



**Harvard  
Business  
Review**

**A REPORT BY HARVARD BUSINESS REVIEW ANALYTIC SERVICES**

# Business Transformation and the CIO Role

---

Sponsored by



## SPONSOR'S PERSPECTIVE



JIM WHITEHURST  
CEO  
RED HAT

I know we've struck a chord when more than one Red Hat customer asks me the same question. Lately, they've asked, "How can collaboration help us deal with cultural changes as IT departments move from the back office to the front office?" This kind of change management affects everyone from our financial customers to government and retail. And what they're really asking isn't limited to their IT departments.

Innovation isn't just a technology thing. And innovation can't happen in a vacuum. With the Enterprisers Project, we are doing what Red Hat does best—acting as a catalyst in a larger community. In this case, it's a community of IT executives who are responsible for steering the ship and making change happen.

The Harvard Business Review Analytic Services research Red Hat sponsored as part of the Enterprisers Project is meant to inspire conversations about IT innovation between CIOs and other corporate executives. Why? Only one-fifth of CIOs are considered trusted partners. And with only 16% considered a peer or business game changer. It's clear that more conversations need to happen.

What stands out most to me is that the companies the report calls "innovation accelerators" have so clearly broken away from the pack. They focus on things like customer experience strategies and service innovation. Not surprisingly, their IT departments broke the mold, too--using technology to set the business apart, not just keep the lights on and the data flowing.

We call innovation-focused CIOs "enterprisers" because they work every day to understand how their enterprise fits together, and how to be enterprising by supporting IT innovation to advance business goals. The Enterprisers Project grew directly out of Red Hat's mission to be the catalyst of change in communities of contributors and partners and customers building better technology. We don't have all the answers, but if we as IT leaders all get together, we know we can solve these problems.

A handwritten signature in black ink, appearing to read "Jim Whitehurst".

Jim Whitehurst  
CEO, Red Hat

## THE ENTERPRISERS PROJECT

Sponsored by Red Hat as part of  
The Enterprisers Project,  
[www.enterprisersproject.com](http://www.enterprisersproject.com)

## ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As the connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT. Learn more at [www.redhat.com](http://www.redhat.com) or [www.redhat.com/overview/](http://www.redhat.com/overview/).

# Business Transformation and the CIO Role

## Executive Summary

Businesses are being transformed by new technologies, especially those that bring more intelligence and mobility to their operations and products. Some companies are accelerating this transformation by pursuing IT-enabled business innovation as a core strategy throughout their organization, according to a recent Harvard Business Review Analytic Services survey of more than 400 business leaders around the world. Roughly a third of respondents work in these “Innovation Accelerator” companies. [figure 1](#)

While it’s clear from the research that all companies will feel the effects of these changes to some extent, Innovation Accelerators will see massive change over the next three years, particularly in how they engage with and learn about customers, as well as in their business models, products and services, and end user processes.

Innovation Accelerators share six common characteristics.

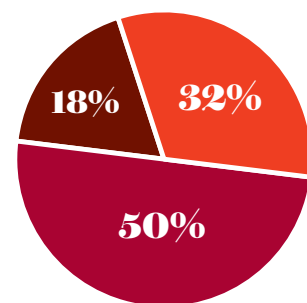
- Their commitment to technology-driven business innovation starts at the top, with the CEO.
- Their approach to innovation is structured and managed—but they value speed over perfection and cut through bureaucracy.
- They value diversity of thought and experience, collaborating fluidly across functions, hierarchy and traditional corporate boundaries.
- Their CIOs are significantly more likely to spend their time on activities that are strategic to the business.
- They have strong IT departments that actively and productively contribute to the corporate innovation agenda.
- They are more likely to invest in and reward innovation.

While these six traits can help build a roadmap for organizations seeking to harness IT for business transformation in the digital age, there are a number of barriers to overcome. These include functional silos, rigid ideas about roles and responsibilities, calcified processes, outdated compensation structures and technology infrastructures that were not designed to support the kinds of open and agile customer-engaging systems required today.

Figure 1

## Company Posture Towards IT-driven Business Innovation

Which of the following best describes your company’s posture toward IT-driven business innovation?



### INNOVATION ACCELERATORS

- In company DNA and consciously pursued strategy throughout organization

### AD HOC INNOVATORS

- Pockets of ad hoc innovation, but not pervasive or replicated across whole company

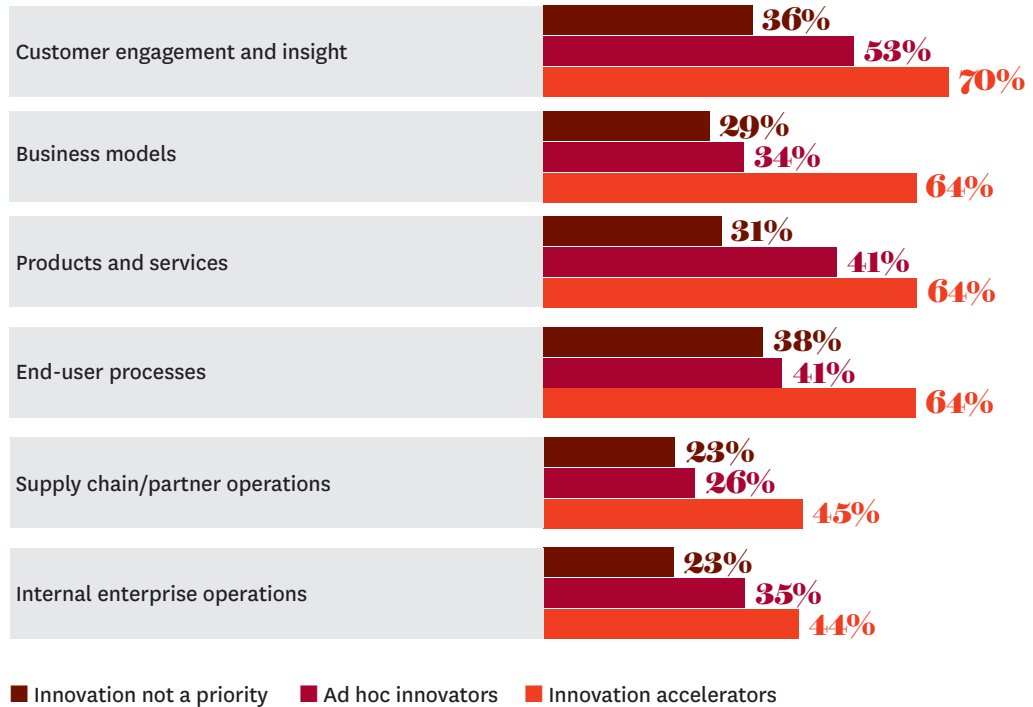
### NOT A PRIORITY

- Innovation not a top priority; focus elsewhere

Figure 2

## Innovation Accelerators Will Surge Ahead

What areas of your business will be most affected by IT-enabled innovation over the next three years?



## IT-Driven Business Transformation

The way organizations engage with and understand their customers leads the list of areas that will be changed the most by IT-enabled innovation with 55% of all respondents saying it will be changed significantly and 20% saying it will be completely transformed (rating it a 10 on a scale of 1-10). Such transformations can have significant payoff, as long as the goals are clearly defined. For example, a \$650 million innovation project at a large state government agency is returning \$4.7 billion to the state in additional tax revenue—a 7:1 return on investment—by aggressively pursuing self-service on the web and becoming a lot more sophisticated in their use of taxpayer data. “We model ourselves on the banking industry,” said the CIO. The agency is tapping into new sources of data (for example, 1099s and W2s from the IRS) to collect on taxes due; modernizing the models used to select cases for audit and collections; and centralizing all taxpayer address data in one location where it can be updated with new information from the US Postal Service, DMV, IRS, taxpayers themselves and more—thereby dramatically reducing the 1.5 million pieces of undeliverable mail sent out in the past.

Respondents also said that IT-enabled innovation would change the way employees do their work (48% significantly changed; 15% completely transformed); the company’s products/services (46% changed; 11% transformed); and business models (42% changed; 13% transformed). For Accelerators, the numbers are significantly higher; for example, 70% say their approach to customer engagement and insight will be significantly changed, and a full third say it will be completely transformed. [figure 2](#)

This translates to a number of specific projects that respondents expect to engage in over the next three years. Over half said they will automate business processes (67%); execute customer experience strategies (66%); create new applications (60%); and innovate their services (57%) and business models (56%).

A vice president of business development at a global real estate company offered an example of how profound such changes can be. “Real estate has traditionally been viewed as a cost center,” he said, but technology is changing that. “We’re turning that around to show our customers how real estate can add value,” for example, by using analytics to determine the best location for a new manufacturing plant, factoring in everything from energy costs to supply chain factors, and showing how that fits into the client’s overall global strategy. “We’re helping them see the future.”

Innovation Accelerators are more than twice as likely to invest in the creation of new applications than their non-prioritizing peers. [figure 3](#) They’re also more likely to concentrate externally on revenue generat-

Figure 3

## Innovation Accelerators Will Invest

Which of the following IT-related innovation projects will your business engage in over the next three years?

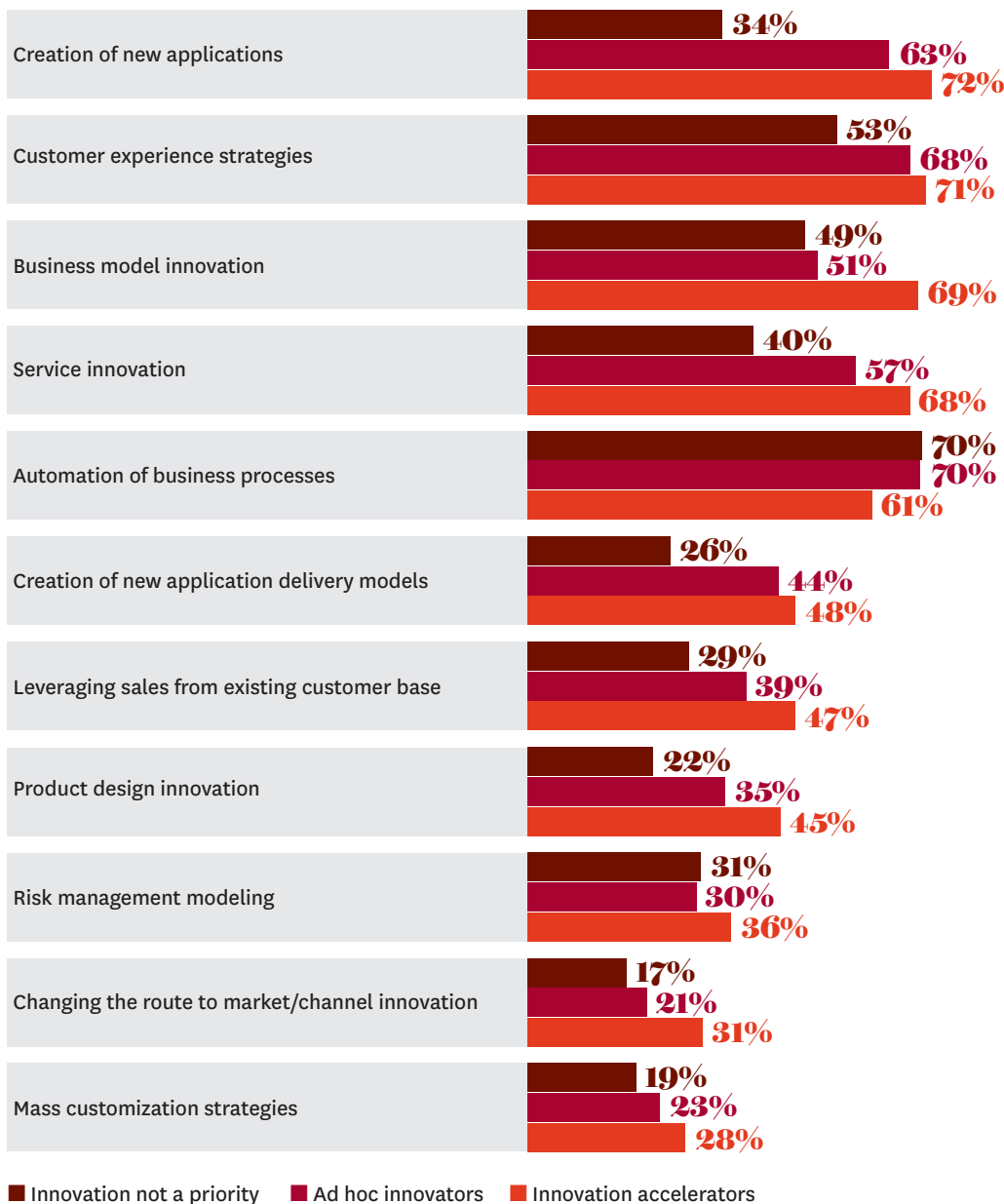
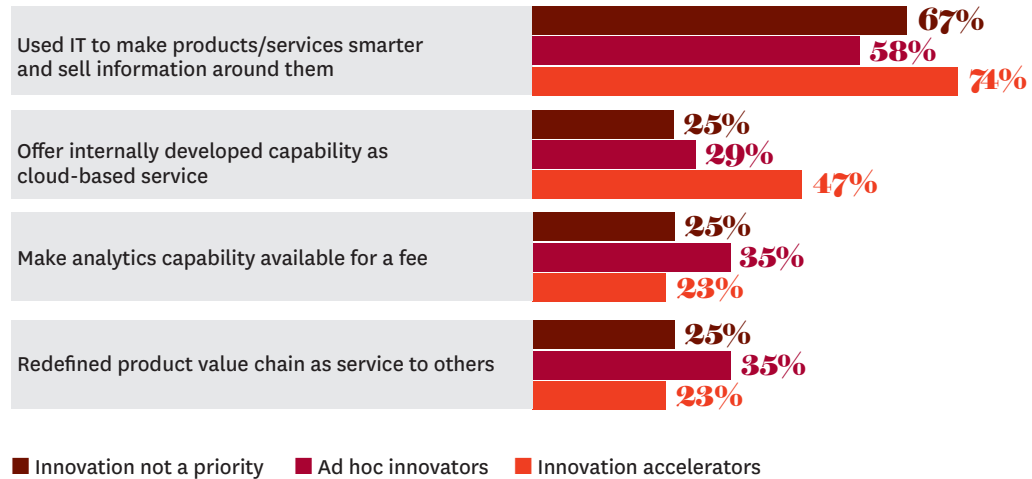


Figure 4

## Which Initiatives Have They Commercialized?

What types of IT initiatives has your company commercialized?



ing opportunities with new customer experience strategies (71%), business model innovation (69%) and service innovation (68%). By contrast, companies for which innovation is not a priority will focus more internally on the automation of business processes (70%).

Given the focus on customer insight and engagement, it's no surprise that business intelligence/analytics and mobile technologies and apps lead the list of technologies that will drive business innovation over the next three years, at 66% and 53%, respectively. These are followed by process automation, collaboration tools, cloud computing and social media. Echoing the previous finding, while 56% of Low Prioritizers cited process automation, only 29% of Accelerators did. This likely reflects that these companies have already completed this work and have moved on to other things.

Innovation Accelerators are increasing the return on their technology investments by commercializing some of their internal IT; 40% of them are doing so, compared to only 25% of Ad Hoc innovators and 16% of Low Prioritizers. The leading area of opportunity: using IT to make products smarter and to sell the insight such smart products generate. [figure 4](#) For example, a diversified industrial manufacturer is using data gleaned through their increasingly tech-enabled equipment on their customers' factory floors to help them improve their operations. Ultimately they will turn their data analytics services into revenue streams.

Given the top-line potential of such initiatives, investing in and forging an organization-wide commitment to IT-driven business innovation makes sense. Accelerators are more than twice as likely as others to rate their organization's IT innovation better than that of others in their industry (61% v 30% for ad hoc innovators and 16% for low prioritizers), presenting a clear opportunity for competitive advantage. [figure 5](#)

## The Six Characteristics of Innovation Accelerators

Organizations that have made this commitment share some common characteristics.

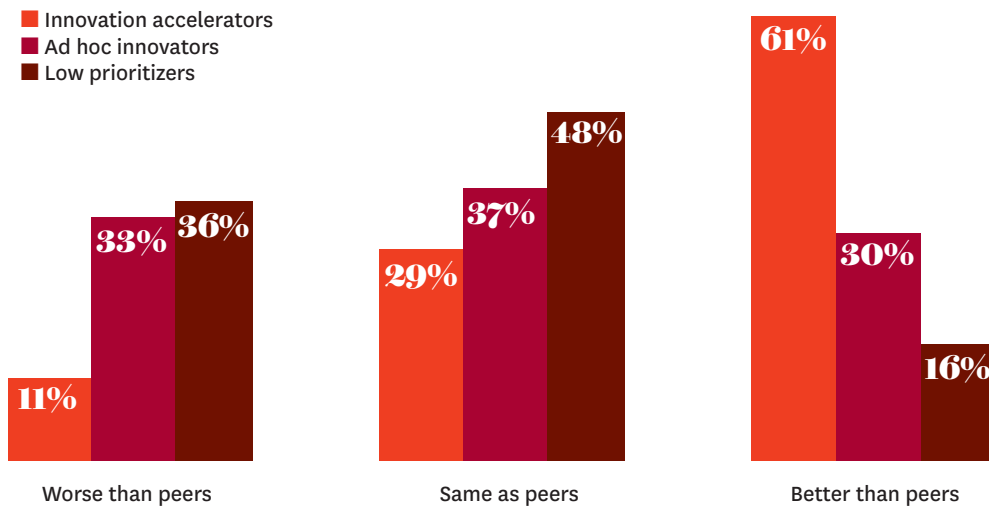
### 1. INNOVATION LEADERSHIP STARTS AT THE TOP

As information technology pervades more top-line activities, the leadership of technology-driven business innovation is starting to shift. CIOs lead this type of innovation—either alone or together with a business partner—in 41% of organizations today. [figure 6](#) That figure drops to 34% in Accelerator companies. CEO leadership, on the other hand, increases from 16% to 23%, and other C-level executives combined

Figure 5

## Strength of IT Innovation vs. Industry Peers

How do you think IT innovation in your organization as a whole compares to other businesses in your industry?



(non-IT chief technology officer, chief digital officer, chief marketing officer or chief innovation officer) goes from 16% to 21%. Around a fifth of organizations have a senior cross-functional committee or innovation board leading their IT-driven business innovation.

This does not mean the CIO is becoming less important or that the role is being diminished. Quite the contrary. CIOs at Accelerator companies are significantly more likely to play a strategic role in the business (see Business Strategist CIOs, page 8), as a key player on the CEO's growth team.

### 2. STRUCTURE INNOVATION, BUT MOVE FAST AND CUT THE RED TAPE

Companies today are almost evenly divided when it comes to taking a structured and managed approach to innovation (56%) versus an unstructured approach (44%). Accelerators, however, are much more likely to take a structured approach (79%). The global real estate company, for instance, has a formal process for employees to submit ideas, with a tiered system of rewards and recognitions based on the nature of the innovation. A cross-functional team vets the ideas, with marketing considering its potential from the customer perspective; PR evaluating its "story" potential; IT assessing how it will work with existing systems, etc. Innovation is also part of all employee performance conversations.

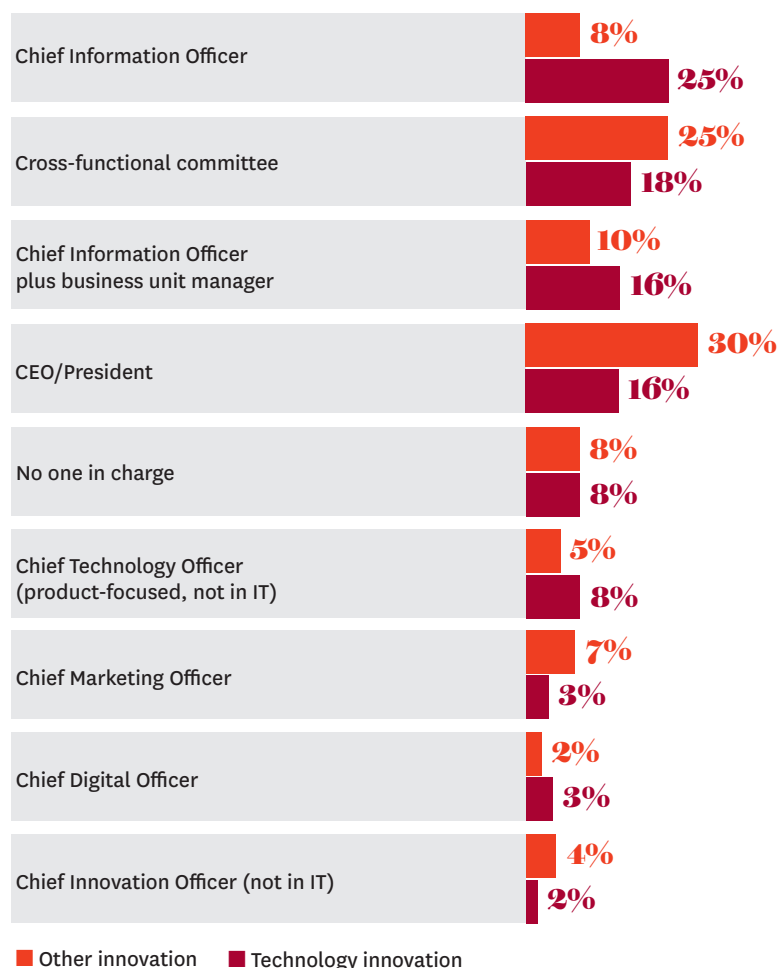
While having a structured approach is critical to increasing the flow and uptake of ideas, too much process can bog things down. Executives interviewed for this report talked about the need for speed. "We don't have two or three years to fix this," said the CIO for a regional grocery chain that finds itself competing now with the likes of Walmart and Amazon. His company uses an enterprise social networking/collaboration tool to move ideas quickly from the edge (store managers, associates and even customers) to the center of the organization. All executives receive a daily digest of posts culled from the tool; the contents are discussed at executive staff meetings.

Cross training and departmental rotations can help speed innovation efforts by giving people a shared understanding of the business, according to a number of executives interviewed for this report. The CIO at the large state government agency had previously worked in different lines of the business and had run one of them. She used her common understanding to engage her business partners in brainstorming sessions around their biggest pain points and desires. Together they conceived and gained approval for the massive innovation project with the 7:1 return.

Figure 6

## Who Is Responsible for Innovation?

Who's primarily responsible for leading: a) technology-driven business innovation and b) other innovation from a strategic or content perspective?



Outdated legacy technology can act as a drag on innovation efforts, and many organizations are trying to modernize as quickly as they can. “We’re aggressive, because we’re on catch up,” said the CTO of a luxury goods company. “The way we attack that is with agile methodology—that’s a best practice within the group.” The company is working toward having a single platform across all the brands, both for their back office and in how they engage with customers, but that will take time. Rather than wait for the entire project to be completed and roll out in a “big bang,” he uses what he calls a “little and often” methodology. “We need to be moving forward every day,” he explained. “If you’re doing agile, you create a continuous readiness for change.” He’s careful to strike a balance, however. “We don’t want to overload the organization; you have to allow it to settle.”

Experienced leaders have learned that a good marketing campaign can facilitate IT-driven change. “You have to have a sales and marketing mentality,” said the CIO at an East Coast university. “All our services have to be desired—that’s how you get a fast uptake.” If you can generate buzz around a systems roll-out, then “the next project will be easier, faster, better.” To induce that desire, however, requires understanding how the business works—what people are trying to do, and where their frustrations lie.



### 3. COLLABORATE AND SEEK OUT NEW PERSPECTIVES

Innovation Accelerators know the value of cross-functional collaboration; almost half (48%) say that IT and the business typically engage together to identify innovation opportunities. Ad hoc innovators and low prioritizers were both more likely to take a business-led approach, with the IT Department in a supporting role, implementing new technology requirements that it receives from the business but not participating up front.

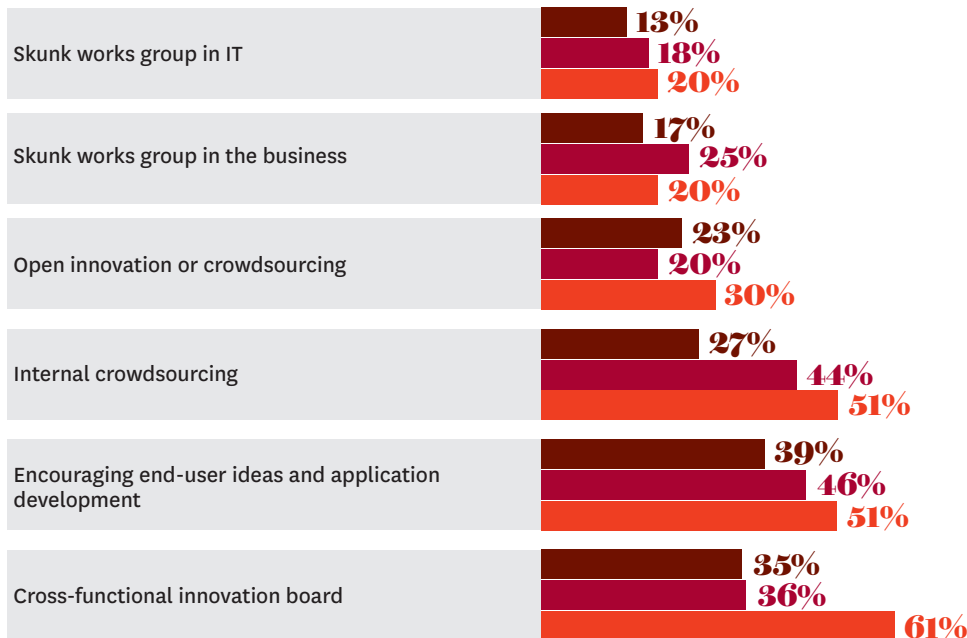
A large consumer goods company whose products have been disrupted by a combination of government regulations and new competition has changed its culture dramatically in this regard. “There’s great recognition and inclusion across different functions for innovation and work processes,” said the director of sales and marketing technology. It’s becoming the norm to reach beyond a particular group for help solving problems. Staff meetings are open to people from other functions, and there’s a new emphasis on “going two levels down” to expose executives to the people doing the work in order to identify opportunities for simplification.

Accelerators are much more likely to have a cross-functional innovation board and to take an open approach to innovation through crowd-sourcing and encouraging end-user ideas. *figure 7* “We don’t pre-judge who might be able to solve the problem,” said a department leader at a large government agency that uses both internal and external crowd-sourcing to tackle technical challenges. The university CIO encourages everyone to weigh in; one night when he was working late he got a useful suggestion to improve the new company intranet from a member of the facilities team. Such instances are publicized and celebrated to encourage more engagement. Major transformations require bringing in people with a different experience base. The luxury goods company hired from the online trading world to help it make the transition to ecommerce because it was so different from its traditional retail environment.

Figure 7

### IT-driven Business Innovation Tactics: A Close-up

Which of the following approaches to IT-driven business innovation does your company employ, if any?



■ Innovation not a priority ■ Ad hoc innovators ■ Innovation accelerators

#### 4. CIOs ARE BUSINESS STRATEGISTS

CIOs have a mandate to innovate in this changing environment. But the daily concerns of running IT and inadequate resources often hold them back. While 57% of respondents say the CIO should drive innovation and strategy, only 12% say their CIO actually does that. [figure 8](#)

Respondents perceive their CIOs as spending most of their time on functional activities, alignment and change. [figure 9](#) Almost half say their CIO focuses on cost control/expense management and managing IT crises; few say these activities add value to the business. Conversely, almost half say the CIO should spend time on driving business innovation, but only 16% say they do. Forty percent say the CIO should identify opportunities for competitive differentiation; only 13% say they do.

To be fair, some of this may be perception. In a similar study conducted by CIO magazine, respondents—all of whom were themselves CIOs—indicated they spend slightly more time on Business Strategist activities than was reported in this study; significantly more time on Transformational activities; and significantly less time on Functional tasks, generally speaking.

But things are looking brighter at Accelerator companies, where CIOs are significantly more likely to spend time on activities that are strategic to the business. These include developing and refining business strategy (26% at Accelerators compared to 13% at Ad Hoc and 14% at Low Prioritizers); driving business innovation (30% v 10% and 5%); and identifying opportunities for competitive differentiation (26% v 7% and 9%). And CIOs are increasingly called upon to go on sales calls to explain a new tech-enabled value proposition to prospects and customers.

Accelerator CIOs focus on the strategic priorities and metrics that matter. For a competency-based online university, that means increasing graduation rates to equate not just to other online universities but to traditional higher ed. “We looked at what levers can we pull to increase graduation rates 10 percentage

Figure 8

### CIOs’ Actual vs. Ideal Role

Which of the following best represents the current role of your organization’s CIO? Which of the following CIO roles would enable the most valuable and effective technology-driven business innovation in your organization in the future?

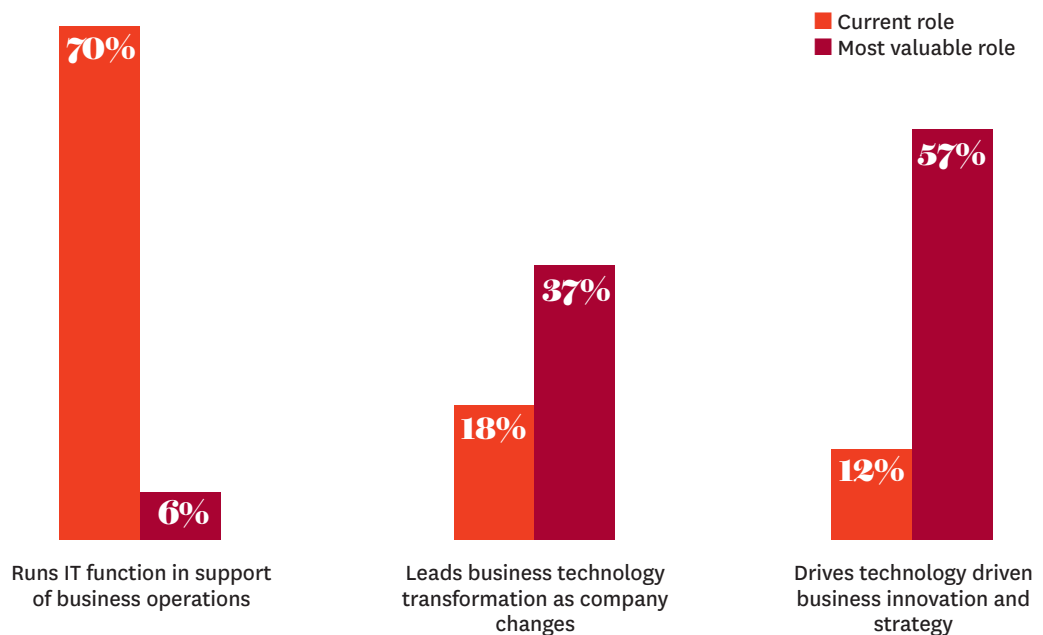


Figure 9

## How the CIO Spends His/Her Time

Which of the following activities best characterize how your current CIO spends his or her time?

Which of the following activities should that person spend time on to add the most value to the business?

	What Business Leaders Say <sup>1</sup>		What CIOs Say <sup>2</sup>		
	TODAY	IDEAL	TODAY	3 YEARS	
<b>BIZ STRATEGIST</b>	Developing and refining business strategy	17%	32%	20%	32%
	Studying market trends/customer needs to identify commercial opportunities	12%	26%	8%	25%
	Driving business innovation	16%	46%	18%	41%
	Identifying opportunities for competitive differentiation	13%	40%	15%	43%
	Developing new go-to-market strategies and technologies	12%	32%	13%	23%
<b>TRANSFORMATIONAL</b>	Redesigning business processes	15%	28%	17%	23%
	Aligning IT initiatives with business goals	36%	44%	45%	35%
	Cultivating the IT/business partnership	26%	36%	40%	42%
	Leading change efforts	22%	33%	38%	26%
	Implementing new systems and architecture	40%	21%	47%	27%
<b>FUNCTIONAL</b>	Managing IT crises	45%	8%	22%	6%
	Negotiating with IT vendors	38%	7%	29%	13%
	Improving IT operations/systems performance	41%	27%	48%	16%
	Security management	41%	16%	29%	13%
	Cost control/expense management	49%	16%	35%	16%

This framework is from the CIO Executive Council Future State CIO model

<sup>1</sup> Results from the current survey

<sup>2</sup> Data from Market Pulse survey conducted by CIO magazine for Red Hat in which respondents were answering for their own position.

points over the next 5 years,” said the CIO. “If you think about us as an ecommerce company, we have a customer retention problem. So we’re working on customer intimacy, segmentation, and filling the needs of those customer profiles.” IT supports other aspects of the business by standardizing and buying packages wherever possible.

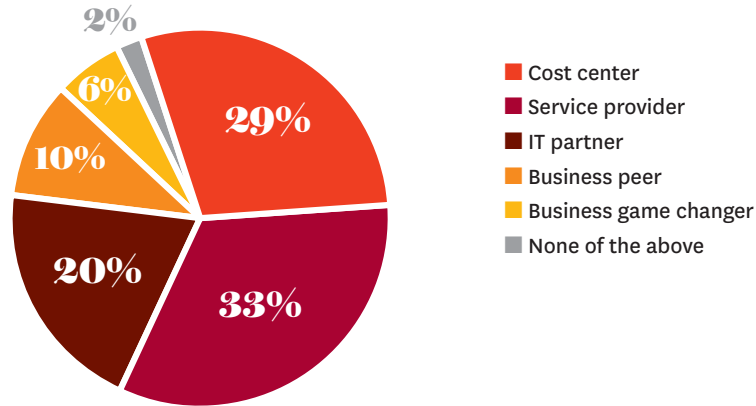
### 5. IT SUPPORTS NEW BUSINESS OPPORTUNITIES

Today’s IT departments are not well positioned to support the innovation agenda, according to survey respondents. When asked how they would characterize their company’s current IT organization, most said they viewed them as a cost center (29%) or service provider (33%). Only 20% see them as a trusted partner; and few view them as a peer or business game changer (16% combined). [figure 10](#) Once again, Accelerators portray a different picture, with 30%—almost twice as many—viewing their IT departments as a peer or game changer, and only 13% regarding them as a cost center (compared to Low Prioritizers’ 53%).

Figure 10

## How Organizations View Their IT Department

How would you characterize your company's current IT organization?



Innovation Accelerators have IT departments that are highly capable of supporting new business ideas and opportunities. [figure 11](#) They are much more likely to have access to the right technology, knowledge of the business and the right technical skills, and to be more receptive to new ideas. They are also more than twice as likely to have the right IT talent to drive their business innovation agenda, with 62% saying they do, compared to 31% of Ad Hoc Innovators and 27% of Low Prioritizers.

Accelerators' IT departments are far more likely to have a good understanding of the business, communicate effectively with senior business leaders and possess the skills to ensure future company success. [figure 12](#) They proactively identify new technologies to fuel innovation and invest in technology that supports engagement with their senior business leaders.

It is clear: Companies that have made innovation a priority have strong IT departments that actively and productively contribute to the corporate innovation agenda.

### 6. INVEST IN AND REWARD INNOVATION

Sometimes having the right skills, mindset and ability is not enough; investment in innovation is important too. "Our CIO has that ability," said the Controller at a global asset management company. "The challenge is we haven't had the resources to act on that. We've been in keep-the-lights on mode," with the technology budget limited to maintaining existing systems and doing required upgrades. This year, he said, additional resources are being freed up to do new things.

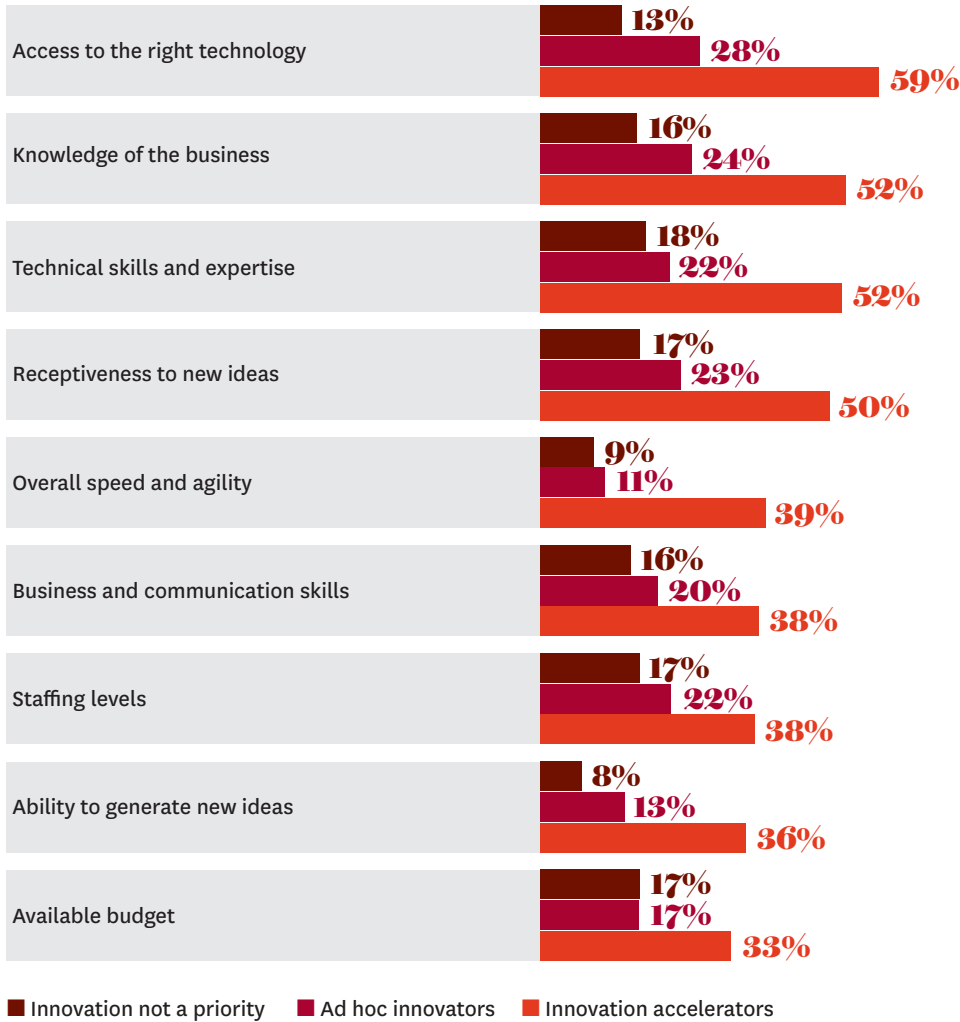
A good place to put such investment is in an emerging technologies group; Innovation Accelerators are twice as likely as Ad Hoc Innovators or Low Prioritizers to fund such groups (63% v 30% and 32%).

However, investing in innovation doesn't have to mean breaking the bank. Sometimes it means being creative on a very lean budget indeed. The consumer goods company has an IT budget of less than 1.5% of revenue. "It's difficult to free up headcount and dollars to invest in experimental projects when you're scrambling just to maintain operations," said the director of sales and marketing technology. Their solution has been to create "innovation challenges" in which a cross-functional team works together for four or five days to solve a specific business problem. Sometimes they include customers. As ideas show promise, they earn more investment. So far three of the nine challenges they've run have yielded commercial products. An important side benefit is that "it's taught people to work differently," and that's carried over into their everyday lives.

Figure 11

## Accelerators' IT Departments Are Far More Capable

The following is a list of capabilities that enable an IT organization to support new business ideas and opportunities. Please rate your own IT organization on each.



A global software company brings its IT team together a couple of times a year for an innovation contest. Senior executives present their biggest problems, and people compete to come up with solutions. The winners get money to go and implement their solution.

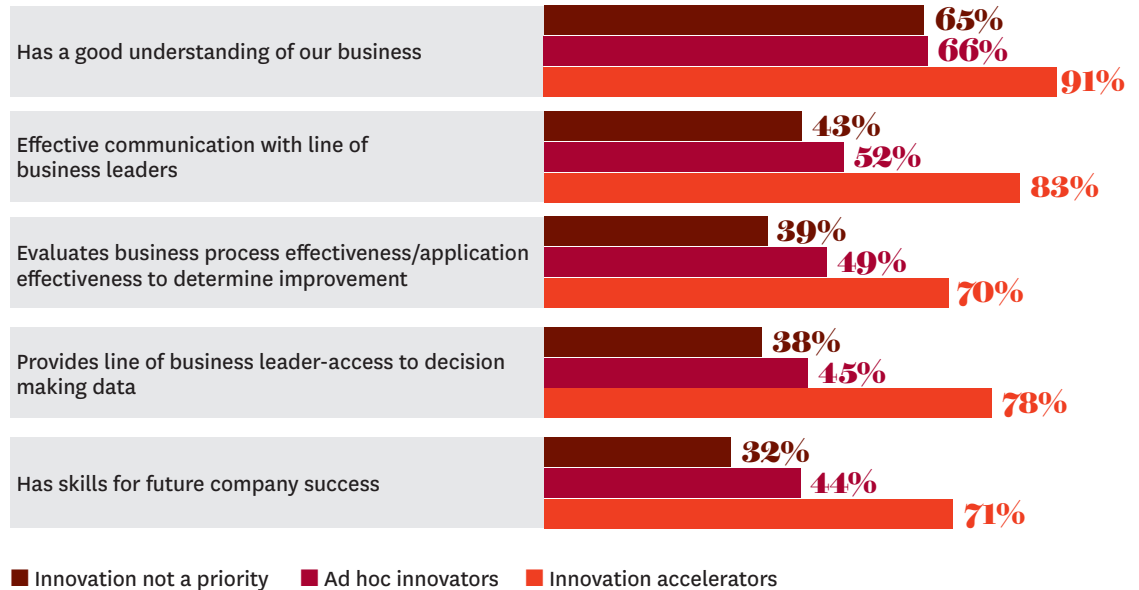
A government agency engages its employees through internal crowd-sourcing for ideation problems and goes outside for specific modeling problems, using such partners as Innocentive, a global crowd-sourcing platform, to tap into the broader scientific community. “We’ve moved from the vertically organized institutions of the past to use significant outside resources to best advantage,” said a department leader. “The main challenge is integrating this new innovation process into our existing project flow.”

Accelerators are also more likely to consult with futurists and to visit technology labs and to reward innovation (56% of Innovation Accelerators are rewarded for innovation versus only 35% of Ad Hoc Innovators and 19% of Low Prioritizers). While rewards can be financial, oftentimes recognition and the ability to work on interesting projects have a greater impact.

Figure 12

## Accelerators' IT Departments Are on Another Level

Please indicate how strongly you agree or disagree with the following statements about your IT organization.



## Conclusion

Rapid developments in information technology—especially analytics and mobile technologies - are having a dramatic impact on all aspects of business. This research suggests that organizations that make a strong commitment to IT-driven business innovation will accelerate their transformation in such key areas as how they engage with and understand their customers; new business models; the development of new products and services, how employees do their work, and more. These Innovation Accelerators are significantly ahead of their competitors when it comes to IT innovation—including the extent to which they have successfully commercialized internal IT initiatives.

The research also reveals six key characteristics these Accelerator companies share that can help provide a roadmap for others seeking to transform their businesses. It begins with a commitment from the CEO that is shared by the company's cross-functional leadership. It includes taking a structured approach to ensure innovation occurs throughout the organization without bogging it down. Innovation Accelerators are inclusive, valuing the perspectives, knowledge and ideas of diverse people and groups, both inside and outside the company. They have strong CIOs who focus on business strategy and innovation and identifying opportunities for competitive differentiation. They have IT departments that support new business ideas and opportunities with access to the right technology, knowledge of the business and the right technical skills. And they invest in and reward innovation.

CIOs have a mandate to innovate. The ones who accelerate won't wait for permission but will lead their organizations into what will likely be a very different, technology-driven future. They will be a key part of the CEO's growth team, designing the open, agile and customer-engaged organization that will create new value—and competitive advantage.

## Methodology and Participant Profile

Harvard Business Review Analytic Services received a total of 420 survey responses, from 329 members of the Harvard Business Review Advisory Council supplemented with 91 *Harvard Business Review* newsletter subscribers.

### **PARTICIPANT PROFILE**

#### **Size of Organization**

All respondents are from companies with 500 or more employees. Forty-five percent of respondents are in organizations of 10,000 or more employees, with a further 30% in companies of 1,000 to 4,999. Firms with fewer than 1,000 employees make up 14% of the respondent base. The remaining 11% come from organizations with 5,000-9,999 staff. Thirty-two percent of organizations have 2011 revenues of \$5 billion or more.

#### **Seniority**

Eighteen percent of all respondents were in executive management or board-level positions, with about one-third (31%) in senior management positions and 37% in mid-level management positions.

#### **Key Industry Sectors**

Fifteen percent of respondents work in the technology sector, 12% in financial and 11% in manufacturing. Eight percent come from both healthcare and consulting services, with 7% working in government/not-for-profit. Other sectors are each represented by 6% or less of the respondent base.

#### **Scope of IT Decision Making Responsibility**

Almost half (44%) of respondents are part of an IT decision making team; 46% make recommendations but not the final IT decision, and 10% are the primary decision makers in their organizations.

#### **Regions**

Forty percent of respondents are from North America, about one-quarter (24%) are from Asia and Europe (23%). Thirteen percent are from the rest of the world.

**FOR MORE INFORMATION ON  
HARVARD BUSINESS REVIEW ANALYTIC SERVICES, VISIT**

[hbr.org/hbr-analytic-services](http://hbr.org/hbr-analytic-services)



**Harvard  
Business  
Review**