The battle for competitive advantage in the app economy

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Introduction

A new kind of company, the software-driven enterprise, is redefining business strategy and performance. Across industries and around the world, these companies are leaders in the accelerating application economy, where code is king and competitive differentiation depends on customer-pleasing apps and advanced development methods.

This sweeping trend is already disrupting industries everywhere, from AirBnB's impact on the hotel industry to Uber's effect on taxi services, to companies like Mint and Venmo vying to becoming the financial app of choice for today's Millennials.

In March 2015, CA Technologies commissioned Oxford Economics to conduct a global survey of senior business and technology executives about application strategy and its impact on business outcomes. The results clearly show that companies are adapting to the application economy at a rapid and accelerating pace, and rethinking competitive advantage and differentiation in the process.

No longer is it enough for companies to have superior products or services. Today, success depends on increased agility and time-to-market, better customer service, and a better overall customer experience—and these mandates require an increasing ability to leverage software. While nearly half of respondents say the shift to software-driven business models is a critical driver of competitive advantage today, more than three-quarters believe this will be true in three years (see Fig. 1).

Fig. 1: Driving competitive advantage

To what extent do you agree that the shift to a software-driven enterprise will be a critical driver of competitive advantage for your company?
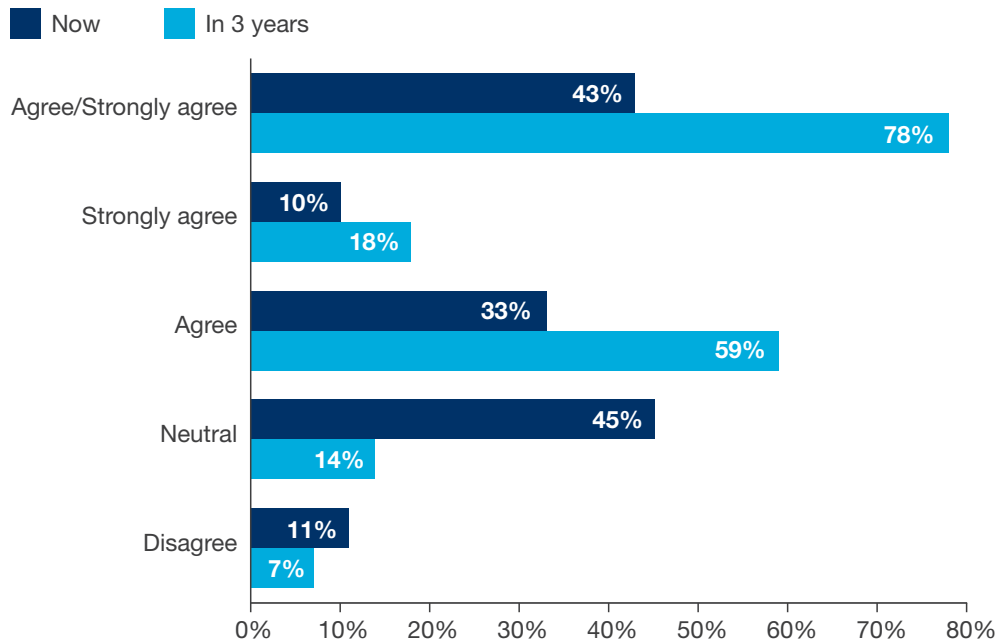
In response, organizations are shifting investment priorities and changing strategies:

■ Fully half of respondents (51%) say they have invested in newer forms of software (mobile apps, API-enabled software, etc.) over the past three years, and nearly as many say they will increase their level of investment over the next three years.

■ 54% are developing new strategies for customer interactions.

■ The most important way of measuring competitive differentiation in the application economy is increased agility and faster time-to-market, with time-to-decision a key metric.

■ One indication of software's strategic role: 49% are bringing more development back in-house.

In short, the application economy is growing rapidly and already having a significant impact on the way companies do and view their business. Yet building a software-driven enterprise is no simple task. It requires substantial updates to internal operations and fresh thinking about finding and retaining appropriately skilled workers. Addressing these challenges is a priority, as the speed at which companies can navigate and adapt to this new landscape will be a significant indicator of their ability to move ahead of the competition.

Competitive advantage and differentiation

Improving customer engagement

One critical way to stand out in the application economy is by improving customer relationships (see Fig. 2). This emphasis on better customer service and customer experience may already be driving top-line growth. Respondents are seeing meaningful revenue driven by these newer applications, and the impact on revenue will be much greater three years from now.

Fig. 2: Putting customers first

What will be your organization's predominant method of achieving competitive differentiation in the application economy?

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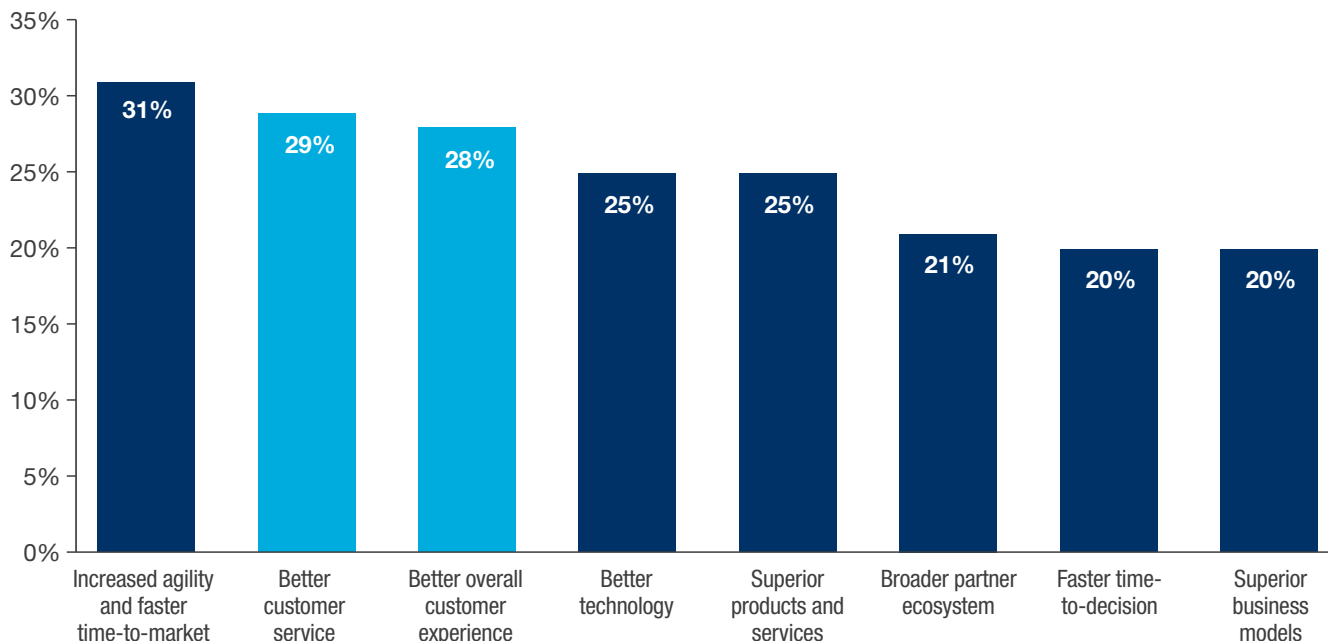
Smart companies are moving fast. Patrice Slupowski, the vice president for digital innovation at Paris-based Orange (formerly France Telecom) says his company began its shift toward a more applications-based focus in 2006. Along the way, the company observed changes in the marketplace and started deploying APIs (application programming interfaces) under the Orange Business Services brand and offering them to its customers and partner/providers.

"Through dedicated APIs our customers and providers can develop enterprise and services applications, some in conjunction with us," he says. Today, the company has some 600 such platforms across the enterprise for internal use with 12 specific APIs made available to the public developer community through Orange Partner. Orange recently hit a milestone of 120 million downloads for applications. Because it makes a business of the sale of services aimed at distributed development and engages in it for its own use, the activity has become a major source of competitive advantage for Orange, Mr. Slupowski says.

Navigating the application economy requires changes to businesses across all aspects of their strategy and operations. Over 40% of respondents say it is already affecting the development of new products and services.

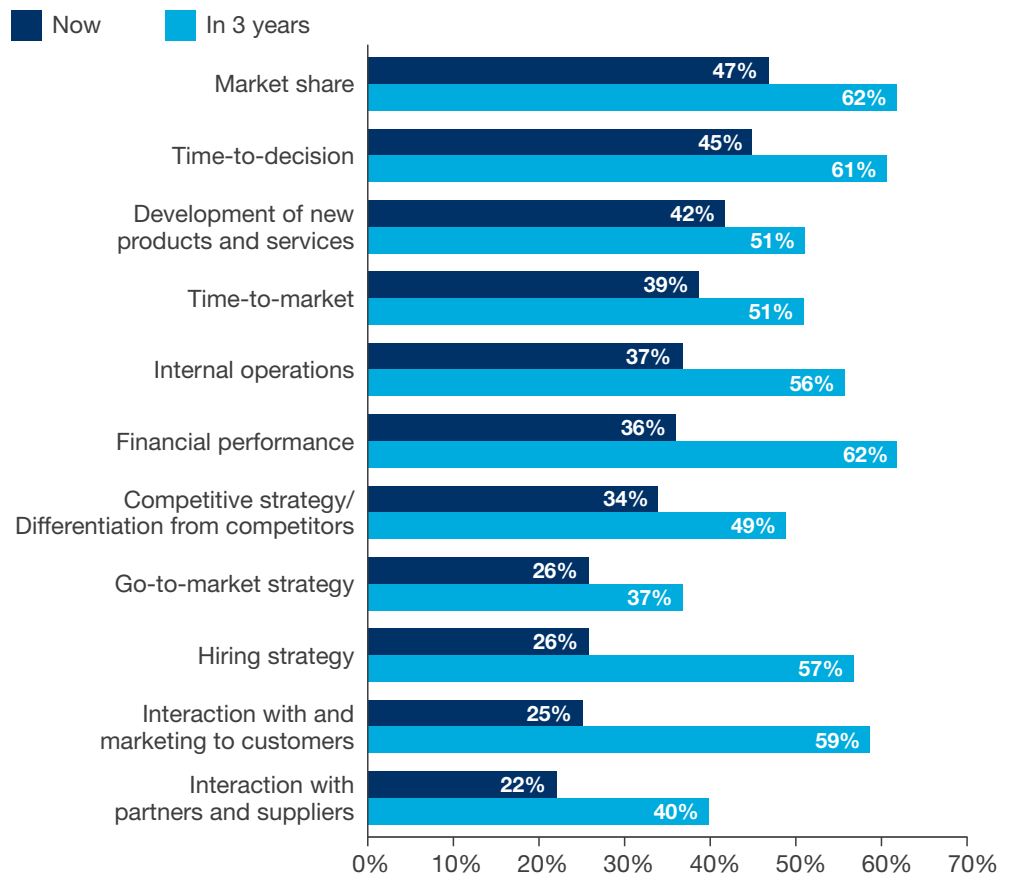## Competitive differentiation requires agility and investment

Navigating the application economy requires changes to businesses across all aspects of their strategy and operations. Over 40% of respondents say it is already affecting the development of new products and services, and 51% say that will be true for them in three years (see Fig. 3).

Fig. 3: Developing speed and new products

Please rate the extent to which becoming a more software-driven business is having an impact on your company in the following areas today.

| Now | In 3 years |

Area	Now	In 3 years
Market share	47%	62%
Time-to-decision	45%	61%
Development of new products and services	42%	51%
Time-to-market	39%	51%
Internal operations	37%	56%
Financial performance	36%	62%
Competitive strategy/ Differentiation from competitors	34%	49%
Go-to-market strategy	26%	37%
Hiring strategy	26%	57%
Interaction with and marketing to customers	25%	59%
Interaction with partners and suppliers	22%	40%

Companies are undergoing this sometimes-challenging transition because they are convinced that newer forms of software will bring them increased agility and faster time-to-market. And that speed is critical to achieving competitive differentiation in the marketplace.

One large regional US bank recently transitioned away from being a company built primarily around human interaction. "We didn't have a tablet app, and it wasn't clear what the meaning of all our different channels were," says one of the bank's senior executives. So the bank set up a digital and an omnichannel strategy. That way, customers could interact with the bank wherever, however, and whenever they wanted to.

The transition to become an app-oriented enterprise was enormous, as the bank phased out legacy applications. But the payoff has been huge as well. The company put out a tablet application and retooled online banking—"faster than it had ever done anything before," the executive notes. The ability to leverage APIs and other new software applications gave the bank a new agility. In the past, typical system upgrades took at least two to three years.

> *"You begin to change the companies you are working with, and you are also changing the boundaries of your own IT systems."*
>
> *Patrice Slupowski, vice president for digital innovation, Orange*

Case Study: Making Orange agile

It was nearly a decade ago when Orange, the company formerly known as France Telecom, began its journey to becoming a software-driven enterprise. "We were just trying to understand what the benefits could be of bringing some APIs into our information technology group," says Patrice Slupowski, Orange's vice president for digital innovation. "At that point, these applications were very much considered a foreign element inside our company."

Since then, the road has gotten smoother but the cultural change along the way has been immense. It transformed Orange from the inside out, and had an impact on the company's external partners as well. "You begin to change your approach to partnership with companies, because it is simplifying the interface," Mr. Slupowski says. "And you are also changing the boundaries of your own IT systems."

Now, Orange is borrowing ideas and apps from lean startups in particular, and assimilating these into the organization to increase its agility. "Globally, we consider that innovation is a key differentiating factor," Mr. Slupowski says. At Orange, there are several thousand people dedicated to the task of innovation, which the company considers a true differentiator from the competition.

Of course, Orange still has legacy systems slowing down the pace of progress. But given the company's size—€39 billion in annual revenues (2014), 155,000 employees, and 247 million customers worldwide—it is moving at breakneck speed.

Mr. Slupowski's team is especially focused on open-source innovation, delivering APIs to French developers to gather feedback on how applications are used. At the same time, Orange delivers industrial capabilities to its customers but is also careful to protect enterprise and individual data.

Perhaps the biggest transformation at Orange since its immersion in the app economy is the speed at which the organization spawns and implements ideas. "We are quite obsessed now with the feeling that we have to go fast; that we have to either deliver fast or fail fast on any project. That way, we are able to quickly learn from failure," he says.

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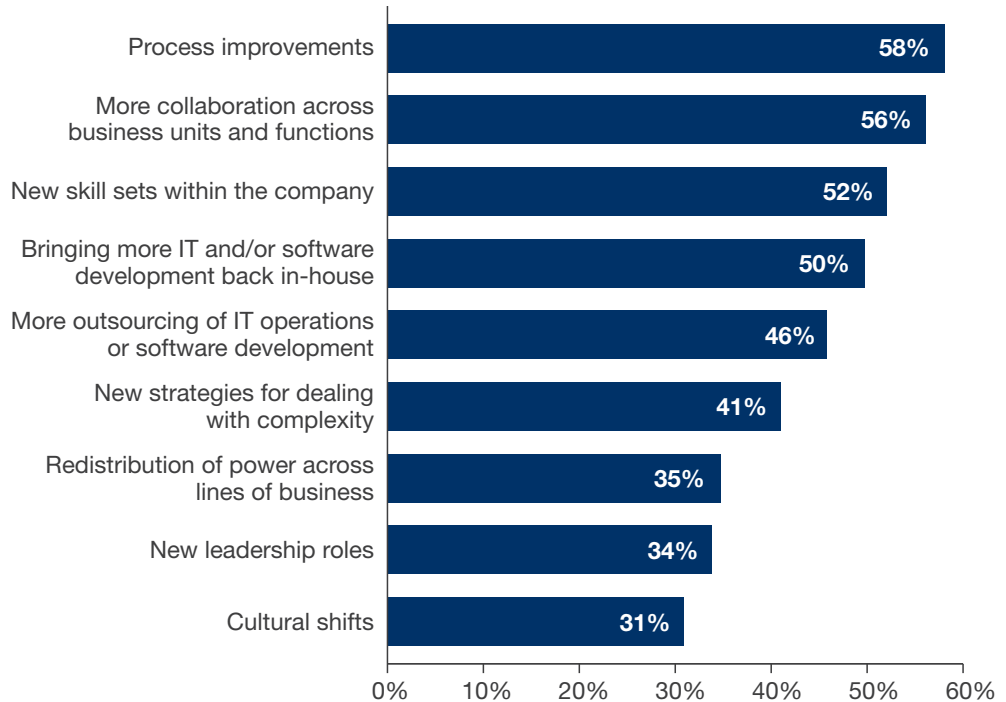
Rethinking operations

An emphasis on doing things in-house

One notable characteristic of the best-adjusted software-based enterprises is their emphasis on developing applications internally. This reflects the established wisdom that it is best to own core IT operations that provide differentiation in the marketplace—and, in a software-driven enterprise, IT's strategic value has only increased. Our survey found that 50% of respondents are bringing more software development back in-house (see Fig. 4).

With newer software now at the center of company operations, there is a distinct change in the way that business is conducted. Processes have been transformed, and our survey results bear this out: 58% of respondents are making process improvements to accommodate new applications; another 56% are seeing more collaboration across business units.

Fig. 4: Software-induced culture change

Which of these changes have you implemented or do you plan to implement in the near future in order to be more effective in the application economy?

Category	Percentage
Process improvements	58%
More collaboration across business units and functions	56%
New skill sets within the company	52%
Bringing more IT and/or software development back in-house	50%
More outsourcing of IT operations or software development	46%
New strategies for dealing with complexity	41%
Redistribution of power across lines of business	35%
New leadership roles	34%
Cultural shifts	31%

Greater security requirements

IT security is also an essential part of being a truly software-driven enterprise. The wealth of information being gathered offers a tempting target for misuse, and the broad range of applications through which the data flows creates multiple points of access. Thus, increased collaboration across lines of business is partially spurred by a need to provide greater protection to customer and business data.

- 61% of respondents are increasing frequency of security assessments.
- 62% are developing business continuity plans.
- 60% are investing in new security tools to protect customer data.

But the security issue is not only about avoiding risk. A significant 46% of our respondents say their top security executive is partnering with the business units to ensure security enables new business opportunities, and one in three are partnering to make security a differentiator for the business. In the application economy, security itself is a competitive differentiator.

Finding and developing the right talent

New software technologies require new skills

Many companies are finding it very difficult to fill capability gaps in newly important areas such as data science, collaboration, APIs, and IT security—the top skills needed for success in the application economy (see Fig. 5). Our survey bears this out:

- 40% of respondents plan to acquire tech companies to gain talent.
- Another 44% are planning to establish technology centers in talent-rich geographies.

This trend will gain momentum going forward. More than half of our respondents say that becoming a software-driven business will have an impact on their hiring strategy in three years. And another 52% say they are developing new skill sets within their organizations, echoing the emphasis on ownership (as opposed to outsourcing) that is a signal feature of the new software-driven environment.

Fig. 5: The app economy requires a select group of skills

How important are the following skills to succeed in the application economy? *"Highly important" responses*

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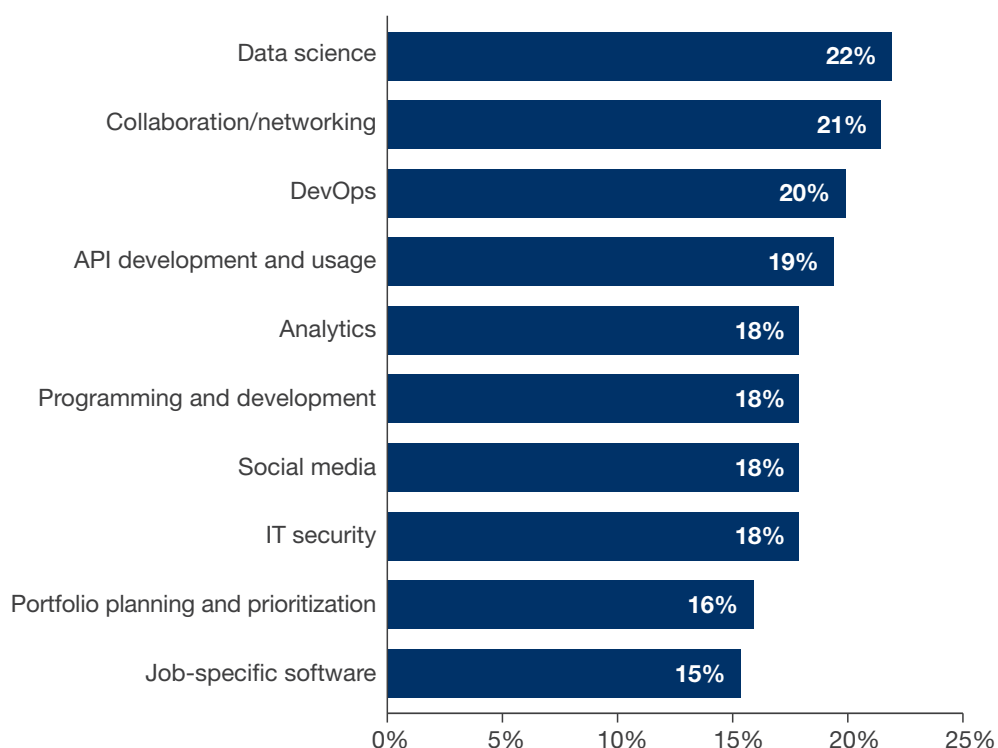
People issues are a major challenge

Developing skills among existing workers is another aspect of the talent challenge. Lack of knowledge and/or skills was the second-highest-rated obstacle (virtually even with changing company strategy) to responding more effectively to the new landscape and becoming more adept at software and application development (see Fig. 6).

Again, respondents are very clear that they do not want to outsource the problem. Outsourcing came in dead last when respondents were asked how they would change their organization to become more software-driven. Damian Pike, vice president of innovation at the DHL Supply Chain operating unit, wants to hire the best talent. But "the challenge is finding people who are able to think creatively and do problem solving. We tend to invest in our own people and develop them to do it."

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Damian Pike, vice president of innovation, DHL

Fig. 6: Finding the right skills is a major hurdle

What are the biggest obstacles to your organization responding more effectively to the application economy and becoming more adept at software/application development?
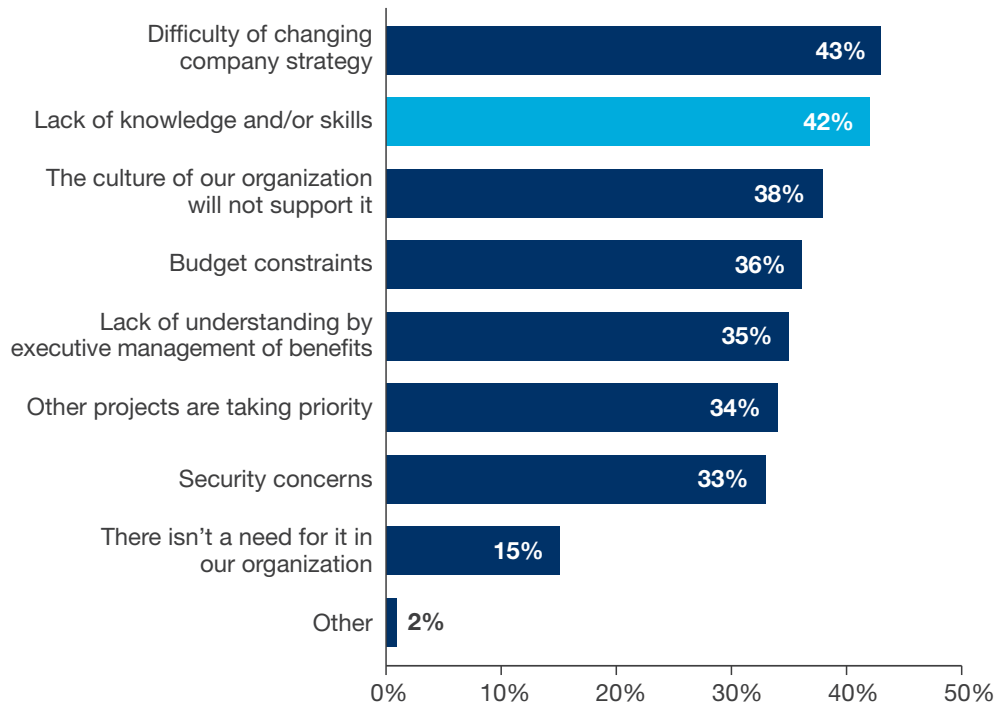
Case Study: Creating a seamless customer experience

At one large regional US bank, "we don't think in terms of applications," says a senior executive. "We think in terms of the experience."

That means making sure the customer does not feel like they have entered an alien world every time they undertake a bank transaction. "We are known for relationship building," the banking executive explains. "Our challenge is: As interactions with our customers change, how do we produce a relationship-based customer experience regardless of channel?"

Just a few years ago, the bank was using software products from a variety of vendors without any attempt to standardize their look and feel. There was, in short, no consistency from an ATM withdrawal to an online transfer to a mobile deposit. Now, the bank is hyper-focused on controlling the user interface so that any part of an application that touches customers directly produces a seamless experience. This came at a cost. "We had to make some huge foundational investments" in service-oriented architecture, for example, so that the bank could save money by avoiding point-to-point interactions that are expensive and hard to maintain.

"We had to overhaul some of our legacy applications so that we could provide a similar experience across mobile, tablet, and online. That required a whole different way of approaching software development," the executive says. The bank created a way to port code across multiple channels so that it could have more flexibility with its content. Internally, the agility that new software brings has empowered the bank's staff to make quicker decisions; to test, learn, and change when necessary, and to roll out new products and services more quickly.

The bank is also learning from its vendor partners, who work side by side with employees on development and training. "We realized that in order to serve our customers effectively, we had to get the speed and flexibility element right," the executive says. "It's all about knowing the customer and being able to provide services that are relevant and timely."

The need for speed
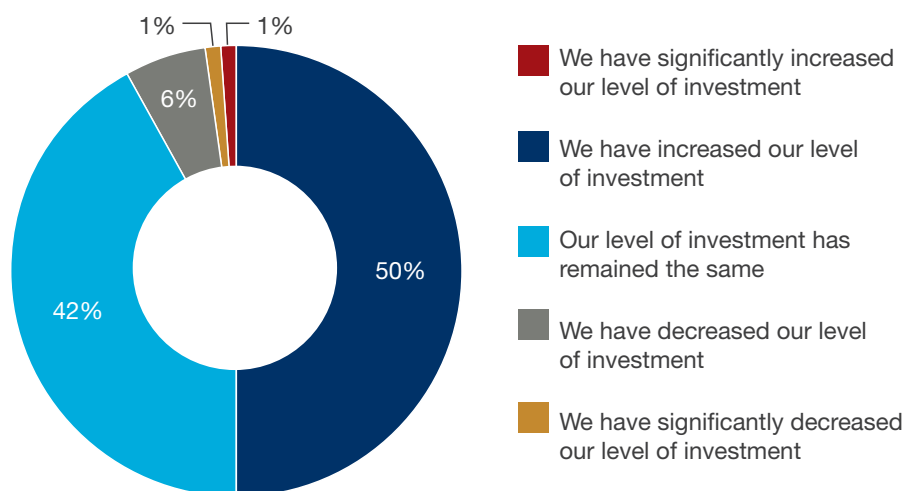
Waiting is not an option

Organizations recognize how quickly they need to react and adapt to the market and their competitors, with nearly half seeing an impact on time-to-decision today, growing to 60% in three years. It is not surprising then that the most important way organizations measure competitive differentiation in the application economy is increased agility and faster time-to-market.

Making this happen requires putting new forms of software at the center of company operations—not sometime in the future, but right now. To that end, the large US bank mentioned above (see case study) has created a responsive customer portal that allows it to post real-time offers and gather valuable and robust customer information. This has been a game changer for the bank, which will produce a considerable revenue lift. The company also wanted the speed that the latest software could provide, an especially important feature for a bank that needs the ability to offer payments in real time.

Overall, companies have already made investments in new applications over the past three years and will continue to do so over the next three (see Fig. 7).

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Fig. 7: Substantial investments in newer forms of software

How has your organization's investment in newer forms of software (e.g., mobile apps, API-enabled software) in order to drive competitive advantage changed over the past three years?

- 1%
- 1%
- 6%
- 42%
- 50%

Legend:
- We have significantly increased our level of investment
- We have increased our level of investment
- Our level of investment has remained the same
- We have decreased our level of investment
- We have significantly decreased our level of investment

How government supports and stifles the app economy

What is the role of the public sector in the application economy? Companies are clear that they want and need government support in their efforts to navigate this new environment.

Governments can be especially helpful when it comes to talent. More than half of our respondents say that government support for technical and STEM training programs would boost their ability to find and hire the right staff.

Cybersecurity training and incentives are a favored method of improving the talent pool, and many companies would like to see educational reform that takes the app economy into consideration.

Meanwhile, more than a third of our respondents say that inadequate copyright legislation is limiting their ability to aggressively pursue an application-centric strategy. Inadequate support for broadband and lax enforcement of copyright protection and piracy laws also makes business difficult for nearly 30%.

When it comes to security and privacy policies, an overwhelming majority of respondents say that government has a positive role to play. More than two-thirds say security and privacy policies are at least moderately driven by government requirements—and another 79% say these regulations are useful.

But public policy can also have a negative effect on efforts to become more software driven. A third of respondents complain about inefficient regulation of mobile markets. Legislation that limits monetization (for example, restrictions on in-app purchases) is particularly bothersome, as are fragmented approaches to data protection, which frustrate nearly a third of respondents. Another 32% say that government surveillance programs inhibit consumer behavior.

Conclusion

Those firms that delay in moving software to the core of their business operations stand to lose their competitive edge, as well as the profitability and top-line performance that goes with it.

Five ways to become a software-driven enterprise

Navigating the application economy is critical for companies that want to engage their customers at the highest level and create competitive advantage. Those firms that delay in moving software to the core of their business operations stand to lose their competitive edge, as well as the profitability and top-line performance that goes with it.

Keeping a software-driven enterprise moving in the right direction is an ongoing process. Some key steps along the way include:

1. **Reassessing the current basis of competitive differentiation** to determine whether it still enables long-term success in the application economy. An advantage today may be a disadvantage in the future.

2. **Implementing workforce recruitment, training, and retention programs** that allow effective competition for the technical talent needed, particularly in critical skills areas such as IT security, DevOps, and APIs.

3. **Putting the customer experience at the center of corporate strategy.** Today, customers are far more likely to interact with companies through an app than a person, so implementing a consistent and well-performing customer experience across all channels is critical.

4. **Taking a hard look at current software development capabilities.** Is there a formal API strategy in place? Have development and operations staffs embraced DevOps? How are the overwhelming volumes of data that flood in today from all corners being addressed? Is core infrastructure keeping pace?

5. **Making sure top management is totally on board** and aware of the need to become a more software-driven enterprise. New company strategies, business models, and routes to market may be required, and this will take both commitment and investment from the top.

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About the research

In March 2015, CA Technologies commissioned Oxford Economics to survey 200 senior business and IT executives with knowledge of and responsibility for their company's advanced software strategies. The respondents came from the Americas (56%), Europe (29%), and Asia Pacific (15%), and included industries ranging from manufacturing and professional services to retail, consumer products, financial services, energy, and healthcare.

Most respondents are from companies with annual revenues between $1 billion and $10 billion. The majority of respondents expect revenue growth over the next two years, with one in five expecting growth over 5%. Most also experienced increases in profitability over the past two years.

Fig. 8: Respondents by job title

Job title	Percentage
Direct report to CIO/CTO	32%
CIO/CTO	28%
Other C-level executive	21%
Direct report to other C-level executive	18%
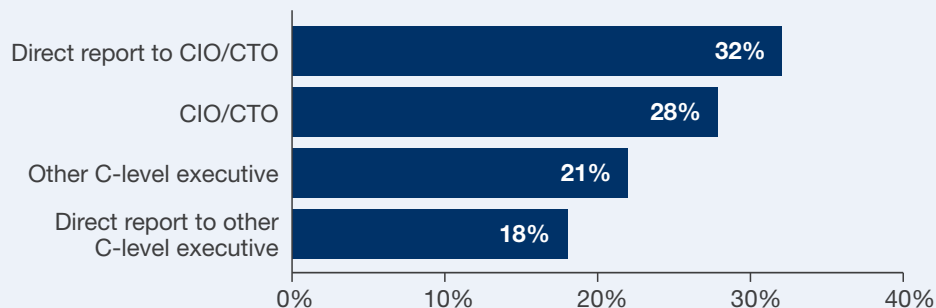
Fig. 9: Respondents by industry segment
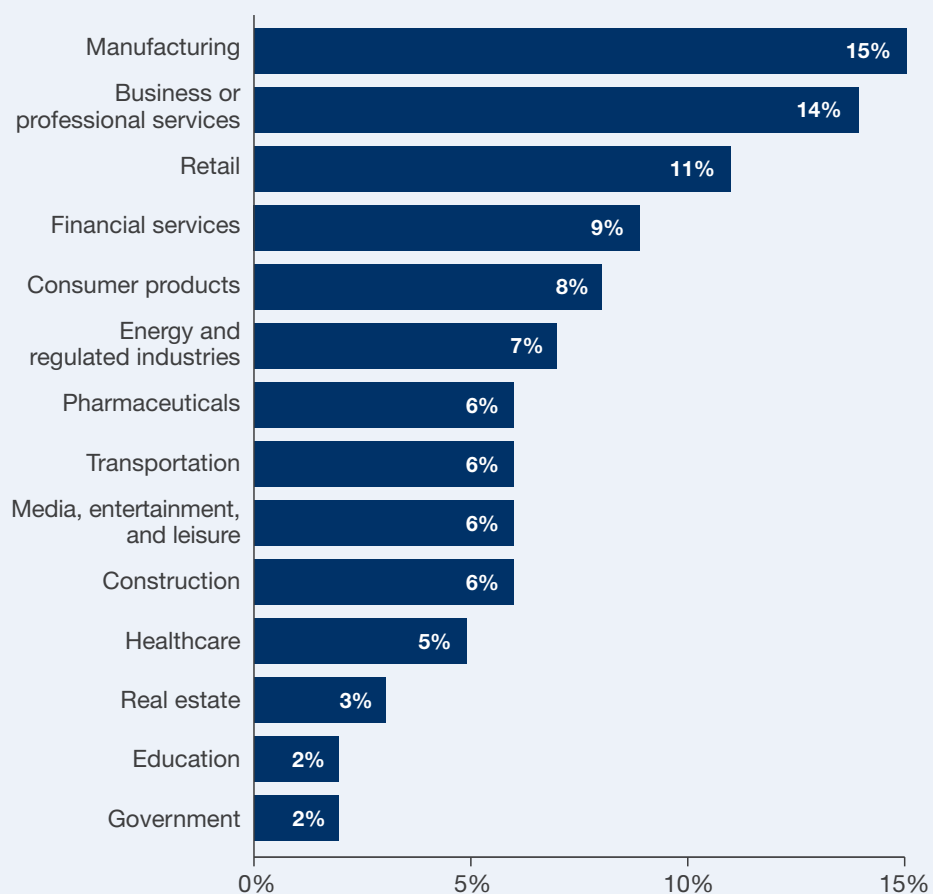
Industry segment	Percentage
Manufacturing	15%
Business or professional services	14%
Retail	11%
Financial services	9%
Consumer products	8%
Energy and regulated industries	7%
Pharmaceuticals	6%
Transportation	6%
Media, entertainment, and leisure	6%
Construction	6%
Healthcare	5%
Real estate	3%
Education	2%
Government	2%

Acknowledgements

About CA Technologies

CA Technologies (NASDAQ: CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business in every industry. From planning to development to management and security, CA is working with companies worldwide to change the way we live, transact, and communicate—across mobile, private, and public cloud, distributed and mainframe environments. Learn more at **ca.com**.

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