big data technologies.” Such a streamlined and optimized environment, he says, can enable organizations to “swiftly isolate actionable insights that can drive new revenue streams.”

The survey demonstrated that as daily users of information technology themselves, business executives place strong importance on various IT capabilities to help enable simplification. However, their organizations are struggling to actually deliver flexibility for business process change. Among those IT capabilities ranking highest in terms of importance are:

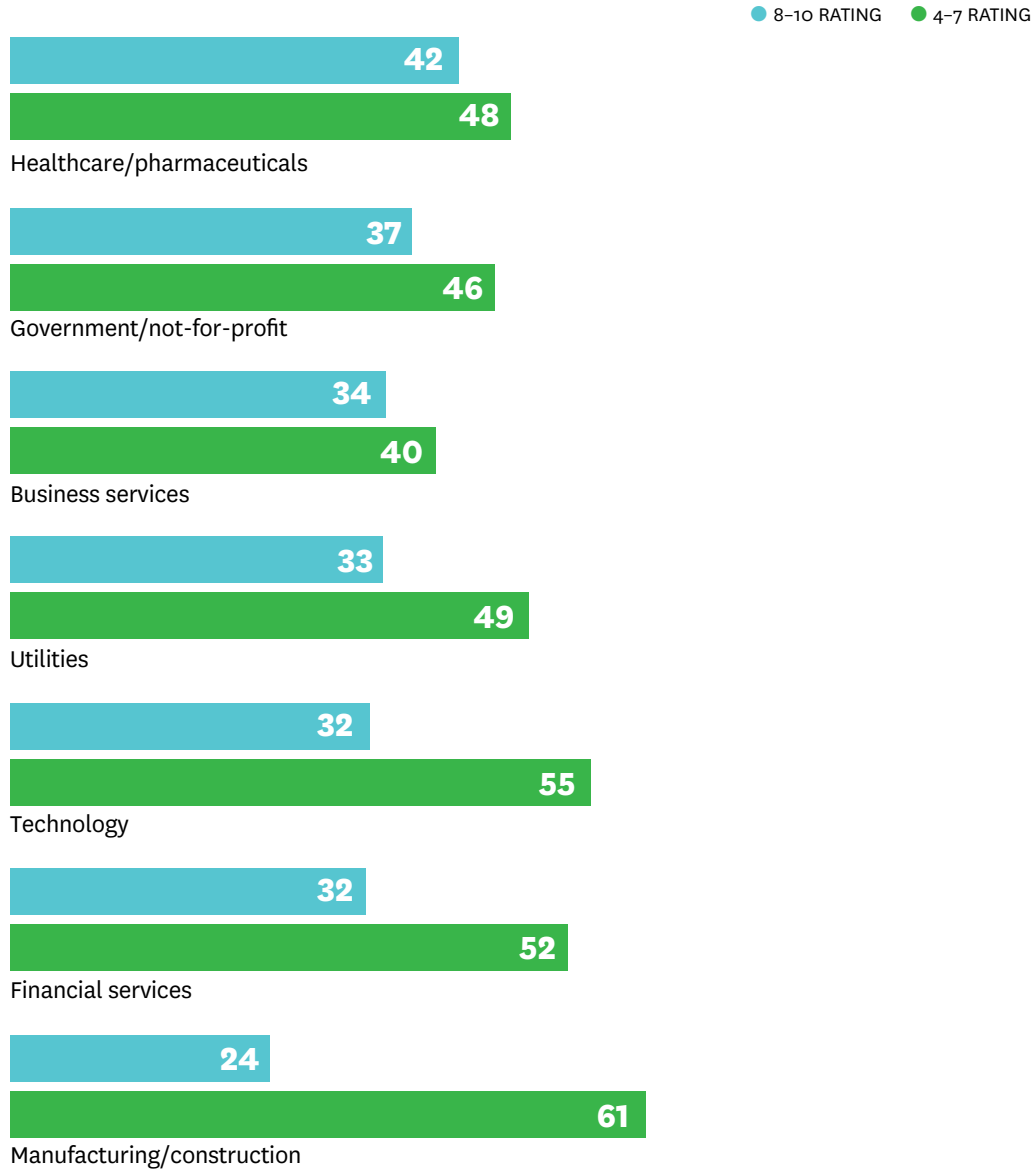
- Simpler IT deployment and ease of use,
- More flexibility for business process change, and
- Real-time connections to people, devices, and networks.

FIGURE 4

THE COST OF COMPLEXITY ON PERFORMANCE

Percentage rating the extent to which internal complexity is having a negative impact on their organization's performance relative to competitors².

[SCALE OF 1-10; 1 = NO NEGATIVE IMPACT, 10 = SUBSTANTIAL NEGATIVE IMPACT]



BEST PRACTICES FOR MANAGING COMPLEXITY

Historically, the main impediments to successfully implementing information technology have not involved hardware and software, but corporate cultures, organizational structure, and processes. According to respondents, many of the same challenges have so far hampered simplification efforts as well. Among the top roadblocks are departments or business units that won't work together, uncertainty over who should be responsible for addressing the problem, and failure to identify complexity as a priority to address. [figure 7](#)

All these point to a lack of the senior-level backing that would make simplification a clear organizational priority and force various units within the business to cooperate in it. Other process and culture issues mentioned by respondents that make managing complexity difficult include:

- Weak IT governance that allows too many disparate IT systems,
- Staff resistance to change in addressing complexity, and
- Staff and senior management reluctance to change.

FIGURE 5

WIDESPREAD PAIN FROM COMPLEXITY

Percentage rating which of the following functions within their organization are negatively impacted by business or IT complexities.

[SCALE OF 1 TO 10; 1 = NO NEGATIVE IMPACT, 10 = SUBSTANTIAL NEGATIVE IMPACT; THOSE SCORING 8-10]

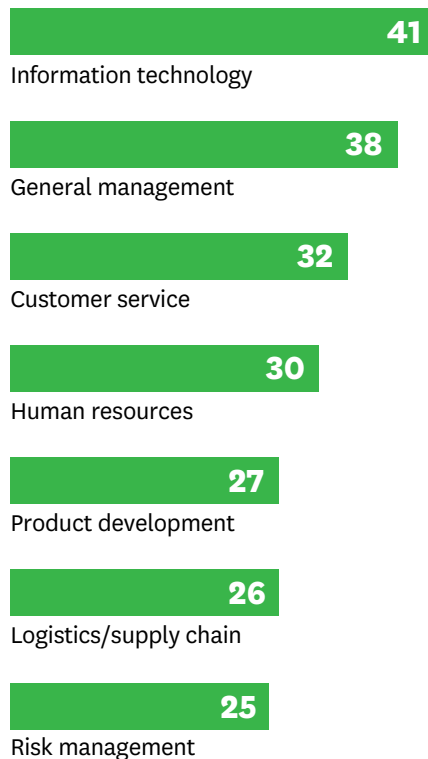
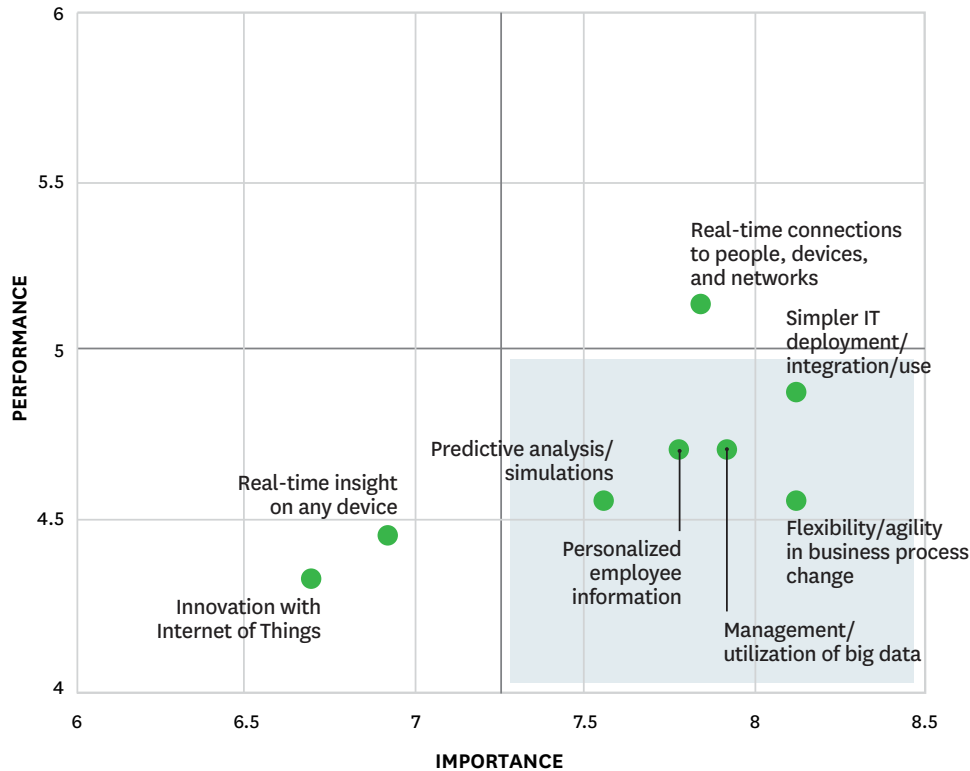


FIGURE 6

BUSINESS CAPABILITY: WHERE TO FOCUS EFFORT

Respondents rating how important it is to provide each of the following capabilities to their organization and how well they feel their organization is currently doing in providing each of the following capabilities.



Given their growing awareness of the problem, the leading organizations are putting a greater focus on complexity. [figure 8](#) Most striking is the sharply higher focus on complexity within the IT departments at the best-in-class organizations. This further supports the notion that IT plays a key role in managing complexity in the new reality. According to Chris Curran, principal and chief technologist, PricewaterhouseCoopers LLP (PwC), companies need to “figure out how to leverage the skills and experiences that they already have”—and then add the new skills they need to meet the needs of a digital economy.

What are these best-in-class firms doing better than other organizations? Assigning specific staff to evaluate new technology is one important way to avoid excess complexity, says Curran. “Be specific about who in the organization is going to be responsible to do that,” and then create “a concrete process for going through the evaluation and scanning, filtering, and prioritization of investments.”

Meanwhile, the survey indicates that business managers can do more to communicate the real costs of complexity and create the management backing needed to drive simplification. “The main challenge for a lot of folks is to articulate the value of reduced complexity,” says Mark Peacock, IT

FIGURE 7

CHANGES NEEDED TO SIMPLIFY BUSINESS

Percentage indicating issue is a barrier to managing complexity in their organization.

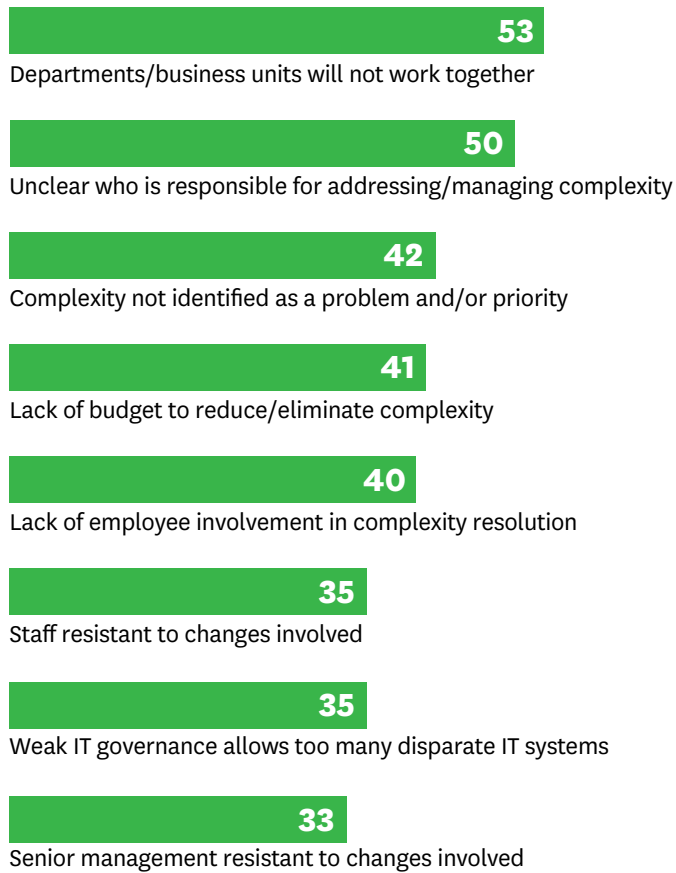
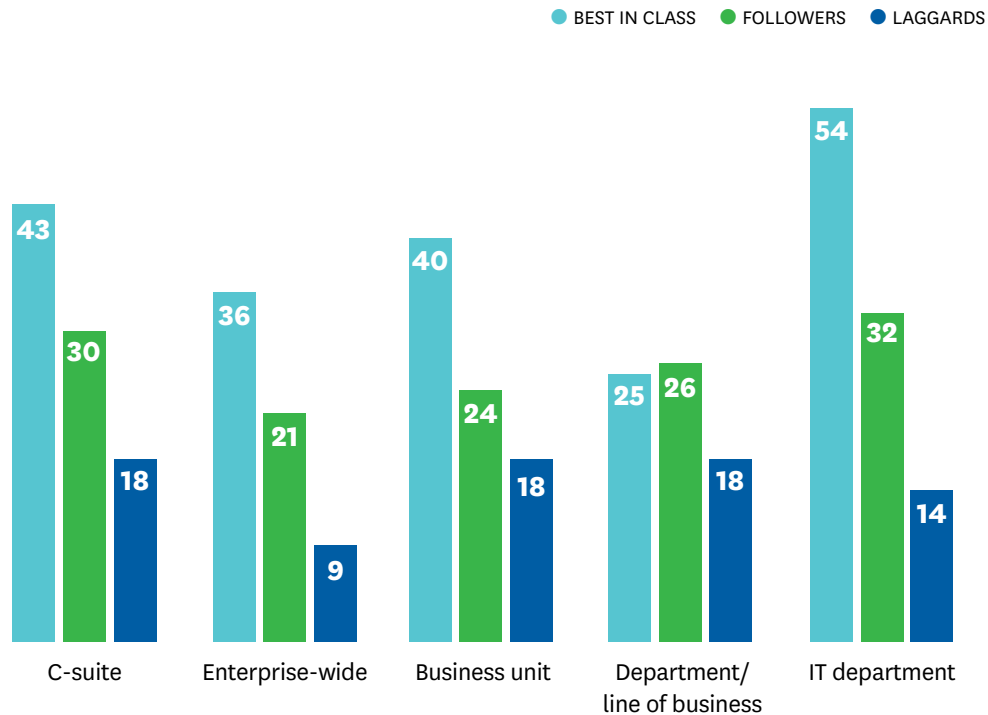


FIGURE 8

BEST-IN-CLASS FIRMS FOCUSED MOST ON COMPLEXITY

Respondents indicating the extent to which managing complexity is a focus at different levels within their organization. [PERCENTAGE INDICATING STRONG FOCUS AT THAT LEVEL]



transformation practice leader and principal at The Hackett Group. Implementing point solutions helps meet short-term business needs, he says. But if a business or IT leader can't explain the long-term cost of the complexity it introduces, "it's easy for an environment to get overly complex."

Finally, software as a service (SaaS) offerings help enforce such standardization, says Senior Research Director Eric Dorr at The Hackett Group. The reason: "You're going to be far more restricted with what you can do with it. It forces a certain discipline that often is missing when you do it on premises and can configure it any way you like."

SUMMARY

The forces driving complexity are not going away. Changes in business environments; increased regulation; new products, services, and channels to support; and the need to replace outdated IT systems will only increase over time.

The degree to which complexity makes it difficult to achieve business goals is shown by how respondents rank the importance of various business and IT capabilities. Depending on the capability in question, as much as three times as many business managers say their organizations are failing to deliver these capabilities as say they are very successful at them. These low levels of success make it strikingly clear how much work remains to be done to manage complexity.

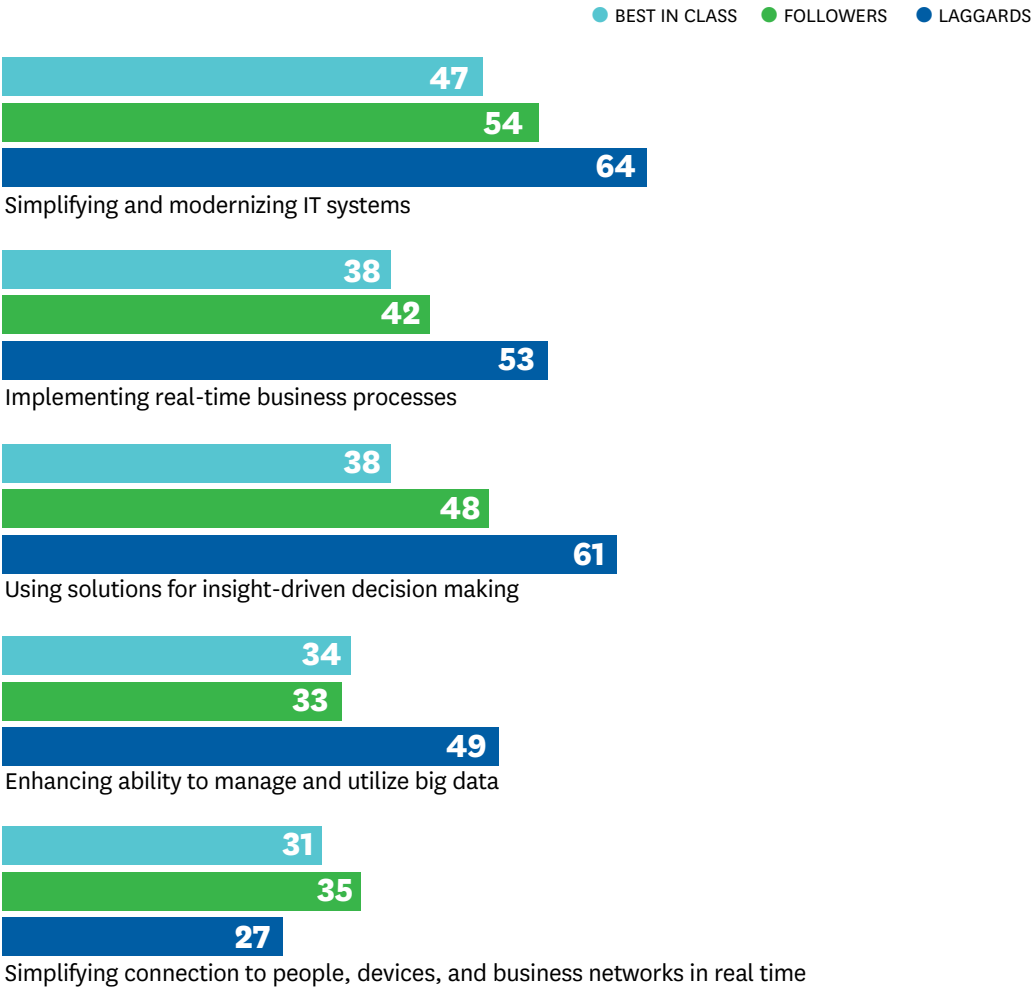
Significant simplification challenges remain, even for those respondents who consider themselves best in class. [figure 9](#) Nearly half of best-in-class respondents said they are still struggling to simplify and modernize their IT systems.

As MIT’s Mocker puts it, “Organizations must either be willing to face pain in the form of higher costs or reduced agility, or have a passion for simplification to proactively improve their processes.”

FIGURE 9

SIGNIFICANT CHALLENGES REMAIN

Percentage who say the following have been most negatively impacted as a result of complexity in their organization. [CHECK ALL THAT APPLY]



Other things that organizations should consider based on results of this survey include making managing complexity a top priority for everyone in the organization and creating better ways to measure and communicate the cost of complexity. Simplifying the user experience and implementing more flexible and more real-time business processes are also critical to success.

“Complexity prevents companies from being responsive and agile,” sums up Dorr at The Hackett Group. “Clients tell us that on a daily basis. Companies with the best handle on their technology landscape and the way they manage complexity really are at a competitive advantage.”

With all these compelling drivers for managing complexity, IT organizations have a role to play in adopting the new technologies and development processes that drive simplification. They can start by doing a better job explaining the true cost of excess complexity to management and looking beyond one-time technology fixes to push their organizations to make lasting, cross-business unit changes to processes and cultures.

METHODOLOGY AND PARTICIPANT PROFILE

A total of 749 respondents completed the survey, including 559 who are members of the Harvard Business Review Advisory Council.

PARTICIPANT PROFILE

SIZE OF ORGANIZATION

Only U.S. organizations with 1,000 or more employees and international organizations with 500 or more employees took part in the survey. Forty-five percent were in organizations with more than 10,000 employees, 47 percent were in organizations with 1,000 to 10,000 employees, and 8 percent were in organizations with fewer than 1,000 employees. More than one-third (39 percent) of companies had 2014 revenues of \$5 billion or more; 41 percent generated less than \$1 billion in revenues.

SENIORITY

Fourteen percent of respondents were executive managers or board members and just over one-third were senior managers (34 percent), with the same proportion (34 percent) in middle management positions. Eighteen percent came from other levels.

KEY INDUSTRY SECTORS

Technology provided 14 percent of respondents. Twelve percent worked in manufacturing and 12 percent in financial services. Other sectors were each represented by 10 percent or less of the respondent base.

JOB FUNCTION

Fourteen percent of respondents were in operations or project management; 10 percent are in HR or training roles. Other functions were represented by 8 percent or less of the base.

REGIONS (WEIGHTED)

Forty-five percent of respondents were from North America, a quarter (25 percent) were from Europe/MEA, and the same proportion (25 percent) were from Asia. Five percent came from the rest of the world.

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