What Makes Digital Leaders
A Full C-suite Perspective

Written by
The Economist Intelligence Unit
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What makes digital leaders: A full C-suite perspective, a survey conducted by the Economist Intelligence Unit and sponsored by CSC, explores links between digital technologies and strategic success, current investments in IT and how companies plan to use digital technologies going forward. This report’s analysis is based on a sample of 514 respondents comprising CIOs and senior executives at companies across a range of industries and regions. The breakdown by role is as follows:

- 61 CIOs
- 100 other senior IT executives
- 200 C-level executives with other functional specialties
- 52 senior finance executives
- 51 senior marketing executives
- 50 senior operations executives

Respondents span regions and industries, and their companies were nearly evenly split between those above and below $500 million in annual revenues.

We would like to thank the following individuals for their insights:

Rajan Anandan, vice president and managing director, South East Asia & India, Google

Pat Gallagher, CEO, Arthur J. Gallagher

Kathy McElligott, CIO, McKesson

This report was written by Scott Leff and edited by Josselyn Simpson.

Access all of the resources from the survey, including an infographic, a video and industry- and region-specific articles at csc.com/DigitalEnterpriseSurvey.
Introduction

Digital technologies, such as cloud computing and mobile applications, have the potential to transform fundamentally the way businesses operate. Companies realize they must go digital and are increasing their spending on technology accordingly. For example, IDC estimates that total global expenditures on mobile technologies will rise to $1.2 trillion in 2019,\(^1\) when worldwide spending on the public cloud will reach $141 billion.\(^2\)

Despite such increased investment, most companies have not fully taken advantage of newer digital technologies. In fact, many companies still tend to see IT as operationally helpful but not a strategic differentiator, according to a survey of more than 500 C-level and other senior executives both inside and outside of the IT function. The survey, conducted by the Economist Intelligence Unit (EIU) and sponsored by CSC, also shows that many companies haven’t made the links across their organizations that would enable technology to empower the business. However, nearly half of respondents expect their organizations to become even more digital, integrated and collaborative going forward.

Some companies, however, have made the leap: The survey identified 41 “digital leaders”—enterprises that, according to their executives, are entirely digital across all major functions. Digital leaders enjoy several key benefits. They are more often globally integrated than other companies and much more often effective at sharing information across functions and regions. The majority of executives at digital leaders view IT as crucial to meeting their companies’ strategic goals. And digital leaders’ executives also more often report higher financial performance: 37% of their executives indicate that their fiscal performance was much higher than competitors’ in the past fiscal year, compared with just 11% of respondents at other companies.

Important to note: The mix of respondents in this “digital leader” segment mirrored the survey sample as a whole—it represents all sizes, regions and industries—suggesting that digital leaders are pursuing a truly distinct path from other companies rather than being influenced by their particular industry, region or budget size.

As businesses seek to become more digital, they must overcome a number of challenges, including, executives expect, constrained budgets and a lack of qualified talent. Companies intent on developing an IT strategy for the fully digital future could gain valuable insight from the approaches that have worked well at digital leaders.

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Investing in IT to drive better performance

Since technology drives every facet of the business, a company’s investments in digital tools can be an indicator of its priorities and overarching strategy. Our analysis of the global group of respondents suggests that executives on the whole see investments in digital technologies as a way to boost operational performance rather than as a strategic move. More than half of respondents (54%) indicate that they are becoming more digital to raise efficiency—for example, by providing employees with tools to streamline daily tasks. Meanwhile, 35% see cost-cutting as their primary goal. Slightly more than one-quarter view going digital as a way to keep up with new, fully digital companies, while just 10% pursue technology as a way to surpass competitors.

Even with these mostly operational goals, the survey found that companies are planning a clear transition from legacy technologies to emerging ones: Overall, executives expect to invest in more cloud and mobile technologies over the next three years while reducing their reliance on traditional technologies such as PCs and on-premises servers. Whereas proprietary software used to be a competitive differentiator, many companies see the latest cloud-based technologies as table stakes.

Arthur Gallagher, a global insurer with more than $5 billion in annual revenues and locations in 32 countries, understands the imperative to keep pace with the competition. CEO Pat Gallagher notes, “Everybody’s connected; everyone wants information at their fingertips every second. And you’d better be able to put it on an iPhone or a tablet.”

Kathy McElligott, the CIO of McKesson, a pharmaceutical distributor and healthcare

<table>
<thead>
<tr>
<th>Why go digital?</th>
<th>What are your company’s primary goals in becoming more digital? (% respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To become more efficient</td>
<td>54</td>
</tr>
<tr>
<td>To cut costs</td>
<td>35</td>
</tr>
<tr>
<td>To keep up with new, fully digital competitors</td>
<td>27</td>
</tr>
<tr>
<td>To meet customer expectations</td>
<td>26</td>
</tr>
<tr>
<td>To keep up with existing competitors</td>
<td>22</td>
</tr>
<tr>
<td>To surpass competitors</td>
<td>10</td>
</tr>
<tr>
<td>To meet investor/analyst expectations</td>
<td>4</td>
</tr>
</tbody>
</table>

Totals do not add to 100% because of rounding and because respondents saying “don’t know” are not included.

Source: Economist Intelligence Unit, 2016.
information company with more than $40 billion in annual revenues and 68,000 employees, has guided McKesson on the path to digital technologies. “We began to virtualize our systems to use fewer physical servers in our data centers,” she says. “Since then, we’ve implemented our own private cloud offering and are moving toward a private-public hybrid offering to increase the speed of our development and provide the ability to leverage lower-cost computing and storage.”

Following the same path, nearly half of all respondents say they will begin to adopt cloud applications or increase their use over the next three years, and around 48% plan to boost their spending on collaboration software. These investments are likely to provide employees at global organizations with the tools they need to work more productively. Further, one in seven respondents (nearly 16%) indicate that their companies will reduce the use of on-premises servers, and 12% plan to cut spending on or stop using PCs altogether.

**Different technology priorities**
Which of the following technologies does your company use, or support the use of by employees today? And how, if at all, do you expect your company’s use of those technologies to change over the next three years in order to meet your strategic goals?

(\% respondents)

<table>
<thead>
<tr>
<th>Technology Type</th>
<th>Using today</th>
<th>Increase/start using three years from now</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public cloud</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hybrid cloud</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Smartphones</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Traditional on-premises servers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cybersecurity tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Desktop and/or laptop PCs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Private cloud</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital leaders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Economist Intelligence Unit, 2016.
Digital leaders, meanwhile, are out ahead of other companies in prioritizing investments in the public cloud, in collaboration software and in cloud-based application services. “The reality is big decisions can get made very quickly because of collaboration platforms,” says Rajan Anandan, vice president and managing director of Google, South East Asia & India. “What makes companies like Google and other technology companies very special is when you add these technology-enabled collaboration platforms to very flat management structures where anybody can talk to anybody, decision-making speed goes up dramatically. For example, we can set up a meeting with 10 leaders from different parts of the world 5 minutes before the meeting starts. After 15 or 20 minutes, we can make a decision and move on.”

Further, 63% of digital leaders indicate that they plan to increase their overall IT spending somewhat or significantly in the next three years — perhaps a reflection of their greater overall IT spending. (Just 40% of other companies will increase use of these traditional technologies during the same period.)

Surprisingly, spending on cybersecurity is lagging far behind investments in other tools despite regular headlines about cyberattacks and security breaches. More than one-third of the respondents say they plan to start using cybersecurity tools in the near future. This may suggest that the rapidly evolving nature of cyberattacks has simply outpaced the ability of many organizations to make targeted investments to safeguard themselves. Ms. McElligott notes, “The cyberlandscape is incredibly dynamic and increasingly sophisticated, and companies must continue to invest in the space.”

Investments in cybersecurity vary by region: 50% of respondents in Asia-Pacific say they will increase or start using cybersecurity tools, a figure that jumps to 56% in North America and 61% for EMEA, where privacy concerns are at the forefront of public concern.
Looking ahead, executives understand that investments in technology alone won’t make a company entirely digital; talent has a vital role to play as well. Overall, respondents indicate that IT will need to improve and expand its skills over the next three years, with the most focus on managing big data analytics (38%) and application modernization (37%). Data analytics will be critical to identifying new market opportunities, serving customers more effectively and managing risk, while application modernization reflects an emphasis on bringing proven applications into the digital age.

Interestingly, though, digital leaders emphasize slightly different priorities. Respondents at those companies are looking mostly at application modernization (49%), collaboration (44%) and mobility (39%)—all investments to empower the mobile workforce—along with investments in cybersecurity tools (39%).

Executives cite several barriers they will need to overcome to improve performance and support business strategy. Budget constraints are the primary obstacle, cited by nearly 40% of survey respondents. Just 17% of executives say their companies plan to increase their IT budgets significantly over the next three years. Other challenges include IT budgets that are consumed by existing IT workloads and difficulty finding talent with the requisite skills to support IT’s mission. Despite these concerns, respondents remain very confident in their IT function’s ability to deliver the technology and capabilities needed to support the business.

Digital leaders are far more confident than those at other companies regarding IT’s ability to deliver on both the technology (88% of respondents compared with 55%) and capabilities (85% vs. 47%). In the coming years, these respondents believe their companies will collaborate very effectively across regions and business units and with customers.

This optimism might stem from the fact that nearly four in 10 digital leaders expect IT spending to increase significantly in the next three years, compared with just 15% of other companies. Looking at spending expectations more broadly, 53% of all respondents expect some increase in spending over the next three years, which is in the midrange of reported spending increases from prior CSC surveys. In 2013, for example, 46% of companies reported spending more on IT than in the previous year; in 2015, that number rose to 64%.

Mr. Gallagher makes a direct connection between IT investments and performance. “We’ve taken our margin up about 4.5 total points over the last five years...And a large part of that’s been driven by tech.”

— Pat Gallagher
CEO, Arthur J. Gallagher

“We’ve taken our margin up about 4.5 total points over the last five years...And a large part of that’s been driven by tech.”

1 The CIO’s new role: Core strategy enabler, CIO Barometer 2013, CSC, 2013.
A company’s progress on the digital journey can vary markedly depending on who controls IT and its budgets, the specific IT investments an organization makes and how the function is perceived in the company. Comparing digital leaders with other companies highlights these differences and suggests possible implications.

Primary driver of IT strategy

When asked to identify the executive who is the primary driver of IT strategy, respondents split evenly between CEOs and CIOs, at 37% each. That the vast majority of respondents say one or the other of these two executives leads IT strategy—not the strategic planning group, another C-level executive or other corporate leader—reinforces how central IT has become to business. McKesson’s Ms. McElligott notes that at her company, “The CIO/CTO role is a direct report into our CEO and is an active member of our executive committee. This means that technology is not limited to the CIO/CTO organization but is embedded throughout our company.”

At digital leaders, 44% of respondents indicate that the CEO is the primary driver of IT strategy. This result might suggest that many of these companies place additional emphasis on the importance of technology in achieving business goals, with ultimate authority resting with the CEO but informed by the CIO. Google’s Mr. Anandan believes that CEOs must be deeply involved for a fundamental reason: “You have to identify the set of problems and opportunities you’re trying to capture. So business strategy basically leads to a digital strategy that then leads to an IT strategy.”
IT’s role in business strategy

Digital leaders, the survey shows, are more likely to put a high value on IT’s contribution to the organization. Just over half of executives at digital leaders say that IT is a crucial partner in meeting strategic goals, compared with one-quarter of other executives. Mr. Gallagher notes, “The whole goal of IT is to make sure that the expertise, wherever it’s located in the world, can be at the point of sale or point of need for a client 24/7 anywhere we are.”

Fourteen percent of all survey respondents, however, view IT as a hindrance, perhaps indicating rising expectations, IT functions that have failed to keep pace with evolving business needs or reluctance among end users to embrace new tools and systems. Unsurprisingly, IT executives are far more likely than other business executives (37% vs. 23%) to see IT as playing a crucial role in shaping business strategy.

IT executives’ perception of an important strategic role for their function—and other executives’ varied perceptions—has been a pervasive element in the dialogue about IT’s role over the years. In CSC’s 2013 survey of IT executives, for example, respondents assessed the related question of where IT’s value comes from. Sixty-five percent of those respondents cited IT’s value as stemming from innovation and value creation, key goals of effective business strategy. That compares with a finding from CSC’s 2012 survey that business managers more often saw IT as a cost center (43%) than as a collaborative partner, suggesting that the gap in perception is entrenched.

Budgetary control

At digital leaders, 85% of executives say that the central IT function controls at least some of the IT budget, which may signal a more unified digital strategy across the enterprise than the global results, in which 63% say that central IT controls at least some of the budget. That said, centralized control can benefit greatly from the input of IT employees throughout the organization. According to Ms. McElligott, “We utilize the CIO/technology leaders of each of our business units to validate and contribute to our strategy and agree on specific priorities across the company. This allows us to obtain full leverage of our size as we set enterprise agreements.”
In many companies, IT continues to handle enterprise-wide procurement and systems integration, but business units are increasingly purchasing cloud solutions, among other forms of technology, without involving IT. For all companies, IT has seen waning budgetary control, and the survey results reflect that. Overall, 63% of respondents indicate that at least some part of their IT budget resides with the central IT department; nearly 48% say business units have at least some control of IT investments. Google’s Mr. Anandan notes, “Increasingly, what you’re seeing is functional leaders who are very engaged in how they can leverage digital technologies to dramatically improve the performance of their functions.”

“What you’re seeing is functional leaders who are very engaged in how they can leverage digital technologies to dramatically improve the performance of their functions.”

— Rajan Anandan, Vice president and managing director of Google, South East Asia & India
Collaboration

On the whole, companies appear to be making strides in collaborating more effectively, with a majority of respondents indicating that their company has achieved some proficiency in this area. However, three-quarters of all companies still struggle with siloed organizations, and more than six in 10 must make progress to become mostly or entirely digital. While digital technologies are a core element of collaboration across the enterprise, companies must also overcome organizational obstacles to harness these tools and drive greater collaboration.

Digital leaders excel across all three of these categories; their functions are entirely digital, and they exceed other companies on organizational integration (28% say their functions are somewhat or entirely integrated) and collaboration (93% say they share information somewhat or very effectively). Mr. Anandan believes that younger companies have a natural advantage in collaboration. “Most digital businesses tend to be very open and nonhierarchical. They tend to thrive in sort of cross-functional environments. Any company that has been founded in the past 20 years, I think by definition is more collaborative, tends to operate much more in a cross-functional kind of way.”

Notably, IT executives far more often perceive their organizations as having globally integrated functions than do business executives—perhaps the result of IT departments’ typically cross-functional engagement. Equally notable, the differences of opinion are far smaller on how digitized functions are or how well companies share information with a range of important stakeholders. Even with the divergence of opinion, nearly half of respondents overall expect their organizations to become even more digital, integrated and collaborative in the coming years.
What makes digital leaders: A full C-suite perspective

Going digital all the way

In general, all companies are moving down the path of closer alignment between digital technologies and business strategy. And most expect to become more digital, more globally integrated and better at sharing information over the next three years. Anticipated increased spending on cloud and mobile technologies will help support further integration and collaboration across functions and regions.

Digital leaders offer a glimpse of the way forward as executives seek to coordinate IT spending with business needs to support more efficient operations and contribute more effectively to business strategy.

These companies:
- More often say the CEO leads the IT strategy
- More often say the IT budget is controlled within IT
- Are focused on increasing use of collaborative technologies—and more often say they expect to increase investment

As technological advances offer greater capabilities, it will be even more critical for executives to take a cue from digital leaders to develop more effective digital strategies.
Percentages may not add to 100% owing to rounding or the ability of respondents to choose multiple responses.

### Appendix: Survey Results

#### How does your company manage each of the functions below, on a scale from siloed (by region or business unit) to integrated globally?

Select one in each row. 

<table>
<thead>
<tr>
<th>Function</th>
<th>Entirely Siloed</th>
<th>Somewhat Siloed</th>
<th>Somewhat Integrated</th>
<th>Entirely Integrated</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>21</td>
<td>21</td>
<td>24</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>Marketing and sales</td>
<td>11</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>Finance</td>
<td>14</td>
<td>32</td>
<td>25</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Supply chain</td>
<td>11</td>
<td>27</td>
<td>35</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>14</td>
<td>26</td>
<td>29</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>IT</td>
<td>17</td>
<td>22</td>
<td>28</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>Customer service</td>
<td>14</td>
<td>25</td>
<td>25</td>
<td>34</td>
<td>2</td>
</tr>
</tbody>
</table>

#### How digital are your company's operations in each of the functions below?

For the purposes of this question please define “digital” on a scale from common use of PCs in your daily operations (somewhat digital) to common use of apps and mobile devices (mostly digital) to common use of the cloud (entirely digital). 

Select one in each row. 

<table>
<thead>
<tr>
<th>Function</th>
<th>Not at all Digital</th>
<th>Somewhat Digital</th>
<th>Mostly Digital</th>
<th>Entirely Digital</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>10</td>
<td>28</td>
<td>29</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Marketing and sales</td>
<td>6</td>
<td>23</td>
<td>44</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>Finance</td>
<td>6</td>
<td>23</td>
<td>38</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>Supply chain</td>
<td>8</td>
<td>23</td>
<td>38</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>12</td>
<td>23</td>
<td>30</td>
<td>28</td>
<td>7</td>
</tr>
<tr>
<td>IT</td>
<td>4</td>
<td>15</td>
<td>30</td>
<td>48</td>
<td>3</td>
</tr>
<tr>
<td>Customer service</td>
<td>8</td>
<td>21</td>
<td>34</td>
<td>34</td>
<td>3</td>
</tr>
</tbody>
</table>
### How effectively, if at all, does your company share information in each of the following ways?

Select one in each row.

<table>
<thead>
<tr>
<th>Information Sharing</th>
<th>Not at all effectively</th>
<th>Not very effectively</th>
<th>Somewhat effectively</th>
<th>Very effectively</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-functionally</td>
<td>4%</td>
<td>10%</td>
<td>35%</td>
<td>48%</td>
<td>3%</td>
</tr>
<tr>
<td>Cross-regionally</td>
<td>3%</td>
<td>8%</td>
<td>44%</td>
<td>40%</td>
<td>5%</td>
</tr>
<tr>
<td>Among business units</td>
<td>2%</td>
<td>12%</td>
<td>41%</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>About the supply chain, manufacturing and inventory</td>
<td>1%</td>
<td>10%</td>
<td>47%</td>
<td>39%</td>
<td>3%</td>
</tr>
<tr>
<td>About customers and customer service</td>
<td>1%</td>
<td>6%</td>
<td>43%</td>
<td>49%</td>
<td>1%</td>
</tr>
<tr>
<td>With partners</td>
<td>2%</td>
<td>8%</td>
<td>47%</td>
<td>42%</td>
<td>2%</td>
</tr>
<tr>
<td>With customers</td>
<td>1%</td>
<td>9%</td>
<td>41%</td>
<td>47%</td>
<td>1%</td>
</tr>
<tr>
<td>With regulators</td>
<td>3%</td>
<td>10%</td>
<td>51%</td>
<td>34%</td>
<td>3%</td>
</tr>
<tr>
<td>Overall internally</td>
<td>1%</td>
<td>7%</td>
<td>45%</td>
<td>46%</td>
<td>2%</td>
</tr>
<tr>
<td>Overall externally</td>
<td>2%</td>
<td>7%</td>
<td>43%</td>
<td>43%</td>
<td>6%</td>
</tr>
</tbody>
</table>

### Which of the following, if any, best characterizes the perception across your company of IT’s role in meeting the company’s strategic goals?

Select one.

<table>
<thead>
<tr>
<th>Perception</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT is seen as a hindrance to meeting goals</td>
<td>14%</td>
</tr>
<tr>
<td>IT is seen as providing some useful tools for meeting goals</td>
<td>32%</td>
</tr>
<tr>
<td>IT is seen as providing useful tools and insights for meeting goals</td>
<td>25%</td>
</tr>
<tr>
<td>IT is seen as a crucial partner in meeting goals</td>
<td>27%</td>
</tr>
<tr>
<td>Don't know</td>
<td>2%</td>
</tr>
</tbody>
</table>

### Where do your company’s IT budgets sit?

Select all that apply.

<table>
<thead>
<tr>
<th>Budget Location</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrally with IT</td>
<td>63%</td>
</tr>
<tr>
<td>Within business units</td>
<td>48%</td>
</tr>
<tr>
<td>Within regions</td>
<td>24%</td>
</tr>
<tr>
<td>Within functions other than IT</td>
<td>12%</td>
</tr>
</tbody>
</table>
Who is the primary driver of your company's IT strategy?
Select one.
(% respondents)

- The CEO 37
- The chief information or technology officer 37
- The strategic planning group or function 9
- Another C-level executive 8
- Business-unit or regional leaders 4
- Business-unit or regional IT leaders 4
- Don't know 1

Which of the following technologies does your company use, or support the use of by employees, today?
Select all that apply.
(% respondents)

- Desktop and/or laptop PCs 100
- Smartphones 100
- Traditional on-premises servers 97
- Hybrid cloud 84
- Public cloud 83
- Collaboration software 66
- Private cloud 62
- Tablets 54
- Social tools 41
- Cloud-based application services 34
- Cybersecurity tools 32
- Open source software 14
### How, if at all, do you expect your company’s use of each of the following technologies to change over the next three years in order to meet your strategic goals?

Select one in each row. (% respondents)

<table>
<thead>
<tr>
<th>Technology</th>
<th>Stop using</th>
<th>Reduce use</th>
<th>No change</th>
<th>Increase use</th>
<th>Start using</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop and/or laptop PCs</td>
<td>3</td>
<td>9</td>
<td>48</td>
<td>31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Smartphones</td>
<td>2</td>
<td>5</td>
<td>34</td>
<td>47</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Traditional on-premises servers</td>
<td>2</td>
<td>13</td>
<td>44</td>
<td>28</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Hybrid cloud</td>
<td>3</td>
<td>4</td>
<td>46</td>
<td>28</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Public cloud</td>
<td>3</td>
<td>4</td>
<td>40</td>
<td>30</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Collaboration software</td>
<td>1</td>
<td>3</td>
<td>48</td>
<td>27</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Private cloud</td>
<td>1</td>
<td>2</td>
<td>50</td>
<td>27</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Tablets</td>
<td>2</td>
<td>5</td>
<td>52</td>
<td>32</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Social tools</td>
<td>1</td>
<td>2</td>
<td>59</td>
<td>25</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Cloud-based application services</td>
<td>1</td>
<td>2</td>
<td>59</td>
<td>22</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Cybersecurity tools</td>
<td>3</td>
<td>4</td>
<td>39</td>
<td>23</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>Open source software</td>
<td>1</td>
<td>1</td>
<td>73</td>
<td>7</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

### Three years from now, how effectively, if at all, will your company need to be sharing information in each of the following ways in order to meet your strategic goals?

Select one in each row. (% respondents)

<table>
<thead>
<tr>
<th>Sharing</th>
<th>Not at all effectively</th>
<th>Not very effectively</th>
<th>Somewhat effectively</th>
<th>Very effectively</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-functionally</td>
<td>4</td>
<td>6</td>
<td>38</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Cross-regionally</td>
<td>2</td>
<td>5</td>
<td>47</td>
<td>41</td>
<td>5</td>
</tr>
<tr>
<td>Among business units</td>
<td>2</td>
<td>10</td>
<td>37</td>
<td>48</td>
<td>2</td>
</tr>
<tr>
<td>About the supply chain, manufacturing and inventory</td>
<td>2</td>
<td>7</td>
<td>44</td>
<td>43</td>
<td>4</td>
</tr>
<tr>
<td>About customers and customer service</td>
<td>1</td>
<td>6</td>
<td>36</td>
<td>55</td>
<td>2</td>
</tr>
<tr>
<td>With partners</td>
<td>2</td>
<td>5</td>
<td>43</td>
<td>47</td>
<td>3</td>
</tr>
<tr>
<td>With customers</td>
<td>1</td>
<td>7</td>
<td>39</td>
<td>49</td>
<td>3</td>
</tr>
<tr>
<td>With regulators</td>
<td>2</td>
<td>7</td>
<td>43</td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>Overall internally</td>
<td>2</td>
<td>6</td>
<td>41</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>Overall externally</td>
<td>2</td>
<td>6</td>
<td>41</td>
<td>45</td>
<td>5</td>
</tr>
</tbody>
</table>
Three years from now, how do you expect your company to be managing each of the functions below, on a scale from siloed (by region or business unit) to integrated globally? Select one in each row. (% respondents)

<table>
<thead>
<tr>
<th>Function</th>
<th>Entirely siloed</th>
<th>Somewhat siloed</th>
<th>Somewhat integrated</th>
<th>Entirely integrated</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>5 7</td>
<td>37</td>
<td></td>
<td>49 3</td>
<td></td>
</tr>
<tr>
<td>Marketing and sales</td>
<td>3 6</td>
<td>46</td>
<td></td>
<td>40 5</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>2 11</td>
<td>39</td>
<td></td>
<td>46 2</td>
<td></td>
</tr>
<tr>
<td>Supply chain</td>
<td>2 8</td>
<td>44</td>
<td></td>
<td>42 4</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2 6</td>
<td>37</td>
<td></td>
<td>53 3</td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>2 6</td>
<td>41</td>
<td></td>
<td>48 3</td>
<td></td>
</tr>
<tr>
<td>Customer service</td>
<td>2 7</td>
<td>40</td>
<td></td>
<td>48 3</td>
<td></td>
</tr>
</tbody>
</table>

Three years from now, how digital do you expect your company’s operations in each of the functions below to be? For the purposes of this question please define “digital” on a scale from common use of PCs in your daily operations (somewhat digital) to common use of apps and mobile devices (mostly digital) to common use of the cloud (entirely digital). Select one in each row. (% respondents)

<table>
<thead>
<tr>
<th>Function</th>
<th>Not at all digital</th>
<th>Somewhat digital</th>
<th>Mostly digital</th>
<th>Entirely digital</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>2 10</td>
<td>41</td>
<td></td>
<td>42 6</td>
<td></td>
</tr>
<tr>
<td>Marketing and sales</td>
<td>2 7</td>
<td>41</td>
<td></td>
<td>45 4</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>2 8</td>
<td>39</td>
<td></td>
<td>46 5</td>
<td></td>
</tr>
<tr>
<td>Supply chain</td>
<td>2 16</td>
<td>39</td>
<td></td>
<td>36 5</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>6 18</td>
<td>35</td>
<td></td>
<td>35 6</td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>2 10</td>
<td>34</td>
<td></td>
<td>51 3</td>
<td></td>
</tr>
<tr>
<td>Customer service</td>
<td>3 12</td>
<td>40</td>
<td></td>
<td>43 3</td>
<td></td>
</tr>
</tbody>
</table>
### What are your company's primary goals in becoming more digital?

Select up to two.

( % respondents)

- To become more efficient: 54
- To cut costs: 35
- To keep up with new, fully digital competitors: 27
- To meet customer expectations: 26
- To keep up with existing competitors: 22
- To surpass competitors: 10
- To meet investor/analyst expectations: 4

### Which capabilities will your IT function need to improve over the next three years in order to meet your strategic goals?

Select all that apply.

( % respondents)

- Managing big data and analytics: 38
- Application modernization: 37
- Mobility: 33
- Collaboration: 32
- Merging IT operations with software development: 30
- Cybersecurity: 29
- Using new software development platforms: 29
- Managing new hardware platforms: 27
- Integrated technology management: 26
- Vendor management: 21
- No capabilities will need to be improved: 4
- Don't know: 2

### How confident are you that your IT function will be able to deliver the technologies and capabilities the company will need in order to meet its strategic goals?

Select one in each row.

( % respondents)

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Not at all confident</th>
<th>Not very confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
<td>35</td>
<td></td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Not at all confident</th>
<th>Not very confident</th>
<th>Somewhat confident</th>
<th>Very confident</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>44</td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>
Which of the barriers below, if any, do you expect to be the most significant IT will face in delivering the technologies and capabilities the company will need in order to meet its strategic goals?

Select up to two. (% respondents)

<table>
<thead>
<tr>
<th>Barriers</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget constraints</td>
<td>38</td>
</tr>
<tr>
<td>Resources primarily focused on managing existing IT workloads</td>
<td>31</td>
</tr>
<tr>
<td>Difficulty finding staff with the needed capabilities</td>
<td>28</td>
</tr>
<tr>
<td>Difficulty deploying needed technologies</td>
<td>20</td>
</tr>
<tr>
<td>Too many resources are used to manage crises</td>
<td>17</td>
</tr>
<tr>
<td>Lack of strategic vision at the corporate level about how IT can contribute to meeting strategic goals</td>
<td>14</td>
</tr>
<tr>
<td>Lack of strategic vision within the IT organization about delivering new technologies and capabilities</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Don’t know</td>
<td>6</td>
</tr>
</tbody>
</table>

Three years from now, how, if at all, do you expect your company’s overall investment in IT to have changed?

Select one. (% respondents)

<table>
<thead>
<tr>
<th>Changes</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced significantly</td>
<td>6</td>
</tr>
<tr>
<td>Reduced somewhat</td>
<td>11</td>
</tr>
<tr>
<td>Stayed the same</td>
<td>29</td>
</tr>
<tr>
<td>Increased somewhat</td>
<td>36</td>
</tr>
<tr>
<td>Increased significantly</td>
<td>17</td>
</tr>
<tr>
<td>Don’t know</td>
<td>1</td>
</tr>
</tbody>
</table>

Three years from now, how, if at all, do you expect the share of your company’s overall investment in IT that is controlled by the IT function to have changed?

Select one. (% respondents)

<table>
<thead>
<tr>
<th>Changes</th>
<th>% Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced significantly</td>
<td>5</td>
</tr>
<tr>
<td>Reduced somewhat</td>
<td>10</td>
</tr>
<tr>
<td>Stayed the same</td>
<td>38</td>
</tr>
<tr>
<td>Increased somewhat</td>
<td>34</td>
</tr>
<tr>
<td>Increased significantly</td>
<td>12</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
</tr>
</tbody>
</table>
What makes digital leaders: A full C-suite perspective

What new capabilities will employees outside IT need to develop over the next three years to make the best use of IT innovations?
Select all that apply.
(\% respondents)

- Data analysis: 51
- Collaboration: 50
- Increased IT literacy: 48
- Social media: 33
- No new capabilities will be needed: 7
- Don't know: 1

How confident are you that your company will be able to develop those capabilities among employees?
Select one.
(\% respondents)

- Not at all confident: 1
- Not very confident: 6
- Somewhat confident: 50
- Very confident: 42
- Don't know: 2

Which of the following, if any, do you expect to characterize the perception across your company three years from now of IT’s role in meeting the company’s strategic goals?
Select one.
(\% respondents)

- IT will be seen as a hindrance to meeting goals: 12
- IT will be seen as providing some useful tools for meeting goals: 28
- IT will be seen as providing useful tools and insights for meeting goals: 30
- IT will be seen as a crucial partner in meeting goals: 28
- Don't know: 2

Compared with your competitors, how would you rank your financial performance in the past fiscal year?
Select one.
(\% respondents)

- Much lower: 3
- Lower: 9
- About the same: 39
- Higher: 35
- Much higher: 15
- Don't know: 1
What makes digital leaders: A full C-suite perspective

What are your organization’s global annual revenues in U.S. dollars?
Select one.
(% respondents)

- Less than $100 million: 15
- $100 million to $250 million: 18
- $250 million to $500 million: 18
- $500 million to $1 billion: 25
- $1 billion to $5 billion: 15
- $5 billion to $10 billion: 6
- $10 billion or more: 4

What is your company’s primary industry?
Select one.
(% respondents)

- Manufacturing: 14
- IT and technology: 12
- Banking and capital markets: 11
- Healthcare: 10
- Insurance: 10
- Professional services: 9
- Consumer goods and retailing: 8
- Automotive: 5
- Entertainment, media and telecom: 4
- Transportation, travel and tourism: 4
- Chemicals, energy and natural resources: 3
- Life sciences: 3
- Government/Public sector: 3
- Aerospace and defense: 1
- Other: 4

In which country is your company’s headquarters located?
Select one.
(% respondents)

- United States: 24
- Australia: 11
- France: 10
- Germany: 10
- United Kingdom: 10
- China: 8
- Singapore: 5
- India: 5
- Canada: 4
- Brazil: 3
- South Africa: 3
- Austria: 1
- Belgium: 1
- Denmark: 1
- Norway: 1
- Spain: 1
- Sweden: 1
- Switzerland: 1
- Turkey: 1

Which of the following best describes your title?
Select one.
(% respondents)

- Board member: 1
- CEO/President: 5
- Chief digital officer: 5
- Chief financial officer: 8
- Chief information or technology officer: 12
- Chief innovation officer: 4
- Chief marketing officer: 7
- Chief operations officer: 9
- Other C-level executive: 1
- SVP/VP/Director in IT: 20
- SVP/VP/Director in finance: 10
- SVP/VP/Director in marketing: 10
- SVP/VP/Director in operations: 10

What is your main functional role?
Select one.
(% respondents)

- IT: 36
- Finance: 18
- Marketing and sales: 17
- Operations and production: 16
- General management: 9
- Innovation: 2
- Strategy and business development: 1
- R&D: 1

While every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in the report.
Executives Speak on Digital Transformation

As the Economist Intelligence Unit completed its survey, CSC spoke directly to additional IT executives at leading companies across various industries to get their insights on how digital technologies are transforming their businesses. Read on for their edited interviews.
“We’ll see more change in our industry in the next 10 years than we’ve seen in probably the last 100.”

San Diego Gas & Electric and Southern California Gas together make up California Utilities, one of the three main operating units of Sempra Energy (the other two being Sempra International and U.S. Gas & Power). Sempra Energy was created in 1998 by the merger of two utilities with histories dating back more than 100 years. Today it’s a publicly traded energy-services company with headquarters in San Diego, some 32 million customers, 17,000 employees and annual revenue of $10.2 billion. Chris Baker, chief information officer of the company’s California Utilities unit, reports to the two utilities’ chief executive officers, while also providing IT services to the corporate parent.
Is there digital transformation at San Diego Gas & Electric?

Yes! In fact, I would argue that the utilities industries are going through a tremendous digital transformation, even more so than other industries. We think we’ll see more change in our industry in the next 10 years than we’ve seen in probably the last 100.

It all revolves around the smart grid. What that really means is digitizing the electric power grid. For example, adding sensors, smart meters, automated controls — really building intelligence into the grid.

It’s all about data and information. So, as we add sensors, smart meters and grid controls, we’re adding a lot of information to our company. We’re still seen as a wires-and-pipe company, but going forward, we’ll be much more of an information-driven company.

Will this digital transformation also enable a new technology-driven business model?

Yes, one that’s more customer-centric. We’re moving away from a utility-centric business model, where it’s a one-way flow of electrons and energy from central plants to the distribution center and then to the customer, and toward a model where we’ll use technology to put control and choice in the hands of the customer.

We’re trying to figure out how you leverage this abundance of information that we’ve never had before, in terms of sensors on a grid and smart meters for customers. For example, we’d like to leverage this information to better predict outages, and then provide more precise real-time information to our customers about the outage-recovery window.

Here are some other examples: Do our customers prefer “green” energy like solar? Do they want electric vehicle (EV) charging capabilities? Do they want the ability to sell unused energy resources back to the grid for other customers? All these types of capabilities are altered by the technology transformation.

What are your top goals?

Anything that takes costs out of our operation, increases our productivity, or enhances customer service and customer loyalty — will get prioritized to the top of the queue. Overall, I want my IT investments to be a no-regret strategy.

This includes mobility, big data analytics and field automation. Mobility is big, both for our customers and our employees. Analytics will help us make better use of all the information we’re collecting from the grid; it will also help us create new products for our customers. And field automation will help us become much more customer-focused.

Sema is executing a five-year financial plan aimed at generating growth that’s twice the industry average. Is this true at the energy company? What is IT’s role?

Over the last 10 years, the investment in technology has probably increased 10 times. And about 25 percent of our operating budget is technology focused to align investments in technology with our strategic priorities.

Here’s an example of how we’re leveraging technology to enable our strategic priorities: We plan to install about 3,500 electric vehicle (EV) charging stations in our service area over the next couple of years. That will involve a hybrid infrastructure that integrates EVs with the electric grid in a way that optimizes renewable energy. It will also involve understanding the data flow, all the way back to how the customers pay their bills.

Is your role as CIO changing, too?

It’s been changing for several years now. The value of the IT profession is no longer singly defined by technical competency. We have to be closely aligned with the business. I like to straddle both expectations.

Today it’s more about how we align technical competency with business problems. That means understanding the business’s needs, aligning ourselves with internal customers, and developing solutions to help them solve their problems.

I’ve been with the company in the CIO role now for about 15 years, and while I did come up through the technology ranks, the company has helped me to broaden my experience. I’ve taken on responsibilities in strategic planning, supply management, facilities, fleet and more to build a broad understanding of the business. Aligning with and understanding the business — that’s the biggest change we’ve seen over the last several years.

How about your staff? Do they also need to gain a greater understanding of the business?

Yes, and we work to instill among our IT professionals a sense of the importance of understanding the business. For example, we have a ride-along program. Our IT people listen in on the conversations of our energy service center representatives, so they hear how the business is utilizing technology. We also take them on tours of our power-generation and mission-control facilities. Those are just a couple of examples.
“As an organization, we want to become simpler. ...That will make our systems easier to use, and it will make governance easier, too.”

For every organization in the public spotlight, there’s another working behind the scenes. Decidedly among the latter is Lonza Group. It’s a holding company based in Basel, Switzerland, and a leading supplier to life sciences industries. Lonza may not be a household name, but last year the company brought in sales of 3.8 billion Swiss francs (approximately $3.92 billion) from its two main product segments: pharmaceuticals and biotech, and specialty ingredients. Lonza Group’s more than 9,800 employees work in product areas that include custom manufacturing, bio research, water treatment, consumer care, agricultural ingredients and coatings and composites. Diane Bitzel joined the company as CIO in early 2014; previously, she held CIO positions with frozen-food supplier Apetito and biotech provider Syngenta.
For Lonza Group, what are the goals of digital transformation?

Mainly, introducing the digital element. Moving toward cloud, becoming more mobile, offering more simplicity, using modern technologies and bimodal IT. And of course security. We’re investing there, in both internal and external security. It’s one of our top topics for this year and next.

Tell us more about what you’re calling “bimodal IT”?

It’s all about achieving the true speed of IT. One speed is the classical, standard IT systems of record. For example, SAP. The other speed comes with smaller, more agile systems. Rapid prototyping, where you build, then check, then adjust. So this requires different deployment models, different governance and different skill sets. Many of Speed 1 activities can be quite standardized, but Speed 2 you want to invest in because it requires specific knowledge.

One interesting question arises from this: Do these two speeds of IT require separate organizations, or can you upscale your current Speed 1 organization? Personally, I believe it has to be two separate organizations, because you can’t really upscale. You cannot work at Speed 1 in the morning and then shift to Speed 2 in the afternoon. They’re different things.

In the area of IT simplicity, what are your goals?

As an organization, we want to become simpler. When you look at our business processes, we find a high degree of complexity. So, one goal is simplifying our processes. That will not only make our systems easier to use, but also make governance easier to perform.

For example, when it comes to acquiring materials, we had 10 purchase processes, with 10 different ways of connecting. Now we’ve moved into just one workflow and financial process, which we’ve really streamlined. We’ve also reduced the number of purchase processes to just three. Still, in this area, we have a lot more to do.

How about your role as CIO, and the skills it requires? Are they changing, too?

I’ve always been a business-focused CIO, which helps in many situations. But the pressure is increasing, especially when it comes to security.

For example, we’re making sure to upgrade business-related processes and IT processes together. Most of the time, it’s only when we implement new systems that we realize how much a business process needs simplifying. And that’s where we are acting now: inducing business-process owners to streamline their processes so that we have a close alignment to our IT processes. And as the IT organization, we are of course supporting that.

What are your top IT goals for the next year?

Security and the move to digital, which for us includes big data, the Internet of Things (IoT) and SAP. Of course, they go together. The more digital you become — with the cloud, with mobile applications, etc. — the bigger your exposure to security risk might become.

Also, we believe IoT is part of the fourth industrial revolution, where you have production machines talking to each other. So we’re looking at total automation, and truly, that’s one of the big questions to come.
When thinking about Rolls-Royce Holdings, forget about those stately limousines with their distinctive front grilles and sculptural hood ornaments. Those cars are made by a separate company. Today’s Rolls-Royce Holdings focuses instead on supplying power and propulsion systems to five sectors: civil aerospace, defense aerospace, marine, nuclear energy and power systems. Its global customers include airlines, armed forces, marine organizations — including 70 navies — and nuclear and power companies. London-based Rolls-Royce is a big company, with more than 50,000 employees worldwide and revenue for its most recent fiscal year of £13.73 billion ($20 billion).

But Rolls-Royce has struggled lately. In response, top management recently announced a restructuring plan aimed at generating annual cost savings of up to £200 million ($291.5 million). The plan also includes reducing the top two layers of senior management by 20 percent. Neil Cassidy joined the company as director of cybersecurity in early 2015, and he reports to the company’s CIO.

“In the past, security sat behind the business and put the brakes on pretty much anything that was clever and innovative. But now the question is, how [do] we support people who want to use the latest disruptive technology and get ahead of the game.”
Within the company's restructuring plan, what are the top priorities for cybersecurity?

At the very top level, the big thing for us is driving efficiency into the business — and doing that through processes and improvements. So the question is, how can security support this agenda, and at the right pace? In the past, security sat behind the business and put the brakes on pretty much anything that was clever and innovative. But now the question is, how [do] we support people who want to use the latest disruptive technology and get ahead of the game.

What's your role, or expectations, in the company's cost-reduction plan?

We've absolutely been asked to sharpen our pencils. However, a lot of those year-on-year savings are expected to come out of productivity improvements, rather than simple cost cutting. So we're actually getting a lot of investment across in IT to make those productivity improvements which will get realized in the operating businesses.

At the same time, we realize that cybersecurity essentially provides an independent check on the IT function. So I've taken on the IT risk and compliance role, too, and have become the independent assessor of pretty much everything the IT function does. That means I cover not only cybersecurity, but also compliance with regulations, policy and governing the risk management process.

Is Rolls-Royce’s recent implementation of the Workday human-capital management solution a good example?

Yes, Workday was our first large-scale cloud implementation, so there was a huge amount of nervousness around it. Everybody quickly became an expert on all the potential problems! So the way we approached it was to look at the genuine, as opposed to theoretical, risks. We asked: What could actually go wrong if a user’s account were compromised? The goal was to be able to discuss the risk implications for the business, such as reputational risk.

Once we did that, the business was happy to accept the level of risk involved. It comes down to taking what I call a genuine-risk approach. When you can articulate the risk in terms of business outcomes, the conversation changes quite dramatically.

What are you doing about mobile security?

When we looked into allowing fingerprint authentication on our iPhones, we discovered that in theory, there’s a risk of something like one in 50,000 people having a fingerprint similar enough to someone else's to create an issue. But we asked ourselves: How easy would it be to find that one-in-50,000 person? And we couldn’t fathom practically how anybody would do that. So again, that changed the conversation dramatically.

On the other hand, adopting a bring-your-own-device (BYOD) approach would be extremely difficult for us. Until we can work out how we can manage export control data or high-end IP access, it’s a real challenge. I expect there will be a number of use cases where it will be absolutely fine, while there will also be a bunch of others where the risk is too high and we just can’t do it. So, for now, we provision devices and use mobile device management software. That allows us to remotely wipe an entire device should it be compromised or get into the wrong hands.

Is shadow IT also an issue?

Yes. With the cloud, employees can set up a service and use it from their desktop. We’re finding that people in the business, for all the right reasons, want to use cloud-provided software. But they often don't come anywhere near IT, so it's important that we get some visibility on that, and some control.

Top priorities for the future?

We’re taking a hard look at data analytics. As we spin out new projects, we’d like to be able to dump the information into a data lake and then be able to analyze it. The goal is to be able to launch projects in just a few weeks while still making sure they’re absolutely secure. We think we can do that by taking greater advantage of the data we have around the world, fusing data sets, and providing a much richer solution. This would completely change how we do our security operations, so it’s a top priority for the next 18 months.
The last year has been tough for OMV Group, an international, integrated oil and gas company based in Vienna, Austria. It’s one of the country’s largest industrial companies, with more than 24,000 employees and operations in not only Austria, but also Germany, Hungary, Romania, the North Sea, Middle East and Africa. But with low oil prices resulting from a global oversupply, OMV’s revenue dropped by more than 35 percent in its latest fiscal year, and the company reported a net loss of €1.25 billion (approximately $1.44 billion). The executive ranks have been rattled, too; since early 2015, the company has replaced its CEO, CFO and head of HR.

The new CEO, Rainer Seele, earlier this year announced a major new strategy. His stringent plan calls for OMV to focus on dramatically improving cash flow. That will be done mainly, Seele says, by selling assets, reducing overall investments by 40 percent, and cutting exploration and appraisal spending by 60 percent through 2017. CIO Marcus Frantz has seen OMV through both the highs and the lows, having joined the company in 2004. He was appointed to his current CIO position in early 2013.

“Whatever I do, whatever I touch, I need to think about information security and provide built-in protection against cyberthreats.”
Given OMV’s new strategy of strengthening cash flow, what are your new priorities for the digital business?

We’ve identified three key focus areas. First is enabling business strategies. Second, strengthening user productivity. And third, enhancing IT efficiency.

So what is IT doing to enable business strategies?

We’ve started by having discussions with the business. We want to know how, given the latest technologies and trends, we can support them as a business to be more productive. For example, one technology we’re looking at is predictive analytics, which we could use for measuring and predicting the flow of our pipelines. Another interesting technology is 3D printing; some of our competitors already use it in the field to print new design connectors.

We’re also looking at other industries. Are they using technologies we could adapt for our own use? One example is smart fabrics used by athletes. Possibly, we could use this technology for our gas line inspectors.

How will you help to strengthen user productivity?

We have a very distributed footprint across different countries and some potentially harsh environments, including the middle of the desert and beneath the ocean. So we want to build up the ability to work wherever we have to work. Mobilization helps us transfer or exchange more and more information into a digitized format. For us, mobility is like an umbrella.

And IT efficiency?

We’re focusing on optimizing our run costs. So the question is: How do we squeeze the run-related dependencies? Also, how do we change our operating model to be better positioned regarding operating costs?

We’d also like to transfer some of the money we save into new, innovative projects. We need to consider the future; we can’t just cut. So while we need to work on our operating model, we also need to reinvest for the future. That could mean sometimes investing more in IT in order to generate additional savings for the business.

In all this, what’s the role of cybersecurity?

All this has to be done in the context of security. Whatever I do, whatever I touch, I need to think about information security and provide built-in protection against cyberthreats.

To do this, we’ve been using an enterprise information risk-management methodology. From our risk simulations, we learned that one of our organization’s top 10 risks was IT.

So in 2013, we initiated a program called Blackout. One of its goals was to reduce IT risk by 80 percent by 2015. This was a multimillion-euro project that included strengthening our physical security and logical access, launching an information campaign and providing training. So far, we’ve reduced our risk by 74 percent.

Does the new strategy change your role and that of IT?

We have an internal shared supplier, based in Romania, that provides about half of all IT services for the overall group. I’ve been asking whether we need to do all these parts on our own. Are we really as good as the IT delivery currently assumes? Or would it be cheaper and even better to move it outside?

We do have some external vendors, so I would call our setup partially managed services. For example, our service desk is two-thirds staffed by our own people in Romania and one-third staffed by additional people from a third party. Because we pay them on a ticket basis, our service desk operates on the assumption that the more tickets we have, the better it is. But what if service could be automated to dramatically reduce the number of tickets? Would it be cheaper and better? Right now, we don’t know. But we do intend to figure it out.

Many IT executives find it challenging to hire staff with the right skills. How about you?

Yes, the skills are changing. For example, if we’re really going to refocus on managed IT services, then we’ll need people who can do high-level service management. That’s a different skill set from what we have now. So do we train people or find new people? Similarly, if we automate more functions (such as the service desk), then some people will no longer be needed. We’ll want to retrain them for the future. For all this to work, we will need people who can follow up and take ownership of data.
Société Générale S.A. is among the world’s largest and oldest banks. Established in 1864, it today serves some 30 million customers in more than 75 countries. Last year SocGen earned a net income of €25.6 billion (approximately $28.6 billion) from services that include retail banking, investment banking, financial services, insurance, asset management, private banking and securities services. The Paris-based company organizes itself into three main divisions: retail banking in France, retail banking everywhere else, and global banking and investor solutions (GBIS). Carlos Gonçalves joined SocGen in 1993, and since late 2011 he’s been the CIO of its GBIS division.

“IT is not a separate function; IT is part of the value chain.”
What does digital transformation mean at Société Générale?

Each of our company’s three main businesses has its own plan for transforming and taking advantage of the opportunities that digital brings. But there are common enablers that we all use — for example, our internal cloud platform, and SOA, the service-oriented architecture approach, which means everything is an API and gives us the ability to share services across different businesses.

How about digital transformation within GBIS?

Within GBIS, we’re making three big transformations: cloud, continuous development and digital enablers, which include user experience (UX), single sign-on (SSO), the SOA catalog and our big data.

Cloud is the new normal, and all our new projects are going to our private cloud. Already, 40 percent of our environments are there. By the end of this year, it will be 60 percent. So the cloud is clearly one of our major investment areas.

Continuous delivery and DevOps are transforming the way we do IT. We’re moving from a workflow cycle to an agile approach. That means slicing projects very small, delivering the value and decreasing time to market.

For UX, we want a smooth approach. We have roughly 200 projects underway that will [employ] our internal framework for usability. It’s based on Google’s AngularJS extension to HTML.

So we’re transforming the infrastructure with the cloud, which brings elasticity to our platform. We’re transforming the way our IT teams deliver services with DevOps. And we’re transforming the digital architecture in ways that are specific to each group’s business plan.

With so much change underway, has your CIO role changed, too?

Let me answer that differently. I believe IT is not a separate function; IT is part of the value chain. So what’s interesting to me is having a software engineer understand the business and create value in the chain. That way, we bring new ideas and new services to our clients. We think of our engineers as “intra-preneurs”; not entrepreneurs in the normal sense of the word, but people inside the firm who can change the way we do business.

As CIO, my role is to make sure my software engineers are the most talented and best in the market. And to marry them with the business guys to make sure the firm delivers the best services. So the skills required to do this are the same as they’ve always been.

Société Générale has announced plans to cut €850 million in costs during the next year. What is IT’s role in this cost program?

Actually, we got started back in late 2012, early 2013. We’ve found that as we go through the digital journey, we really can do much more with less. So within my budget, we plan to save €100 million between 2015 and 2017. In other words, I can do the same with €100 million less. That’s my contribution to the global plan. It’s a huge pressure, for sure. But with the cloud and continuous delivery, we can probably do even better.

Let’s turn to cybersecurity. How does Société Générale protect its data and systems?

As we open our information systems to the external world, we have to have the right level of security. In fact, security is so important to us, a couple of years ago we created a separate department, gave it a separate budget and have it reporting to our COO. So there’s a huge investment there. Part of that decision was related to the cost-savings plan. We did not want to cut into security, so it has a budget that is not arbitrated by any pressure coming from the business.

How about mobility?

We view it from two perspectives: staff and customers. For staff, mobile gives them the ability to work anywhere and anytime. So we’re putting in place a bring-your-own-device (BYOD) program. We’re also equipping all staff with personal tablets — not just for the IT guys, but for the whole company.

Earlier, I mentioned the UX approach using AngularJS, which extends HTML. So many of the apps we’re providing are Web-enabled, and you can use them on any device.

How do you coordinate GBIS projects with those of the bank’s other two main divisions?

Each of our three divisions has its own CIO. Plus, we have a CTO who’s in charge of infrastructure for the entire company, and another CIO for corporate systems, including HR and global finance. So the five of us form a CIO management team, and we meet almost every two weeks. For each initiative, two of us will take the lead. For example, I’m now working with the CTO to enable the bank to fully use our private cloud and enable the usage of public cloud. We share the capabilities that are common to each of us and share initiatives that bring value to the bank.
In banking, an industry where companies like to brag about their longevity, Odeabank is a standout: It was founded just four years ago. In truth, Odeabank is actually the Turkish subsidiary of a much older company, Bank Audi, a Lebanese group that has roots extending all the way back to 1830. Odeabank is based in Istanbul, and its approximately 1,540 employees work from 55 branches in 15 Turkish cities. The company offers all the traditional banking services — retail, commercial and corporate — as well as what it calls direct banking: its ATMs, mobile app, online portal and self-service lounges equipped with touch-screen information displays and kiosks. All that has helped Odeabank catapult itself to become Turkey’s No. 8 bank by private deposits (25.3 billion Turkish lira, approximately $8.9 billion) and No. 9 in total assets (TL 32.1 billion, approximately $11.3 billion). CTO Tayfun Küçük has been with Odeabank since the company’s start in 2012.

“Implementing mobility wherever possible is one of the main pillars of our IT and business strategy.”

TAYFUN KÜÇÜK
CTO and assistant general manager in charge of IT, business solutions, direct banking and transactional banking, Odeabank
odeabank.com.tr
What does digital business mean at Odeabank?

It’s the necessity of going where our customers take us. Considering that 35 percent of Turkey’s population is made up of millennials, the role of technology and innovation in customer satisfaction cannot be neglected. We’ve focused on lean technology processes from Day 1.

Our business strategy is to compete with a relatively small number of branches (currently 55) against major competitors with 300 to 1,000 branches. To do this, we’ve adopted a new business model. It’s based on customer acquisition and servicing not through branches, but instead mainly through third-party retailers, post offices, direct banking channels and a direct sales force.

As part of this strategy, we’ve positioned direct banking channels at the heart of our operation. So Odeabank prioritized implementing a state-of-the-art mobile banking application as a low-cost acquisition and servicing channel, together with a unifying customer experience through all channels. We believe this differentiates us from our competitors and moves us one step ahead. In fact, none of the other local banks had a full-fledged touch-screen ATM inventory, so they never had a chance to implement the same user experience (UX) and design.

That sounds like the biggest technology challenge — and advantage?

Yes, as a greenfield bank, we enjoyed the advantage of having no legacy systems. That also gave us the chance to select the right, most up-to-date technologies. Further, we aimed at being a services-based organization capable of implementing the right technologies compatible with all existing and future processes.

To that end, we’ve adopted what we call a “lean technology” concept. The idea is to modify and localize ready-to-use software for internal processes, then differentiate our products and processes from the competitors using the same software.

For example, instead of developing our own Enterprise Resource Planning (ERP) software or buying the source code of an existing one, we purchased the core-banking platform provided by Intertech [a Turkish IT services provider to the finance industry] without source code. Then we adapted our processes on this platform. This gave us several benefits:

- We have totally different processes and services from our competitors that use the same Intertech core banking platform.
- We made all processes ready for audit in just six months, and we received our national banking license after a successful audit process.
- We’ve moved Odeabank into the top 10 privately owned deposit banks in less than a year.
- We enjoy economies of scale and cost/benefit advantages, as we also outsource all of our software-development efforts.

Are you doing much with mobile?

Yes. Implementing mobility wherever possible is one of the main pillars of our IT and business strategy. For Odeabank employees, we’ve given real mobility with the help of the cloud and our bring-your-own-device (BYOD) policy. Employees also have a uniform UX on touch-screen PCs, desk phones integrated with unified communications, online forms and processes that don’t require any printing, document-sharing via tablets and flat-screen TVs, and meeting-room automation systems.

For Odeabank customers, our omnichannel strategy was built around a “mobile only” strategy. We first decided to have a single mobile banking app, and we offer it in the Apple, Google and Windows stores. That alone differentiated us from most of our competitors. Most of the other banks offer multiple applications for different purposes, which leaves many of their customers confused.

We also enabled our users to have a uniform UX in all transactions performed through all of our direct banking channels. We’ve provided the same user interface, design and transaction flows across all our channels. Compared with the mobile app, our other channels — including ATMs, Internet, contact centers and kiosks — will differ only in screen resolution.

How about the cloud?

For us, cloud computing is a model, not a specific technology. That said, Odeabank strongly believes in the benefits of cloud technology. In fact, our as-a-service strategy is important not only for Odeabank locally, but also for the whole Bank Audi group. However, local regulations in our banking sector are very tight regarding cloud implementations.

What’s next?

We have several top IT and business priorities. One is big data. Rather than having different applications for different needs, each requiring extra maintenance and support, we prefer to run multifunction engines that offer several capabilities. To achieve this goal, we’ve started to invest in a data lab, where the projects include optimization, real-time actionable data and machine learning.

Another big effort will involve robotics and augmented/virtual reality. We believe the investment return on these technologies is approaching a tipping point [at which] they can be justified by the business. We also think these technologies can generate significant value for our customers.

Cybersecurity is another big priority. We have several projects either ongoing or planned for the near future. These include data classification, log correlation, threat intelligence, network behavior analysis, vulnerability management and security operations.
“Once upon a time, anything that touched our network, I knew about and controlled. Now there are things riding on our network that I can only influence.”

IT pioneer Intermountain Healthcare is a not-for-profit healthcare system serving the greater Salt Lake City, Utah, area. Its 1,400 physicians and other primary- and secondary-care professionals work from 22 hospitals and 185 clinics, offering a broad range of services. These include telehealth, mobile apps, even a health insurance plan. CIO Marc Probst joined Intermountain back in 2003; previously, he had worked for several top consulting firms.
Is Intermountain a digital business?

Yes, and it’s really complex. It wasn’t so long ago that we were teaching people about their mouse and keypad. Now we’re being pulled by the organization toward all the great ideas they have and all the new technologies they want to use. This also raises new questions. For example, how do you secure an environment where technology is no longer growing through a central [information system] entity, but instead [is] in pockets throughout the organization? Similarly, how do you appropriately define and manage data so that when you do things like analytics, the data is meaningful?

Do those changes mean your CIO role is changing, too?

Yes. In fact, it’s changed quite a bit. Mainly because you don’t have as much control over IT as you did. The organic, almost exponential, growth of digital capabilities creates a really different, complex environment. It requires you to manage resources that you don’t necessarily control. Once upon a time, anything that touched our network, I knew about and controlled. Now there are things riding on our network that I can only influence. So you have to become more of a politician, a strategic thinker and a strategic driver.

How about your IT staff’s role and skills? Are these changing, too?

It depends on the role. If you look at our hardcore infrastructure activities such as networks, data centers and operating systems — the core foundational components of what we do — it has not changed as much. But where the skills have changed is in areas that involve analysis. Our analysts have to understand what the business does, so they can work with the business to define what they need.

Speaking of data analytics, how important is it to Intermountain?

We live by analytics. Years ago, we built the industry’s first clinical data repository, and today we have the lowest per capita costs of any healthcare provider in the country. Yet our quality is just as high as that of the best-known hospitals. In fact, we use analytics to identify best practices and actually change the behavior of our clinicians, lowering our costs while raising the quality of our care.

Security and privacy are big issues in healthcare. What is Intermountain doing to protect and secure its medical records?

Cybersecurity has become the biggest IT issue, and it’s where much of the spending is happening. Security is a difficult challenge. The bad guys are getting so much smarter, and there are so many more of them. They can take your network down, they can lock you up, they can keep you from operating.

Consider that as recently as six or seven years ago, we had just five full-time employees on IT security, and their main job was managing passwords. Today, we have 50 people on security and privacy, and this year we are planning to add 10 more.

It affects me, too; I’m much more of a chief information security officer than ever before. While we do have a CISO, the CIO has to play in this field, too.

Do you view privacy and security as separate issues?

No, I see privacy as an outcome of security. We have to be able to secure our data and systems, so that we can keep our data private.

How about mobile technology?

For us, mobile is massive. We started with the obvious outward-facing applications. For example, we have a service called Health Hub that offers 10 applications, everything from finding a physician to accessing your medical records. It brings together these apps into something that’s easily accessed by the user.

Then we asked ourselves how we could use mobile internally, for our day-to-day operations. So we now have our Physician Hub. It’s a mobile app our physicians can use for all sorts of activities, such as scheduling an operating room, communicating with other physicians, and getting alerts on tests they’ve ordered up for patients.

Now we want to do even more with mobile. That could be clinical, financial or administrative. These involve big workflows and operations. So the question we’re asking is: Where could mobile make a better or more efficient workflow?

You’re using video, too, right?

Yes, our TeleHealth service uses a system of cameras, speakers and television screens to connect patients and providers in different locations. It continues to expand to outpatient care settings in our clinics and hospitals, and into patient homes. I think of TeleHealth as a tool that can be applied to many aspects of our business. For example, it could connect two physicians to do a consult [about] a patient. Or, maybe a physician in his or her office wants to consult with a patient who lives far away in a remote rural area. Ultimately, it’s all about leveraging a tool to help our clinicians do their jobs.
SAM QUICK
VP of Global IT & CIO, Varroc Lighting Systems
varroclighting.com

“The true role of the CIO is to understand the business, and to be able to use enabling technologies to help drive the business and move it forward.”

Varroc Lighting Systems is making vehicles safer for drivers and pedestrians, and partnering with the world’s top automobile manufacturers to ensure their vehicles also embody the technology, look and feel today’s buyers expect. As a leading global developer and manufacturer of exterior automotive lighting, Varroc Lighting Systems has more than a century of experience and the flexibility to know what it takes to light up a successful journey ahead. Varroc Lighting is a key member of the $1.3 billion Varroc Group family of automotive-components businesses with a global headquarters in Plymouth, Michigan. Varroc Lighting has more than 5,000 employees worldwide.

On the IT front, the company maintains a small data center in the Czech Republic, but outsources most of its enterprise IT infrastructure to suppliers and partners. Sam Quick joined the company in 2014; previously, he was CIO of Affinia Group (formerly Dana Aftermarket Division), an auto aftermarket parts company.
What are currently your top challenges for digital transformation?

Two primary things: security and support.

Regarding security, as we open up applications and make them more accessible, we need to be careful that we don’t also expose ourselves to potential security breaches.

Regarding support, I’ll give you an example. In some of our manufacturing facilities, we’re rolling out tablets that will let people on the factory floor be connected via WiFi, no matter where they are in the plant. However, at some of our facilities, the business managers found cheaper tablets. Initially, those tablets didn’t work properly. So we worked with the business to show them why those devices weren’t the right choice.

So now we have a pretty good process. If you’re going to do anything that involves an IT component, that part of the process needs IT sign-off. That works pretty well, even globally. We don’t often have trouble with shadow IT or rogue purchasing.

You mentioned your organization’s global reach. Does that create special IT management challenges?

We’re very global. Our organization spans Europe, India, China and North America. At the same time, we’re growing much faster than our overall industry. We have very good product development and design!

So the big questions are: How do we standardize IT so that we can support what we have? And how do we achieve global acceptance?

Sounds like a good opportunity for the cloud ...

Yes, we run most of our applications in a private cloud, including our big Enterprise Resource Planning (ERP) system. We also use Microsoft’s Office 365, which includes Skype, so that’s cloud-based, too.

For us, the cloud delivers two main benefits. One, scalability. That’s important for a company growing by nearly 30 percent. I don’t want to have to go out and buy, say, 100 servers and have them sitting around to be ready if and when I need them. And two, cost. With the cloud, we’re paying only for what we’re using.

Is the Web part of your digital-transformation strategy, too?

Yes, we have a Web interface that lets us connect with our suppliers. So we can place orders with them over the Internet, buying the raw materials we use for our lighting systems. One thing we’d like to do for the future is offer supplier scorecards, and that would tie in with our Web connection, too.

We’re also working on our public-facing website, to make sure it’s flexible enough to be easily viewed on a smartphone or tablet. Our intranet is getting similar attention.

On the customer side, though, we’re doing less on the Web. That’s because our customers tend to be larger auto manufacturers. So with them, we generally use e-commerce solutions such as EDI.

With all these changes, is your role as CIO changing, too?

Actually, while the technology has changed, I believe the role of the CIO has been pretty constant. In my view, the true role of the CIO is to understand the business and to be able to use enabling technologies to help drive the business and move it forward. The CIO role is the same as it was 10 years ago. But what’s changed are the underlying technologies, such as cloud and mobile, as well as our understanding of those technologies.

Looking ahead, what do you see as your biggest IT opportunities over the next 12 to 18 months?

As some of our outsourcing contracts come to an end, we’ll reevaluate them. We’re looking at possibly reeling back in some IT activities that we deem strategic. Things that are more utility oriented, we’ll leave with our outsourcing suppliers.

We’re also looking into BI [business intelligence], possibly to supply our users with more robust reporting. Another possibility is a redesign of the public website.

Yet another is a project to more thoroughly integrate our PLM [product life-cycle management] system with our ERP. That’s being evaluated now. The goal would be to create a more effective, seamless connection for moving designs into production.

And more cloud. The ability to use the cloud to quickly expand without being tied to physical infrastructure is powerful. If you’re a manufacturer today, moving quickly has to be a big part of what you think about.
You’ve certainly seen a Mastercard credit card, and probably even have one in your wallet. But the company, based in Purchase, New York, offers far more than just credit cards. There are debit cards under the Mastercard, Maestro and Cirrus brands; the Access brand prepaid card; commercial services aimed at helping both businesses and government agencies streamline procurement processes and manage expenses; Mastercard Advisors, a service that offers consulting, analytics and marketing help; and the MasterPass digital shopping and selling platform. All those products and services delivered a net income last year of $3.9 billion on revenue of $9.7 billion.

Rob Reeg joined Mastercard in 1995 and has since worked his way up the IT ranks. Today he oversees the company’s strategic processing platform, global network and technology operations from its Operations & Technology headquarters in St. Louis, Missouri.
Mastercard now describes itself as a technology company. So what does digital mean at Mastercard?

Digital starts with designing products and solutions that meet the needs of our consumers, then delivering those to their favored devices. And, of course, layering on top of that the security and protections today’s consumers expect.

But digital also means we can bring more people into the global economy. When we talk about how every device can be a commerce device — whether it’s a phone, refrigerator, car or whatever else — you also have to have a digital proof of identity. Mastercard offers a number of programs around the globe that enable people who may not have had access in the past to payment solutions. Now they can make person-to-person payments, use cards to receive government benefits, and use phones to pay for something they need. For us, it’s a chance to drive financial inclusion across the globe. You can’t have the Internet of Everything without the “inclusion of everyone” — that’s just not sustainable.

What are your biggest digital challenges — and opportunities?

As more consumers switch to electronic payments, we have to make sure we provide them [with] products and solutions to help them pay for the things that matter to them. Regardless of the form factor — card, wearable or phone — we want to help ensure that people can pay in the ways they prefer.

And because we’re a global company, I also want to continue getting better about how we use our worldwide talent to develop the innovative solutions people have come to expect from us. We want to design products that not only deliver value at a global scale, but that also can be customized to meet local needs.

You mentioned cardholder security. What are Mastercard’s top cybersecurity priorities?

Security has to be top-of-mind for any organization today. There’s simply no choice. Customers demand — and have the right to expect — that you’re delivering solutions that meet their needs with their utmost security in mind.

Mastercard is no different. We’re vigilant in this space because of the business we’re in. With our customers and consumers, trust is everything. We also offer products and solutions that help our customers with security, and we’ll continue to develop these products and solutions. For example, we recently rolled out Identity Check; it lets consumers authenticate payments with selfies!

In addition, we provide security products for financial institutions. For example, we have a product that helps financial institutions spot fraud even before it happens. It can offer a score for a transaction that actually predicts the potential for fraud.

With all these developments, has your role changed, too?

Any role has to evolve to stay relevant and impactful. For those of us in technology, we used to be considered service providers who were ancillary to the business. In most cases, we did not have a seat at the decision-making table. But now, technology is the business. It’s no longer enough to be a good technologist. Now you have to bring a strong understanding of what the business is. This is where we can — and must — add value.

How about the roles and skills of your staff? Are they also changing?

Yes, and we want to make sure our technologists have access to new skills as technology continues to evolve and change. Everyone on my staff is challenged to understand the business, ask the tough questions, and make good decisions based on business knowledge and technological savviness. We also encourage them to look beyond a strictly U.S. perspective and think globally.

It’s important for my staff to invest as much in new knowledge and skills as they did when they were just beginning their careers. Doing so gives credibility to their roles and helps them continue to identify solutions to new business challenges. And this is true at every level of the company.

Is Mastercard in the cloud?

Yes, we use cloud for new core services such as Salesforce.com and Workday. We also serve as a private cloud for our customers to connect to Mastercard products.

We’re facing one big challenge, which is the trend by some countries to require that payment data reside within a certain set of borders. For us, this makes it more challenging to take advantage of the cloud’s opportunities.

How about software-defined networking (SDN) technology?

Absolutely. We believe SDN will be a critical enabler for important capabilities. We’ve already deployed SDN into our test and development networks. And during the next few months, we’ll migrate some applications into this infrastructure. Our near-future plans are to deploy SDN into our production networks, then migrate the applications that were implemented in our test environments.

Here, and in other areas, we want to innovate quickly, sometimes fail quickly, and then learn just as quickly. That’s key.
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About CSC
CSC is a global leader in next-generation IT services and solutions. The company’s mission is to enable superior returns on our clients’ technology investments through best-in-class industry solutions, domain expertise and global scale. For more information, visit us at csc.com.