GMA Information Technology Benchmarking 2015
Navigating the New World of IT in Consumer Packaged Goods
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EXECUTIVE SUMMARY

The consumer packaged goods (CPG) industry is in the midst of a major transformation driven by changes in technology and dramatic shifts in consumer preferences. At the same time, the pressure to keep costs low and operate more efficiently has never been so intense. CIOs in the CPG industry need to successfully navigate these turbulent forces to position IT as an enabler of business value within their companies.

To understand how the IT function in CPG companies is responding to the ongoing technology and industry transformation, The Boston Consulting Group and the Grocery Manufacturers Association (GMA) conducted extensive benchmarking on a variety of strategic IT topics. This report is based on a survey of 37 CPG manufacturers in the U.S. and Europe, conducted in the first half of 2015, and supplemented by interviews with more than 15 CIOs of participating companies. It also draws on BCG’s experience working with many of the leading CPG manufacturers and retailers globally.

While the research was conducted collaboratively by BCG and GMA, BCG is wholly responsible for all analyses, conclusions, and recommendations.

The CPG industry is in the midst of an era of unprecedented change.

- E-commerce penetration has reached 8 to 20 percent in many CPG categories, and consumers have come to expect 24-7 service, whether on their desktop, tablet, or mobile device. Meanwhile, in-store traffic is declining.
- Online media is taking share from other types of media at remarkable speed. Internet advertising already dominates in Australia, Canada, and the UK, with Germany and China expected to follow suit by 2017.
- With the explosion of technological and digital innovations entering the marketplace—and irrevocably altering consumers’ purchasing habits—CPG companies also need to build capabilities in data analytics. In response to these shifts, CIOs must decide how to invest in IT innovation, new digital capabilities, and data analytics while balancing pressures to reduce costs.

The benchmarking survey reveals different patterns and strategic choices that distinguish the IT spending approaches of CPG companies. For example, it shows how “frugal” IT spenders achieve lower costs and why global companies spend more on IT than single-country operators.

- Frugal IT spenders achieve lower costs than “full” spenders. Frugal IT spenders typically operate with a low-cost mind-set overall. They limit IT services to a smaller share of company employees and take a conservative approach to new technology adoption. They also operate flatter IT organizations, pay lower salaries to their employees, and establish slow but low-cost disaster-recovery-time objectives.
- Global companies spend more on IT than single-country operators—despite the expectation that scale would confer a spending advantage. These companies operate with broadly scoped IT budgets, provide IT services to a large share of company employees, and mandate rapid recovery from critical system outages, all of which lead to higher baseline costs compared with single-country operators. Though global companies have a key advantage over single-country operators—the ability to reduce average compensation per IT employee by hiring from low-cost regions—global companies’ costs are still higher overall.

The survey results show that IT innovation requires a combination of IT management focus supported by an appropriate level of incremental funding.

- IT innovation leaders’ broadly scoped IT budgets go well beyond core infrastructure and applications. The leaders experiment with a wide variety of new technologies and invest heavily in IT-enabled capabilities across the full spectrum of business processes.
EXECUTIVE SUMMARY (cont.)

- CIOs and their direct reports at these companies join venture capital advisory boards, visit technology companies to learn about new products and services, and commission prototypes of new solutions for business leaders to “touch and feel.”
- Companies with high levels of IT innovation spend more on IT—1.8 percent of revenues compared with 1.5 percent for conservative operators.

CPG companies wrestle with two distinct but related questions: how much to spend on IT and what level of innovation to pursue.

- CEOs, CFOs, and business unit leaders know that in today’s world, an ambitious innovation agenda requires investments in technology and that focusing on keeping costs low constrains innovation.
- CIOs are the only senior executives at CPG companies who think about technology on a full-time basis. As a result, they must establish, explain, defend, and execute their company’s target “IT operating position” (that is, the levels of IT spending and IT innovation best for the business).
- “Frugal” spenders constitute 38 percent of participants, and 62 percent are “full” spenders.
- When it comes to innovation, 73 percent operate conservatively; 27 percent are innovation leaders.

On the basis of our findings, we identified four distinct operating positions, each with a different call to action for the CIO. On the frugal end of the spectrum, we have the “lowest-cost players” and “targeted innovators,” and among the full spenders, we have “suboptimal operators” and “innovation prioritizers.”

- Lowest-cost players focus on keeping IT costs as low as possible, and their CIOs are always on the hunt for savings.
- Targeted innovators invest selectively in innovations while continuing to keep overall IT costs low.
- Suboptimal operators need a comprehensive transformation effort to reduce core IT costs while boosting IT-enabled innovation.
- Innovation prioritizers operate with well-funded IT budgets and invest heavily in innovation. CIOs at the helm of such IT functions need to be wary of overspending and should make sure the business stands behind innovation initiatives.

The road to delivering IT in a new way is clear. Software-as-a-Service (SaaS) solutions are rapidly replacing on-premise software installations at most CPG companies. A few companies are leading the way in implementing agile development practices to reduce IT costs and increase IT solution delivery speed—and many more are expected to follow.

- The survey shows strong SaaS adoption across all business processes, with an increase of up to 28 percentage points in the share of SaaS solutions versus two years ago (when BCG and GMA last undertook a survey of CPG CIOs). Heavy SaaS users surveyed achieved IT costs that were up to 60 percent lower than those of low adopters.
- Agile development is currently in its infancy, and its adoption is still quite scattered in the CPG industry. Given agile’s benefits (lower costs, faster delivery time, higher customer satisfaction), CPG CIOs now face an agile transformation imperative.
CONSUMER PACKAGED GOODS
AN INDUSTRY IN TRANSFORMATION

For much of the past quarter century, consumer packaged goods (CPG) has been a highly profitable industry, marked by consistent growth and rapid expansion into new markets. But the industry is experiencing an era of unprecedented change as multiple shifts in market dynamics happen all at once.

Consumers are adjusting their buying habits, abandoning retail stores for e-commerce—and advertisers are following them online. What’s more, consumers are demanding insight into the provenance of products, resulting in pressure on global supply chains to become more transparent.

The surge in digital consumers has generated a rich source of revenues and data, but to harness customer dollars and meaningful insights, companies need strong e-commerce, online-media, and data analytics capabilities.

Amid the changes, however, some pressures remain constant: the need to cut costs and boost efficiency is unrelenting.

Shifting Consumer Preferences

As consumers shift their buying habits—purchasing more goods online and demanding transparency into the sourcing of products—CIOs are playing a greater role than ever before in building the brand and growing the business.

Declining Retail-Store Traffic. For many retailers, November and December are the most profitable shopping months. However, data collected during these months from tracking devices at large U.S. retailers and shopping malls shows that retail foot traffic dropped 25 percent from 2011 to 2013. With in-store traffic declining, companies are looking for ways to improve the effectiveness of in-store selling through innovative trade promotions, pricing optimization, and other strategies. As a growing number of consumers shop in stores with mobile devices in hand, powerful opportunities exist to increase in-store, impulse purchases. As a result, technology-enabled innovations are expected to fuel much of the growth in CPG—presenting an opportunity for CIOs to step up as partners to the business in driving revenues and profitability.

Greater Demand for Authenticity and Traceability. Consumers are demanding more transparency into the provenance of products. Particularly in the food industry, concern over artificial additives, growth hormones, genetically modified organisms, and unethically sourced products has skyrocketed. And many companies have taken notice. Bumble Bee Seafoods offers a “Trace My Catch” feature on its website that allows consumers to track the origins of their tuna—all the way back to the boat from which the fish were caught. Panera Bread recently announced that it will drop 150 artificial colors, preservatives, and additives from its menu items. General Mills will be removing all artificial colors and flavors from its cereals and fruit-flavored snacks.

While the food industry has become a magnet for this type of attention, other CPG segments hear similar feedback from consumers. A wide selection of brands—from cosmetics to fashion apparel—are under pressure to demonstrate that their practices do not harm animals or exploit workers. To protect their brands, executives are working closely with CIOs to improve supply chain visibility.
A Digital Storm

As e-commerce, online advertising, and data analytics have taken hold, companies have heightened expectations of what technology can do to fuel the business and create value. CIOs are feeling the pressure to keep pace with these rapid market and technology shifts.

The Shift Toward E-Commerce. E-commerce penetration has reached 8 to 20 percent in many CPG categories, such as personal care and pet products. And consumers have come to expect 24-7 service, whether on their desktop, tablet, or mobile device. CPG companies have an opportunity to substantially enhance their influence and impact by providing great content online and building direct relationships with customers. Many are in the process of building e-commerce capabilities and attempting to increase the quantity and effectiveness of online promotions.

Growing Share of Online Media Spending. Consumers are spending more time online, so advertisers are spending more money online. Online media is taking share from other types of media at remarkable speed. Worldwide Internet advertising spending in 2014 was 24 percent of total advertising spending and is projected to grow to 32 percent by 2017, with growth in mobile advertising responsible for the bulk of this increase. Internet advertising already dominates some important consumer markets, including Australia, Canada, and the UK. By 2017, online advertising is also expected to dominate markets in Germany and China, two of the world’s top five advertising markets.1 In response, many CPG CIOs are seeking digital and mobile talent to support the growing role of technology in advertising.

Rise of Data Analytics. Many executives know that strong data analytics can help the business gain insight into consumer preferences, inform the development of next generation products, and deliver more effective marketing strategies. But companies that embrace big data must do so with their eyes wide open. Businesses have to rethink how they access and safeguard information, how they interact with consumers holding vital data, and how they develop new skills to manage new technologies. They may need to embrace new partnerships, new organization structures, and even new mind-sets. Few CPG companies have a strong data analytics framework in place. But with the explosion of technological and digital innovations entering the marketplace—and irrevocably altering consumers’ purchasing habits—CPG companies need to make data analytics a priority.

Relentless Cost and Efficiency Pressures

Although growth is top of mind for CPG companies, cost reduction and efficiency remain key priorities. A number of participants in this year’s benchmarking survey—including Campbell Soup Company, Danone, General Mills, Heineken, Henkel, The Hershey Company, Kellogg Company, and Procter & Gamble—have publicly disclosed their cost-reduction efforts, and some have implemented “zero-based budgeting” systems for IT, in which IT budgets are built from scratch each year rather than through annual increases to existing allocations. As a result, CIOs must deal with close scrutiny of IT costs and demands for greater IT efficiency.

IT spending as a share of revenues has remained flat across the CPG industry for many years. (See Exhibit 1.) Accordingly, CIOs seeking to innovate and invest in new capabilities must do so by reshaping their existing cost structures to free up funds. In short, CIOs are being asked to do more with the same funding.

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Exhibit 1: CIOs Are Keeping IT Costs in Line with Revenue Growth

IT operating expenses (including depreciation) as a share of revenues (%)

<table>
<thead>
<tr>
<th></th>
<th>Fiscal year 2012</th>
<th>Fiscal year 2013</th>
<th>Fiscal year 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Maximum</td>
<td>2.8</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td>25th–75th percentile</td>
<td>1.5</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: GMA Information Technology Benchmarking 2015; BCG analysis.
1 Fiscal year 2012 data from 2013 survey, n = 23.
2 Fiscal year 2013 data from 2015 survey, n = 34.
3 Fiscal year 2014 data from 2015 survey, n = 34.
A QUESTION OF STRATEGY
HOW MUCH TO SPEND ON IT?

CIOs say that a variety of factors drive IT costs at their companies. Some companies are dealing with fragmented application landscapes. Others are burdened by high depreciation from prior capital investments. Poorly structured outsourcing contracts can also lead to high costs owing to overspecified service levels, inadequate governance, or unfavorable terms and conditions. Geography matters, too—companies with IT employees based in high-cost cities must accommodate higher salaries while those with cross-border operations must deal with greater complexity.

Faced with those cost drivers—as well as shifts in consumer behavior, the increasing move to digital, and ongoing cost pressures—companies must make strategic choices about their IT spending.

Drivers of “Frugal” Versus “Full” Spending

The 2013 benchmarking report identified two distinct IT spending approaches. (See GMA Information Technology Benchmarking 2013: The New Mission for IT in Consumer Packaged Goods, BCG report, December 2013.) “Frugal” spenders make do with IT budgets ranging from 0.4 to 1.5 percent of revenues. “Full” spenders operate with IT budgets as high as 2.8 percent of revenues. Frugal and full spenders revealed fundamentally different perspectives on IT spending. Frugal spenders typically operate in companies that have a low-cost mind-set or that prioritize other business investments (such as M&A) over IT. They also, for example, limit IT services to a smaller share of company employees and take a conservative approach to new technology adoption.

The 2015 benchmarking results confirm the two IT spending approaches identified in 2013. (See Exhibit 2.) We had fewer extreme outliers, at both the high and low ends. As a result, median IT spending for the two groups shifted slightly, from 0.7 percent of revenues for frugal spenders in the last survey to 1.0 percent in 2015, and from 2.0 percent of revenues for full spenders to 1.8 percent today. The difference in numbers across years can be attributed, at least partially, to a different mix of participants.

Exhibit 2: Two Distinct IT Spending Approaches: “Frugal” and “Full”

<table>
<thead>
<tr>
<th>IT operating expenses (including depreciation) as a share of revenues (%)</th>
<th>2.5</th>
<th>2.0</th>
<th>1.5</th>
<th>1.0</th>
<th>0.5</th>
<th>0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full spenders</td>
<td>Log scale.</td>
<td>Median = 1.8%</td>
<td>1.8</td>
<td>1.6</td>
<td>1.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Frugal spenders</td>
<td>Median = 1.0%</td>
<td>1.0</td>
<td>0.8</td>
<td>0.6</td>
<td>0.4</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Sources: GMA Information Technology Benchmarking 2013 and 2015; BCG analysis.
Note: Two dummy data points were added to protect confidentiality; figures do not include IT capital expenditures; 2013 data.

1Log scale.
2N = 21.
3N = 13.
The 2015 benchmarking study looked at more than two dozen variables, including number of ERP instances, extent of outsourcing, average compensation, and cloud adoption. Building on findings from the 2013 survey, we identified three additional levers consistently used by frugal spenders to keep IT costs low:

- **IT Manager Span of Control.** IT manager span of control is determined by calculating the ratio of individual contributors to managers within the IT organization. Frugal spenders operate flatter organizations, employing fewer managers and thereby keeping costs down. (See Exhibit 3.) In flat organizations, employees can work independently and gain a broad range of skills, enabling quicker information flows and faster decisions. By contrast, full spenders employ a larger percentage of managers, creating more organization layers and higher costs.

<table>
<thead>
<tr>
<th>Frugal spenders¹</th>
<th>Full spenders²</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th–75th percentile</td>
<td>25th–75th percentile</td>
</tr>
<tr>
<td>Median</td>
<td>Median</td>
</tr>
<tr>
<td>Frugal spenders¹</td>
<td>Full spenders²</td>
</tr>
<tr>
<td>4.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Sources: GMA Information-Technology Benchmarking 2015; BCG analysis.
Note: Fiscal year 2014 data from 2015 survey.
¹N = 10.
²N = 17.

- **Critical System Recovery Time Objectives (RTOs).** The analysis also compared recovery time targets for critical system outages and found meaningful differences in companies’ tolerance for critical system outages. Frugal spenders are willing to trade the risk of user dissatisfaction and operational downtime for lower overall spending. They are comfortable with a median recovery time of 18 hours, and they typically devise manual work-arounds to keep the business running during major system outages. Full spenders, which prioritize rapid recovery, have robust systems in place to achieve a median recovery time of 6 hours. These rapid-recovery standards necessitate greater investment in disaster recovery equipment and services and, consequently, higher IT costs.
**Average Compensation per IT Full-Time Employee (FTE).** Average compensation looks at the total annual IT payroll divided by the total number of full-time IT staff. The analysis revealed that full spenders offer considerably higher compensation on average—approximately 18 percent more than frugal spenders. (See Exhibit 4.) One reason, of course, is that full spenders employ more managers as a share of their total IT staff. Additionally, they are more likely to hire specialized employees, such as data scientists and cloud architects, whose skills command higher salaries. This approach has the advantage of equipping full spenders to tackle the challenges presented by the storm of digital changes confronting the industry; however, in some cases, it can also suggest a suboptimal resource mix with staff in high-cost locations. Frugal operators, on the other hand, have a low cost mindset, which limits what they offer by way of compensation.

In addition, we uncovered one seemingly counterintuitive finding. It would be reasonable to assume that companies spending more on IT would employ more IT resources, but this was not the case. Companies just made different choices on where to focus their budgets. Some companies with a very low head count operate expensive IT outsourcing contracts, which can lead to high costs overall. Conversely, some companies with a high IT head count are able to develop and support in-house applications at a lower cost than outsourcing.
Although the frugal- and full-spending approaches are rooted in fundamentally different business strategies, CIOs following either approach should be careful to avoid the common pitfalls of their respective strategies, as shown in Exhibit 5.

Exhibit 5 | Common Pitfalls for Frugal and Full Spenders

<table>
<thead>
<tr>
<th>PITFALLS OF FRUGAL IT SPENDERS</th>
<th>PITFALLS OF FULL IT SPENDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploying technologies that do not add business value</td>
<td>Missing technology-enabled innovations owing to low awareness</td>
</tr>
<tr>
<td>High rate of technology adoption driving fragmentation and complexity</td>
<td>Losing out on game-changing technologies by being conservative</td>
</tr>
<tr>
<td>Slow decision-making owing to overmanagement</td>
<td>Some areas suffering from a lack of knowledge and expertise</td>
</tr>
<tr>
<td>Too many highly specified roles or jobs in expensive locations</td>
<td>Inability to hire high quality talent in digital, analytics, and mobile</td>
</tr>
<tr>
<td>Excessive number of applications deemed enterprise critical</td>
<td>Inability to support “always on” applications such as e-commerce</td>
</tr>
</tbody>
</table>

Source: BCG analysis.

The Price of Running IT for a Global Company

Thirty-seven companies participated in the 2015 benchmarking survey, including companies with revenues in the tens of billions of dollars and far-flung operations in nearly every country. Other participants—mostly smaller businesses—operate in a single country, most of them in the U.S. While large, global companies have complex and diverse IT needs, they have an advantage in that they can obtain the best prices from vendors and employ IT staff in lower-cost locations. But the scale benefits of being large and global don’t generally outweigh the costs of their highly complex IT needs. In fact, median IT spending at global companies is more than 30 percent higher when indexed against revenues than at single-country operators. (See Exhibit 6.)
Global companies operate broadly scoped IT budgets, provide IT services to a large share of company employees, and mandate rapid RTOs for critical enterprise applications. These costs overwhelm the one key advantage that global companies have over single-country operators: the ability to reduce average compensation per IT employee by hiring from low-cost regions.

**Critical System Recovery Time Objectives.** Global companies have significantly more stringent requirements than single-country operators. (See Exhibit 7.) Businesses with global supply chains and IT applications that support 24-7 operations cannot afford any extended outages. Rapid recovery requires automated, continuous data backups and redundant systems ready to take over should primary systems fail. Supporting this model may require tens of millions of dollars in incremental infrastructure costs. To avoid these high costs, single-country operators use manual work-arounds to keep the business running during major system outages, and such procedures are inherently easier to execute and coordinate in a single country. (For a look at the decisions of one single-country operator, see the sidebar “Unlocking Savings Through Recovery Time Trade-Offs.”)
• **Share of Employees Receiving IT Services.** Certain IT services such as software licenses, outsourced help desk services, and onsite support vary in proportion to the number of end users. Accordingly, companies can—on the basis of their spending mindset—determine the extent to which they offer these services. Single-country operators tend to ration IT services, providing support to a smaller share of company employees than global companies. (See Exhibit 8.) Global companies, on the other hand, provide IT services to a higher percentage of employees.
• **Scope of the IT Budget.** Scope refers to the share of technology capabilities and services used across the company that are funded by the IT department. Nearly all IT departments cover core infrastructure costs, such as data centers, telecommunications networks, laptop computers, and productivity tools like Microsoft Office. Beyond these basics, however, the data shows that global companies fund a greater share of costs for business-focused IT capabilities, such as e-commerce, consumer website development, marketing and social media software, and Software-as-a-Service subscriptions. Single-country operators support fewer IT capabilities than global companies, and they may also be making “shadow IT” investments (spending on IT outside of the IT budget in other parts of the business, such as marketing). When portions of IT are managed outside of the CIO’s realm, it limits the company’s ability to execute a comprehensive IT strategy.

• **Average Compensation per IT FTE.** The analysis showed that global companies pay their IT staff 18 percent less on average than single-country operators. Global companies can save money by hiring in regions where salaries are lower. Single-country operators, by contrast, are limited to the talent pool in their home country, reducing opportunities for low cost IT staffing.
UNLOCKING SAVINGS THROUGH RECOVERY TIME TRADE-OFFS

Companies can make outage recovery time trade-offs to unlock savings.

The CIO of one U.S. CPG company that participated in this year’s survey established a recovery time objective of 120 hours for critical systems—by far the longest across all survey participants and five times the 24-hour median of single-country operators.

The CIO presented the company’s executive management team with two options: deploy high-cost infrastructure to ensure rapid recovery or accept a slow but much lower-cost solution.

Executive management agreed to the latter approach. They ensured that plant managers and other key operational leaders established detailed manual procedures to take orders and to manufacture and ship products in the event of an extended system outage.

This decision was subsequently put to the test when the company’s primary data center went down for three days. Though the company has daily revenues that exceed $25 million, it experienced a net loss of only $150,000 over the outage period. Although a more robust disaster-recovery infrastructure could have eliminated this loss, the annual ongoing cost of the faster solution would have been upwards of $3 million annually—clearly not worth the benefit.

According to the CIO, “If you do the basics at really low cost, then you can find the money for innovation. But you need to put money in real risks, not in perceived risks. We get by just fine with manual work-arounds and processes in many areas.”
Many CIOs aspire to drive innovation, shape digital and e-commerce business decisions, and play a pivotal role in the success of the business overall. But day-to-day operations, burdensome legacy technologies, talent shortages, and a relentless focus on costs are significant hindrances.

Despite these challenges, a number of CPG companies have been able to make tangible progress on their innovation agenda. What are the innovation leaders doing that others are not?

**Enablers of IT Innovation**

The 2015 benchmarking survey identified three hallmarks of IT innovation leaders: they typically run broadly scoped IT budgets that go well beyond core IT infrastructure and applications, experiment with a wide variety of new technologies, and invest heavily in IT-enabled capabilities across the business.

Consequently, IT innovation leaders spend more on IT. The analysis showed median spending of 1.8 percent of revenues on IT, which is 30 basis points higher than the spending of conservative operators, which is 1.5 percent. While that difference can be attributed partly to variations in scope, the reality is that IT innovation is not free. CIOs looking to innovate need to either increase their IT budgets or reshape spending to carve out the necessary funds.

**Broadly Scoped IT Budgets.** Innovation requires the ability to back new-technology deployments with sufficient funding to support development, experimentation, and company-wide adoption. IT innovation leaders provide the lion’s share of funding for a raft of advanced technology capabilities, such as consumer websites and mobile apps, e-commerce technology and content management, Software-as-a-Service solutions, and data analytics. (See Exhibit 9.)

<table>
<thead>
<tr>
<th>Exhibit 9</th>
<th>Innovation Leaders Fund a Broad Range of Technology Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average contribution of IT in funding various technology capabilities (%)</td>
<td></td>
</tr>
<tr>
<td>Data analytics</td>
<td>SaaS solutions</td>
</tr>
<tr>
<td>Innovation leaders¹</td>
<td>76</td>
</tr>
<tr>
<td>Conservative operators²</td>
<td>57</td>
</tr>
</tbody>
</table>

Sources: GMA Information Technology Benchmarking 2015; BCG analysis.

Note: SaaS = software as a service; SEO = search engine optimization. Calculations are estimates developed by averaging the midpoints of ranges provided by survey participants for each capability.

¹N = 9.
²N = 25.
Experimentation with a Wide Variety of New Technologies. Innovation leaders are prolific users of new application development frameworks and tools, new software technologies, and cloud-based IT infrastructure. Nearly two-thirds of innovation leaders in the 2015 survey use responsive Web design (an approach that provides an optimal user experience regardless of screen size), and nearly one-third are deploying nonrelational databases to replace the traditional tabular (or relational) databases used since 1979. A high proportion of innovation leaders are also becoming more nimble by moving from code-heavy, monolithic applications to small, self-contained “microservices.”

Investment Across the Full Spectrum of Business Processes. Survey participants rated their level of investment in IT projects across various business processes on a qualitative “high, medium, low” scale. Innovation leaders consistently reported high IT investment levels in business-critical areas, such as supply chain, finance, and marketing. (See Exhibit 10.) In other words, rather than simply focusing on the trends of the day—such as marketing and information management—innovation leaders invest across the board. We believe this approach is more effective because the best technology-enabled innovations require integration across multiple business functions. Success at e-commerce, for instance, requires a technology transformation that goes well beyond the website to enable complex demand planning and manufacturing, reconfiguration of supply chains and logistics, updates to financial systems, and improvements to customer service.

Innovation’s Starting Point: The CIO

CIOs must tend to the daily cadence of planning, budgeting, managing daily operations, handling incidents, and putting out fires—that’s all business as usual. Day-to-day concerns can fill every hour on the job. But as time passes, CIOs may find that they are treading water—or falling behind. This is especially true in the CPG industry, where IT budgets tend to be more constrained than in other industries. It’s therefore up to the CIO to establish an innovation agenda to ward off stagnation and meet the challenges of a changing industry.
Surprisingly few IT innovation practices are in use by CPG companies. Although many companies have set up technology innovation labs and run pilots with vendors, most innovation practices are vastly underutilized. (See Exhibit 11.)

### Exhibit 11 | CPG Companies Can Greatly Increase Their Use of IT Innovation Practices

<table>
<thead>
<tr>
<th>Adoption rate of IT innovation practices (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation labs</td>
</tr>
<tr>
<td>Pilots with vendors</td>
</tr>
<tr>
<td>Selective early adoption</td>
</tr>
<tr>
<td>Venture capital partnerships</td>
</tr>
<tr>
<td>&quot;Hackathons&quot;†</td>
</tr>
<tr>
<td>Office in &quot;hot skills location&quot;‡</td>
</tr>
<tr>
<td>Strategic investment in start-ups</td>
</tr>
<tr>
<td>Joining start-up advisory boards</td>
</tr>
<tr>
<td>Buying technology companies</td>
</tr>
<tr>
<td>Buying intellectual property</td>
</tr>
</tbody>
</table>

Sources: GMA Information Technology Benchmarking 2015; BCG analysis.
Note: N = 34.
†Competitive software development.
‡Office in a technology hub.

While some innovation efforts require corporate-level commitment and investment, a number of low-cost options are possible:

- **Join venture capital (VC) advisory boards.** Most VC funds are eager to connect their portfolio companies with prospective enterprise customers. CIOs willing to invest time are usually well rewarded with early access to cutting-edge technologies.

- **Engage with technology vendors.** Technology vendors have many active R&D and innovation projects. CIOs who visit select companies two to four times each year can get a pulse check on emerging technologies and trends.

- **Ask existing suppliers to develop proofs of concept and demos.** One participant in the 2015 survey identified a number of technology-enabled opportunities that could enhance the business. One idea was to place sensors on beverage dispensers at customer sites to track consumption. By doing so, the company could monitor inventory (to prevent stockouts, for example) as well as track consumption to better understand consumer behavior and improve marketing tactics. The CIO then asked one of the company’s development vendors to cofund the development of working prototypes to show at a board meeting.
• **Deliver an ongoing series of quick wins.** To gain momentum and establish credibility, aim to launch a portfolio of technology solutions that deliver business impact in two quarters or less. Software-as-a-Service-based solutions or mobile apps needing limited data integration are two examples of the feasibility of rapid execution.

Such moves can help CIOs build credibility with the business and establish the case for innovation funding and expansion of IT’s scope. (While there are no guarantees in the life of a CIO, the sidebar “High-Tech Spin-Off from a CPG Company” shows how far an IT-driven innovation experiment can go.)

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### HIGH-TECH SPIN-OFF FROM A CPG COMPANY

McCormick & Company is one of the world’s leading manufacturers of spices, seasoning mixes, and condiments. Over the years, the company’s R&D function has created a large data library of ingredients, products, and recipes and their more than 16,000 associated aroma chemicals.

In 2011, as part of an effort to drive growth, CIO Jerry Wolfe decided to green-light a tool that could recommend specific McCormick products to consumers. The development team worked with external technology partners to algorithmically map McCormick’s food-data library to create a unique “fingerprint” for every food item. Each resulting FlavorPrint is mapped to 33 flavors and 17 textures that characterize every food item. Each person’s taste preferences can also be represented by his or her unique FlavorPrint, which consists of familiar terms such as peppery, nutty, and buttery and is created by asking users to like or dislike a series of food images displayed in an online app. Consumers with FlavorPrint profiles can then get recommendations that match their taste profiles.

In 2012, the company launched FlavorPrint in a new flagship store near its historic spice factory in Baltimore’s Inner Harbor. In 2013, McCormick put the FlavorPrint recommendation app online, gained 100,000 beta users, and saw a revenue increase of 4.9 percent. As a supplier of flavors to other food companies, McCormick realized that the technology could be sold as a stand-alone product; consequently, in December 2014, it spun off the start-up Vivanda. Jerry Wolfe became CEO and continues to lead the company today.¹

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BALANCING SPENDING AND INNOVATION
DEFINING AN IT OPERATING POSITION

CPG companies wrestle with two distinct but related questions: how much to spend on IT and what level of innovation to pursue. CEOs, CFOs, and business unit leaders know that in today’s changing CPG world, an ambitious innovation agenda requires investments in technology and that a low-cost focus constrains innovation. That said, CIOs are the only senior executives at CPG companies who think about technology on a full-time basis. As a result, they must establish, explain, defend, and execute their company’s target “IT operating position”—that is, the levels of IT spending and IT innovation that are best for the business.

In this year’s study, frugal spenders constitute 38 percent of participants; full spenders, 62 percent. When it comes to innovation, 73 percent operate conservatively, and 27 percent are innovation leaders. On the basis of these findings, we identified four distinct operating positions, each with a different call to action for the CPG CIO. (See Exhibit 12.) On the frugal end of the spectrum, we have the “lowest-cost players” and “targeted innovators”; among the full spenders, we have “suboptimal operators” and “innovation prioritizers.”

Exhibit 12 | Each IT Operating Position Has a Different Call to Action for the CIO

<table>
<thead>
<tr>
<th>IT Operating Position</th>
<th>Spending Approach</th>
<th>IT Innovation Stance</th>
<th>CIO Call to Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative operator</td>
<td>Frugal</td>
<td>Innovation leader</td>
<td>Validate the role of IT to remain low cost</td>
</tr>
<tr>
<td>Suboptimal operators</td>
<td>Frugal</td>
<td>Innovation leader</td>
<td>Transform IT by fixing the core and increasing innovation</td>
</tr>
<tr>
<td>Innovation prioritizers</td>
<td>Full</td>
<td>Conservative operator</td>
<td>Ensure business support for innovation and reduce core IT costs</td>
</tr>
<tr>
<td>Targeted innovators</td>
<td>Full</td>
<td>Innovation leader</td>
<td>Obtain targeted innovation funding from the business</td>
</tr>
<tr>
<td>Lowest-cost players</td>
<td>Full</td>
<td>Conservative operator</td>
<td>Validate that the role of IT is to remain low cost</td>
</tr>
</tbody>
</table>

For each of the four operating positions, we offer a set of recommendations for CPG CIOs to consider as they craft an IT strategy to meet their business needs.

Sources: GMA Information Technology Benchmarking 2015; BCG analysis.

* N = 14.
* N = 7.
* N = 3.
* N = 2.
BALANCING SPENDING AND INNOVATION
DEFINING AN IT OPERATING POSITION (cont.)

Lowest-Cost Players

These organizations keep IT costs as low as possible, and the CIO is always on the hunt for savings. Cost reductions may be achieved through staffing decisions (maintaining a flatter organization with fewer managers), vendor negotiations (aggressively negotiating contracts), or technology choices (reducing infrastructure costs, eliminating redundant applications across business units, or taking calculated risks on disaster recovery).

CIOs in this operating position need to consider two things.

First, it may be that their IT costs only appear to be low because certain technology spending—such as app development or social media management—is being funded outside of IT. With the high and growing number of Software-as-a-Service solutions available today, business units often sign up for subscriptions or work directly with advertising agencies without involving IT.

Second, with competitors possibly doubling down and making big bets on IT, a low-cost focus, to the exclusion of other objectives, may not be strategically wise. CIOs in the lowest-cost operating position should engage their executive management on the sustainability of the low-cost position and determine whether any changes are warranted as the industry continues to change, new technologies become available, and consumer habits evolve.

Targeted Innovators

With the proliferation of new enterprise-solution vendors and the growing maturity of open-source software, low-cost technologies have become a viable option. As a result, building IT solutions in big data analytics and digital marketing is much less expensive than it was just a few years ago. For instance, instead of an expensive in-memory computing solution to deliver real-time analytics, new technologies allow companies to store transactional data in a low-cost, cloud-based repository for subsequent off-line processing and analytics. Targeted innovators are likely to adopt these low-cost solutions, while maintaining the frugal practices prevalent among lowest-cost players.

Targeted innovators need to ensure strong business support for their innovation projects. At the same time, they need to communicate the limits of this operating position. Targeted innovation based on a small amount of incremental funding can’t tackle big-bet technology investments, such as e-commerce. In addition, IT talent is an especially critical issue for this group. Expertise in new technologies does not come cheap, and CIOs should be prepared to defend payroll cost increases as well as high salaries to fill key roles.

Suboptimal Operators

Leo Tolstoy’s Anna Karenina has a famous opening line: “Happy families are all alike; every unhappy family is unhappy in its own way.” This notion holds true for most suboptimal operators. They share high IT costs and insufficient innovation, but the reasons for the high costs are legion. Companies may be dealing with the consequences of poor IT infrastructure choices, suffering from fragmented and decentralized staffing, operating with too many disparate enterprise applications, locked into poor outsourcing arrangements, or mired in legacy systems that have not been upgraded for years.

Unfortunately, there’s no magic bullet to address unwieldy costs. Suboptimal operators—especially those with costs above the median for their cohort—would benefit from a systematic cost-transformation program addressing all areas of IT spending; such transformations typically take 18 to 36 months.
At the same time, CIOs in this operating position need to work with executive management to develop a pragmatic innovation agenda and execution plan. Some CIOs may be able to obtain an infusion of funds for innovation, but they should also be prepared to carve out funding from the existing budget.

**Innovation Prioritizers**

These companies on average spend the most on IT and have successful and high-profile innovation initiatives. Median IT spending for this group is relatively high for the CPG industry (1.8 percent of revenues), which means that CIOs in this operating position run the risk of being perceived as excessive spenders. They must accordingly build and maintain strong business support for their IT-innovation portfolio and ensure that it is considered a critical piece of the company’s overall strategy.

CIOs in this group also need to drive down costs from core IT operations where possible. Ongoing pruning of service levels, costs, and resource allocations will both build credibility for the IT team and free up funding for innovation.
**NEXT GENERATION IT**
SOFTWARE-AS-A-SERVICE AND AGILE DEVELOPMENT

A company starting out fresh today has little reason to use on-premise software. With software-as-a-service solutions available for nearly every business process, the primary challenge lies in sorting through the hundreds of vendors in the marketplace to find a suitable solution from a stable provider. While large and established companies will continue to maintain some on-premise software, the findings from the benchmarking are unequivocal:

- **SaaS use in CPG companies is now mainstream, and adoption rates continue to increase.** The move to SaaS is an explicit element of some CPG companies’ IT strategy. Land O’Lakes has implemented a SaaS-first strategy and aims to “get out of data center operations over time,” according to the CIO.

- **With agile methodologies, however, the story is quite different.** Although agile is widely used in the new generation of high-tech and e-commerce companies and is quickly spreading to other technology companies and to the e-commerce divisions of large companies, our survey reveals that the CPG industry is a laggard when it comes to agile adoption. This is a tremendous opportunity for CPG CIOs. Agile can help reduce costs, increase application development speed, and improve developer productivity.

**The Rise of SaaS**

From 2015 through 2018, the global SaaS business is forecast to grow at more than twice the rate of traditional, on-premise enterprise software.¹ CPG companies are riding the wave. The survey shows strong adoption across all business processes, with an increase of 11 to 28 percentage points in the share of SaaS solutions versus two years ago. (See Exhibit 13.) Even finance and ERP, long considered strongholds of on-premise software, have begun seeing increased SaaS use.

![Exhibit 13 | Adoption of SaaS Has Increased Rapidly](image)

---

What drives SaaS adoption? SaaS solutions can improve application management and lower costs. One time implementation costs for SaaS solutions are often lower than for traditional on-premise applications because of limited customization. Expenses for periodic upgrades are avoided because the vendor continually makes updates. Application support costs are lower as well because they are included in SaaS subscription costs, and migration to SaaS can substantially lower infrastructure costs.

One company that participated in our survey found that the implementation of SaaS radically altered its plans to increase data center capacity. Although it originally projected an upgrade need in 2014, the company discovered that, as a result of its SaaS deployments, it wouldn’t need a capacity increase for another three years.

High-volume users of SaaS see as much as 61 percent lower IT costs compared with low adopters of SaaS. (See Exhibit 14.) While the benefit can be substantial, CIOs starting the journey should be prepared to manage the challenges that come with SaaS deployments. These include:

- **Mandatory upgrades.** With on-premise software, upgrades can be deferred as a way to manage costs in a fiscally challenging year. Some CIOs even choose to go “off maintenance” for systems they do not expect to upgrade for a long time. With SaaS, this strategy is off the table—there is no way to avoid SaaS subscription charges as long as the system is being used.

- **Difficulties integrating with existing systems.** SaaS solutions are rarely deployed on a stand-alone basis. They typically exchange data with on-premise HR, finance, supply chain, and other systems. As a result, a single SaaS deployment may result in a cascading series of other upgrades. This can become a pressing problem if upgrades have been deferred for many years.
• Potentially onerous licensing requirements. One attraction of SaaS is the ability to pay subscription charges based on the actual number of users and not be locked into multiyear fixed contracts. Unfortunately, some SaaS vendors offer contracts that are not materially different from traditional on-premise license agreements. CIOs should take this into consideration when selecting SaaS vendors.

For companies embarking on the journey to SaaS adoption, we recommend the following path:

• Begin with simple back-office processes, such as travel and expense management, recruiting and talent management, and e-mail.
• Next, move customer service, sales force management, knowledge management, reporting, and analytics to a SaaS solution.
• Finally, companies may deploy ERP, supply chain, and finance at the end of their SaaS-migration process; even then, it is typically used only in small markets or for acquisitions in emerging markets.

The Agile Transformation Imperative

Agile development is here to stay—but it hasn’t yet been widely adopted within the CPG industry. This may be because agile represents a significant departure from the classic “waterfall” methodology commonly used in IT. Agile is a fundamentally different software-development methodology that incorporates iteration and customer feedback to continuously refine and deliver products.

Hallmarks of agile development include the following:

• A “minimum viable product” is created in two-to-four week development cycles called “sprints.”
• Products are reviewed by business owners and customers before the next sprint begins.
• Decisions on what to build in each sprint are made by a “product owner” (in contrast to traditional business analysts, who document detailed requirements but don’t own the product development priorities).
• “Scrum masters” facilitate teams of five to nine people who self-manage their work to deliver the product.

Agile development is widely used in the high-tech space and is now a well-established practice at many technology companies. Over the past few years, other industries have followed suit, especially those facing widespread digital disruption, such as banking, travel, and retail. While the starting point is typically with e-commerce and analytics, agile methods often spread to other projects, such as ERP customization.

The CPG industry has been slow to adopt agile methodologies. Of the companies surveyed, 41 percent said that they use agile in no more than 10 percent of IT projects, and 38 percent said that they use it in only 11 to 30 percent of projects. In other words, nearly 80 percent of survey participants use agile in very limited ways. (See Exhibit 15.)
Companies that use agile can expect reduced costs (10 to 20 percent lower), faster time to delivery (in some cases twice as fast), much lower defect rates, and higher customer satisfaction—an extremely attractive set of outcomes.

But adopting agile development is neither quick nor easy. It requires sponsorship from both business and IT leaders, a dedicated transformation team, and a willingness to change culture, values, and work processes. Starting with a few low-risk but high-profile projects, we have seen successful transformations that proceed in three-to-six month waves, lasting up to three years. (The sidebar “Agile Transformation Success” shows how one CPG company adopted agile for all IT projects over a three-year period.)
ConAgra Foods, one of North America’s leading packaged food companies, has fully adopted agile development practices. Today, the company’s entire IT team of more than 600 people is trained in agile and uses the methodology for all IT projects.

ConAgra Foods’ journey began more than three years ago, when an external provider piloted agile projects with a small team of developers. The provider trained a cohort of agile coaches within ConAgra, and that team then brought agile to the rest of the IT organization.

Today, the company has a standing team of agile coaches to support ongoing IT efforts. For many projects, product owners are staffed from the business instead of IT, ensuring a tight feedback cycle of sustained business engagement. Development occurs in three-week sprints, and business users must formally review the output of every sprint. Production releases, however, occur at three-to-six month intervals after a suitable number of sprint cycles have been completed.

As a result of embracing agile, ConAgra’s IT team works as a true partner with the business to deliver new technology-enabled capabilities—and company-wide satisfaction with IT is higher than ever.
THE ROAD AHEAD
A NEW WAY TO DELIVER IT

The challenges for CIOs trying to manage IT costs while driving innovation have only intensified in recent years. Cost pressures have not decreased, yet the need for technology-driven innovation is even more urgent.

With 41 percent of companies functioning as suboptimal operators—high on spending, but low on innovation—there is much work to be done. To begin, CIOs must determine whether they are satisfied with their company’s current operating position and then engage the management team in a dialogue about how to capture more value from IT projects. Even if money is tight, CIOs can make several “no regrets” moves to improve their operating position. They can:

• Identify levers to unlock savings if needed,
• Align with the business’s leaders on the scope of IT,
• Implement low-cost practices that foster innovation,
• Establish a SaaS agenda, beginning with the back office and moving to business-facing capabilities, and
• Determine where, when, and how to adopt agile development.

Although IT budgets have generally remained flat across the CPG industry, companies do not have the luxury of maintaining the status quo. CIOs must embrace new IT capabilities in order to defend their brand and market share. Those who can establish a strong operating position, while continuing to make the right no-regrets moves, will be well positioned for success.
Thirty-seven companies in the CPG industry participated in the GMA Information-Technology Benchmarking 2015. (See Table 1.) On the basis of the information they provided, we developed a set of 27 performance metrics with top-quartile, median-quartile, and bottom-quartile scores for each metric. (See Table 2 for a selection of these metrics.)

CPG companies are encouraged to join our benchmarking survey. While everyone can use the data in this document for comparative purposes, survey participants gain exclusive access to all 27 metrics and an iPad or Web app to run their own customized analyses. The iPad or Web app is a dynamic application that allows users to directly compare their IT performance with that of the other companies in the database. More than 400 summary and comparison charts are available.

To find out more about the app and how to participate in the survey, visit cpgit.bcg.com or contact any of the authors for more information.

### Table 1 | Participating Companies

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Suntory</td>
<td>Kellogg Company</td>
</tr>
<tr>
<td>Bumble Bee Seafoods</td>
<td>Kimberly-Clark</td>
</tr>
<tr>
<td>Bush Brothers &amp; Company</td>
<td>King's Hawaiian Holding</td>
</tr>
<tr>
<td>Campbell Soup Company</td>
<td>Kraft Foods (now part of The Kraft Heinz Company)</td>
</tr>
<tr>
<td>Cargill</td>
<td>Land O'Lakes</td>
</tr>
<tr>
<td>The Clorox Company</td>
<td>Maple Leaf Foods</td>
</tr>
<tr>
<td>ConAgra Foods</td>
<td>Mars</td>
</tr>
<tr>
<td>D.E. Master Blenders 1753</td>
<td>Materne North America</td>
</tr>
<tr>
<td>Danone</td>
<td>McCormick &amp; Company</td>
</tr>
<tr>
<td>E.&amp;J. Gallo Winery</td>
<td>Post Consumer Brands</td>
</tr>
<tr>
<td>General Mills</td>
<td>PepsiCo</td>
</tr>
<tr>
<td>Grupo Modelo</td>
<td>Pharmavite</td>
</tr>
<tr>
<td>Heineken</td>
<td>Procter &amp; Gamble</td>
</tr>
<tr>
<td>Henkel</td>
<td>Reckitt Benckiser Group</td>
</tr>
<tr>
<td>The Hershey Company</td>
<td>Reily Foods Company</td>
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<td>Hormel Foods</td>
<td>Royal FrieslandCampina</td>
</tr>
<tr>
<td>Idahoan Foods</td>
<td>Unilever</td>
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<tr>
<td>J.D. Irving</td>
<td>Welch Foods</td>
</tr>
<tr>
<td>The J.M. Smucker Company</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** GMA Information Technology Benchmarking 2015.
## Table 2 | IT Performance Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>All participants</th>
<th></th>
<th>Global companies</th>
<th></th>
<th>Single-country operators</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IT operating and capital expenses (% of revenues)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Operating expenses</td>
<td>1.02</td>
<td>1.53</td>
<td>2.00</td>
<td>1.3</td>
<td>1.67</td>
<td>2.04</td>
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<tr>
<td>• Infrastructure</td>
<td>0.26</td>
<td>0.51</td>
<td>0.71</td>
<td>0.37</td>
<td>0.61</td>
<td>0.71</td>
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<tr>
<td>• Applications support</td>
<td>0.20</td>
<td>0.27</td>
<td>0.42</td>
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<td>0.39</td>
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<tr>
<td>• Projects</td>
<td>0.11</td>
<td>0.23</td>
<td>0.33</td>
<td>0.11</td>
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<td>0.40</td>
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<td>• Management and overhead</td>
<td>0.05</td>
<td>0.14</td>
<td>0.22</td>
<td>0.05</td>
<td>0.14</td>
<td>0.21</td>
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<tr>
<td>• Depreciation and amortization</td>
<td>0.12</td>
<td>0.28</td>
<td>0.36</td>
<td>0.12</td>
<td>0.28</td>
<td>0.36</td>
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<tr>
<td>Capital expenses</td>
<td>0.16</td>
<td>0.28</td>
<td>0.34</td>
<td>0.15</td>
<td>0.30</td>
<td>0.35</td>
</tr>
<tr>
<td>Cost ratios ($thousands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Operating expenses per employee</td>
<td>5.7</td>
<td>7.6</td>
<td>9.4</td>
<td>6.0</td>
<td>7.6</td>
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<tr>
<td>Operating expenses per end user</td>
<td>8.0</td>
<td>10.3</td>
<td>14.5</td>
<td>7.5</td>
<td>9.7</td>
<td>13.9</td>
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<tr>
<td>FTE ratios</td>
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<tr>
<td>Employees per IT FTE</td>
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<td>57</td>
<td>43</td>
<td>65</td>
<td>59</td>
<td>50</td>
</tr>
<tr>
<td>End users per IT FTE</td>
<td>54</td>
<td>39</td>
<td>29</td>
<td>56</td>
<td>43</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: GMA Information Technology Benchmarking 2015.
Note: N= 34. FTE = full-time employee. Data is for fiscal year 2014.
FOR FURTHER READING

The Boston Consulting Group publishes other reports and articles that may be of interest to readers of this report. Recent examples include the following.

**Developing Software at the Speed of the Cloud**  
A Focus by The Boston Consulting Group, May 2015

**The Proactive CIO: Three Strategies for Engaging with the Board**  
An article by The Boston Consulting Group, May 2015

**The Digital Imperative**  
An article by The Boston Consulting Group, March 2015

**The Growth of the Mobile Internet Economy**  
A report by The Boston Consulting Group in collaboration with Google, February 2015

**The Digital Future: A Game Plan for Consumer Packaged Goods**  
A report by The Boston Consulting Group in collaboration with GMA, Google, and IRI, August 2014

**Enabling Big Data: Building the Capabilities That Really Matter**  
A Focus by The Boston Consulting Group, May 2014

**GMA Information-Technology Benchmarking 2013: The New Mission for IT in Consumer Packaged Goods**  
A report by The Boston Consulting Group in collaboration with GMA, December 2013
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NOTE TO THE READER (cont.)

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