

Drive Innovation Using The Right Skills: The Value Of Custom Software Development

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Executive Summary

Successful businesses continually seek to improve their ability to win, serve, and retain customers. Engaging customers in digital channels through web applications and mobile apps is an ever-expanding part of a modern, customer-focused strategy. As firms compete for customers in the digital realm, they look for ways to create innovative, customer-facing multichannel systems and applications that stand out and are interconnected. As a result, there's increasing pressure on firms to custom-develop systems of engagement that are tailored to fit their unique business processes in order to better meet customer needs. But custom software development is easier said than done, especially when there's a tremendous shift in the types of devices and form factors that are in use today. Many companies are finding that they lack the necessary design, development, and delivery skills and capabilities to effectively build, deploy, and maintain modern applications and digital systems of engagement.

In August 2014, ThoughtWorks commissioned Forrester Consulting to evaluate how companies that are designing, building, and maintaining new customer-facing systems of engagement are faring. Our hypothesis was that success hinges less on acquiring raw development capacity at the lowest hourly cost and more on finding the right talent, including skilled designers, developers, and delivery professionals who are self-motivated and experienced with modern technologies, Agile delivery practices, and continuous delivery processes that deliver practical business solutions. As part of this change, businesses are shifting their externally sourced development projects toward firms that offer a mix of technical skills and continuous delivery practices, with a proven capability to deliver business value.

To test this hypothesis, Forrester conducted an online survey of 200 IT and business decision-makers in enterprise organizations in the US, UK, and Australia. All of the companies surveyed employ custom development for at least 30% of their systems and applications and used or currently use third-party providers to help them develop their systems and applications. Forrester found that there are significant benefits and challenges to using third-party providers for custom application development, and companies must be diligent in choosing a development partner to make sure the partner has the right set of skills and capabilities needed to effectively deliver on projects.

KEY FINDINGS

Forrester's study yielded five key findings:

- › **Businesses prefer custom systems and applications to drive innovation but need help to build them.** Businesses believe that custom software better fits organizational needs and provides the ability to differentiate and innovate. However, nearly 50% of companies look for external help to build software because they lack the time and skills to do so on their own.
- › **A majority of companies are not satisfied with the external services they receive.** Most businesses were not satisfied with the performance of external developers for their current systems across various measures. Release frequency, level of autonomy (making the correct decision without needing direction), development processes used, and speed of delivery processes were the areas of least satisfaction.
- › **The biggest challenge facing companies is finding the *right combination* of technical skills, development, and delivery skills.** Firms need more than traditional software developers to effectively build modern systems of engagement. Businesses are looking for a wide breadth of capabilities that includes important technical skills, but they are also looking for the experience and autonomy to make decisions and complete projects quickly and efficiently.
- › **Businesses are willing to pay extra for more impactful development capabilities.** Eighty-seven percent of respondents said they would pay more for higher performance development skills, with one in four saying they would pay a 20% premium or higher.
- › **Businesses are looking for strategic partners that can immediately provide necessary skills but also help to educate internal staff.** Expertise of developers is the top priority when selecting third-party providers, but knowledge transfer to internal teams is the second priority. Businesses that look externally are not simply looking to dump the project on someone else, but rather they are looking for a symbiotic relationship in which their staff can benefit from the exposure to high-performance development teams and learn skills to improve on future projects as part of an ongoing relationship.

Custom Software Enables Innovation And Differentiation

Custom software development is hard and potentially fraught with error and expense. And yet it's not hard to find businesses that choose to invest significant amounts of time and effort in custom application development. Why? Custom software enables businesses to capture and automate innovations, business processes, and intellectual property that make them unique. In fact, 82% of our survey respondents feel custom software better fits business needs, citing these primary three reasons (see Figure 1):

- › **Packaged software doesn't fit our needs.** It's rare that an off-the-shelf product fits all a business' needs in its base configuration: Some customization is almost always necessary. When heavy customization of a packaged software solution is required, it can often be as or more complex and expensive as a custom-built solution and can have added annual software licensing costs that average 18% to 25%.
- › **Custom software creates competitive differentiation.** Think about it this way: If you are buying your competitive edge off the shelf, why can't anyone else purchase the exact same capability?

FIGURE 1
Custom Software Enables Innovation And Differentiation

“Why does your company sometimes choose to invest in custom software apps rather than packaged software?”



Base: 200 IT and business decision-makers at companies with outsourced custom software development
 Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

- › **Custom-built apps drive innovation.** This is especially important as customers migrate to digital channels for research, purchases, and product support. In the age of the mobile moment, the quality, speed, and context of applications matter more than ever.

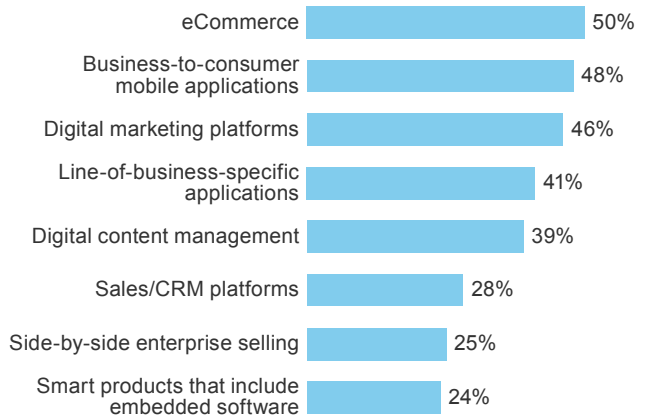
Custom software development offers distinct advantages: It is unique to the given business and becomes an asset, thus adding value to the company. But custom software also requires significant time commitments in terms of design, development, and maintenance costs, and includes the challenge of finding the right combination of talent. While many business leaders have the vision for what they want, their organizations lack the capacity and skills necessary to develop the right applications and services. As a result, nearly 50% of the companies we surveyed indicated they look to external providers for the development of their custom systems and applications because they lack the talent and skills to do it efficiently themselves.

Our survey found that businesses are most frequently looking externally for the development of their customer-facing systems of engagement (e.g., eCommerce sites and B2C mobile apps) (see Figure 2). In today's market, companies are constantly competing with each other to gain

FIGURE 2
Customer-Facing Systems Are The Type Of Application Most Frequently Outsourced

“For what types of applications are you outsourcing net-new software development in support of your business strategy?”

(Select all that apply)



Base: 200 IT and business decision-makers at companies with outsourced custom software development
 Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

a larger share of consumers' time and attention. The primary form of differentiation companies have from their competitors is the customer experience they provide via applications and services. In order to deliver on the features and capabilities customers want and do so within customers' desired timeframe, many businesses are partnering with third-party providers to achieve their desired results. Fast-cycle, tech-based innovation drives a coherent, cross-channel digital experience for customers that is crucial to succeeding in today's market.

Satisfaction Rates: Room For Improvement

While business and IT leaders acknowledge their need to outsource development of custom applications and services, they aren't overly satisfied with the results. When we asked survey respondents to rate their satisfaction with various elements of the software delivery process for current or previous projects, we saw a mixed assessment of the results. Across every category, over 50% of respondents were unsatisfied or neutral (see Figure 3). The areas with the lowest degree of satisfaction were:

- › **Product release frequency and speed of development.** New mobile applications and customer-facing systems of engagement need ongoing attention to

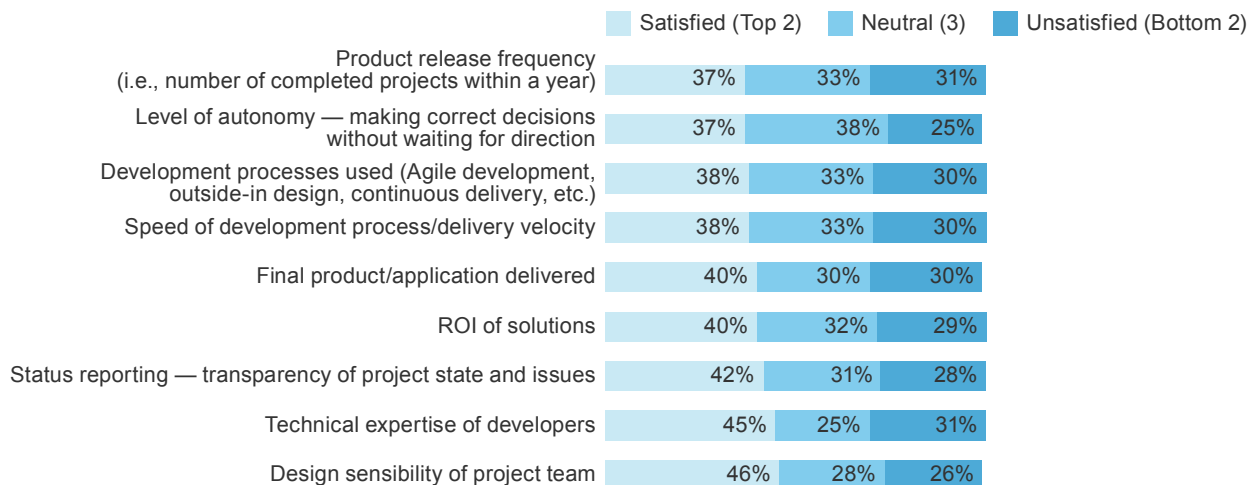
stay effective. As an example, most teams building top-rated mobile apps release updates and new versions approximately eight times a year.¹ That push for a constant, steady stream of improvement is bleeding over into other applications, especially those that integrate with customer-facing systems.

- › **Level of autonomy.** Part of the appeal of using external resources for development is to reduce the time and investment needed from internal staff working on projects. Once a third-party provider has the project requirements and objectives, business leaders desire enough autonomy from vendor staff so that developers can make accurate day-to-day decisions based on their understanding of a project's business goals. If internal resources are required to constantly monitor and respond to questions from the vendor development team, then much of the efficiency of using a third party is lost.
- › **Development process used.** It's hard to quickly build and release customer-facing software with traditional waterfall processes and teams organized primarily by skill. Companies with cross-skilled teams, experienced in modern techniques like Agile development and continuous delivery are able to adapt their processes and pivot based on project needs. These types of teams tend to deliver better software faster, and they are increasingly sought by leaders who understand the connection.

FIGURE 3

Satisfaction Rates Are Below 50% For Custom Project Delivery

“How satisfied are/were you with the following elements of the development sourcing for your current custom systems?”



Base: 200 IT and business decision-makers at companies with outsourced custom software development

Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

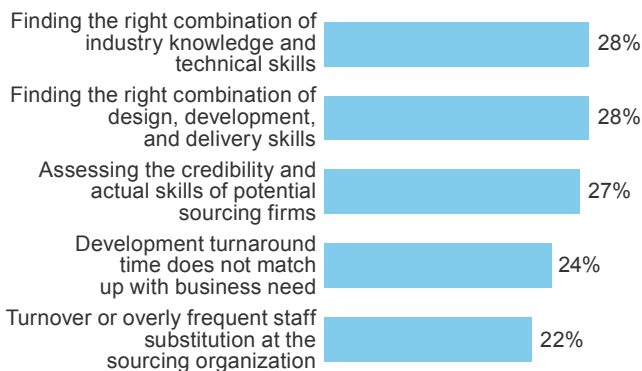
Despite the issues above, we have no doubt that many companies will continue to use external resources for custom software projects because they lack the complete skill set required to develop solutions themselves. As well, this data shows that companies are not just looking for a specific technical skill or process, but rather they are interested in providers that can offer quality service across all aspects of the project, from technical ability to process discipline to business acumen. In fact, 28% of survey respondents said that the biggest challenge they faced when selecting a third-party provider for custom software development projects was finding the right combination of technical skills, industry knowledge, design capability, and development and delivery skills (see Figure 4).

FIGURE 4

Finding The Right Combination Of Technical Skills And Development Capabilities Is A Top Challenge When Selecting An Outsource Provider

“What are the biggest challenges your company faces when selecting an outsource provider for custom software development projects?”

(Select up to two)



Base: 200 IT and business decision-makers at companies with outsourced custom software development

Note: not all responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

Custom Software Development Decision-Making Is Fragmented

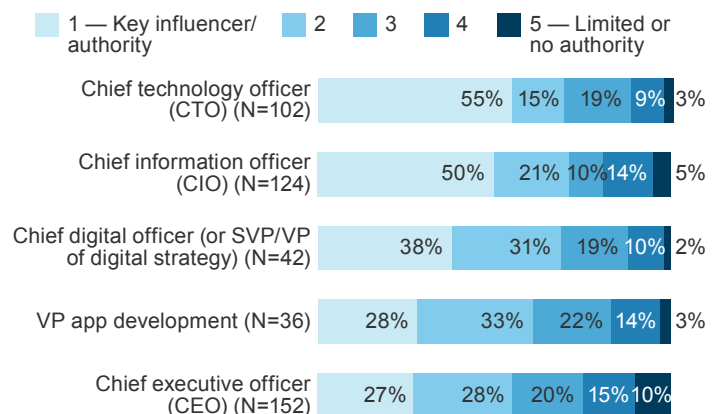
With the growth in digital technology and importance of delivering innovative applications, it's not surprising to see high levels of outsourcing efforts focused on customer-facing applications and services. As a result, we see business leaders, especially marketing leaders within organizations, highly invested in the outcome of the custom software projects. However, in looking at who held the decision-making power for custom application development within our survey audience, most of the responsibility still falls under the CIO/CTO department (see Figure 5). That said, we note with great interest the role of chief digital officer, which is third on the list, demonstrating an increasing role of the business side in the decision-making process.

With the custom software development being primarily driven by business objectives, and the custom software development decisions being primarily governed by IT, many companies will experience a disconnect with their overall strategy, as IT objectives might not clearly align with the business objectives.

FIGURE 5

Chief Digital Officers And VPs Of App Development Are Becoming More Involved As Custom Application Development Decision-Makers

“What is the level of influence/authority that different senior leaders have in making custom application development sourcing decisions?”



Base: Varied counts of IT and business decision-makers at companies with outsourced custom software development

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

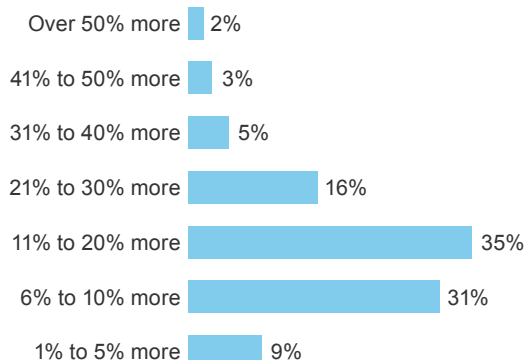
Business Are Willing To Pay A Premium For Impactful Development Capabilities

Given the challenges business and IT leaders face with selecting a vendor that has the right skills and high-velocity delivery approach, it's not surprising that they've moved beyond the idea of hiring rock-bottom, low-cost development talent. While IT can be operated at minimal cost, custom development should not be. In fact, 87% of the companies we surveyed were willing to pay a premium for advanced and impactful development capabilities, and one in four is willing to pay 20% or more as a premium for those services (see Figure 6). And it's no wonder that savvy leaders get it: Forrester research indicates that developer productivity varies widely (as much as 10x), with the most productive development teams composed of intrinsically motivated developers with a drive to create great software and satisfy customer needs.²

FIGURE 6

One In Four Is Willing To Pay 20% Extra Or Higher For Advanced Services

“What percent more would you be willing to pay for advanced and impactful software development capability?”



Base: 174 IT and business decision-makers at companies with outsourced custom software development

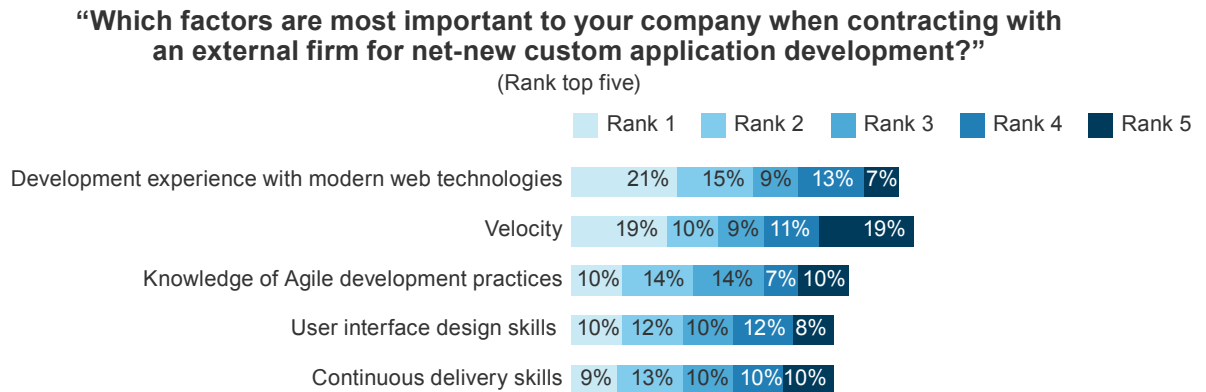
Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

These custom software development initiatives are such a high priority for these companies that this extra cost is a worthwhile investment if it means they fulfill their development objectives and achieve the desired business results. In terms of what capabilities are most important for businesses as part of that impactful service, companies are focused on three key things when contracting with vendors for custom application development (see Figure 7):

- › **Development expertise.** This is the top priority for businesses when choosing a third-party provider. Not only is experience necessary with modern technologies such as web technologies, but companies also expect developers to be poly-skilled and experienced with Agile development practices.
- › **High delivery velocity.** The ability to quickly turn around development projects is paramount. Companies that want to innovate and excel over competitors must have developers skilled in adaptive, Agile, and iterative processes that focus on customer value first. Outputs such as low-fidelity prototypes and story maps help businesses move quickly to a solution that will provide the greatest business value overall. As modern application technologies replace existing client/server and web applications, there's safety and success in speed, as it gives teams more opportunities to make adjustments and calibrate apps to meet customer needs.³
- › **Technical skills.** Aside from wanting developers experienced in development processes, businesses also utilize external resources to gain access to valuable technical skills that they don't have in-house. User interface design and web technology skills are two examples of specific skills of interest.

FIGURE 7

Development Expertise, Delivery Velocity, And Technical Skills Are The Most Important Factors When Externally Contracting Custom Application Development



Base: 200 IT and business decision-makers at companies with outsourced custom software development

Note: only top five responses shown

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

Key Recommendations

The way in which companies think about third-party development projects is changing. As custom development shifts to focus on customer-facing systems of engagement, firms are looking to hire knowledgeable developers who bring the right skills, can make decisions unaided, and quickly deliver mobile apps, websites, and services. This demand for quick time-to-value is best served by third-party providers with deep experience in Agile development techniques and continuous delivery practices. These talents are in short supply, as many traditional SIs rely on leveraged business models that employ lower skilled (and lower cost) developers, coupled with rigid processes and controls to deliver projects. It's difficult to achieve high-velocity delivery with a traditional leverage model, so it's important to ask the following questions when choosing third-party partners with whom your organization can build long-term relationships for contracting custom development projects:

- › **What development and delivery techniques will be employed?** Proposals should request detail on the levels of practitioner experience with Agile and continuous delivery techniques. A blanket response that Agile, Scrum, or DevOps experience is present is not good enough. Probe for experience with specific techniques like minimum viable product (MVP) development, test-driven development, persona development and journey mapping, or blue-green release management. Ask potential vendors to provide example of deliverables like persona scorecards, wireframes, sample project backlogs, or release portals as proof of capability.
- › **How will the delivery team be organized?** Rapid delivery requires a cross-functional team where team members effortlessly switch between design, development, and quality assurance and are supported by a continuous stream of projects updates. Expect a dedicated, cross-skilled team as opposed to a constantly changing stream of resources as projects move from design to development to testing. Watch out for vertical specialization (e.g., a "Testing Center of Excellence"), as that's a sign of a project organized around specialized processes instead of around a high-velocity flow of work. It's also important to ask about team co-location and level of autonomy, as it's difficult to achieve a high velocity rate of flow if it takes hours for teams to make simple decisions.
- › **How can sourcing agreements focus on results instead of means?** Hundred-page requirements documents and engineering change orders may work when there's a high level of domain understanding at the start of a project, but they won't drive innovation or work when new technologies are driving a project. Sourcing professionals and legal teams will need to learn how to frame contracts to enable autonomy of developer action and create opportunities to adjust end goals as teams learn more about customer needs and acquire analytic data from early versions of applications.
- › **How early and often will projects be "shippable"?** There's an old developer saying, "Truth is in working code." The sooner projects can demonstrate working prototypes, MVPs, or beta versions, the more chances there are for real user feedback. This reduces risk and increases the visibility of the progress of the project. That's especially important when working in quickly changing environments such as mobile devices or new customer-facing applications. Early deliveries also build confidence in external teams or provide a warning that a project is going off the rails. Look for outsourcing providers that are willing to commit to providing "shippable" code on a regular basis, even if you plan to release only a few times a year.
- › **What are the right tools needed?** Use good tools to support great people. Tools can never replace the efforts of great people working together, but they can help teams communicate and collaborate more effectively. By centralizing a project's backlog and linking that to collaboration tools such as a wiki, distributed Agile teams can better track the work that is happening and see any associated context. Automating smoke tests and regression tests will increase delivery velocity, and analytic tools will help teams gain insight into how users actually consume applications. But be aware that tools require commitment, and distributed Agile teams often need to be reminded to use a tool to record things that they would normally just discuss, resolve, and check off.

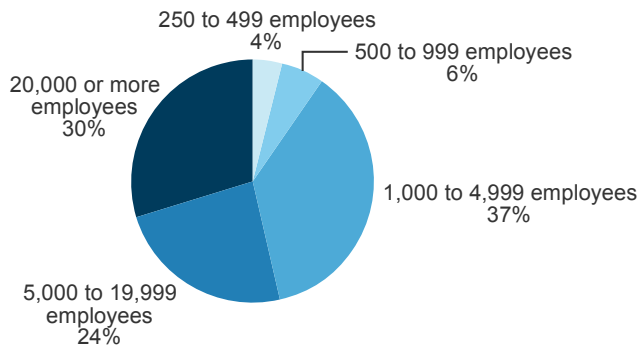
Appendix A: Methodology

In this study, Forrester conducted a global online survey of 200 IT and business decision-makers at companies with outsourced custom software development from enterprise organizations (1,000 employees and above) to evaluate their development and outsourcing of custom-developed systems and applications. Companies surveyed needed to custom-develop at least 30% of their systems and applications, and 30% or more of the development needed to be outsourced. Respondents were at the director level or higher and were from a variety of industries. Respondents were offered a small incentive as a thank you for time spent on the survey. The survey began in August 2014 and was completed in September 2014.

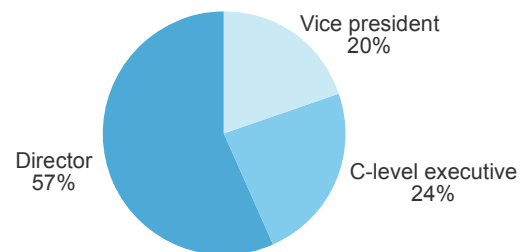
Appendix B: Survey Demographics

FIGURE 8
Company Size And Respondent Role

“How many employees work for your firm/organization worldwide?”



“Which title best describes your position at your organization?”

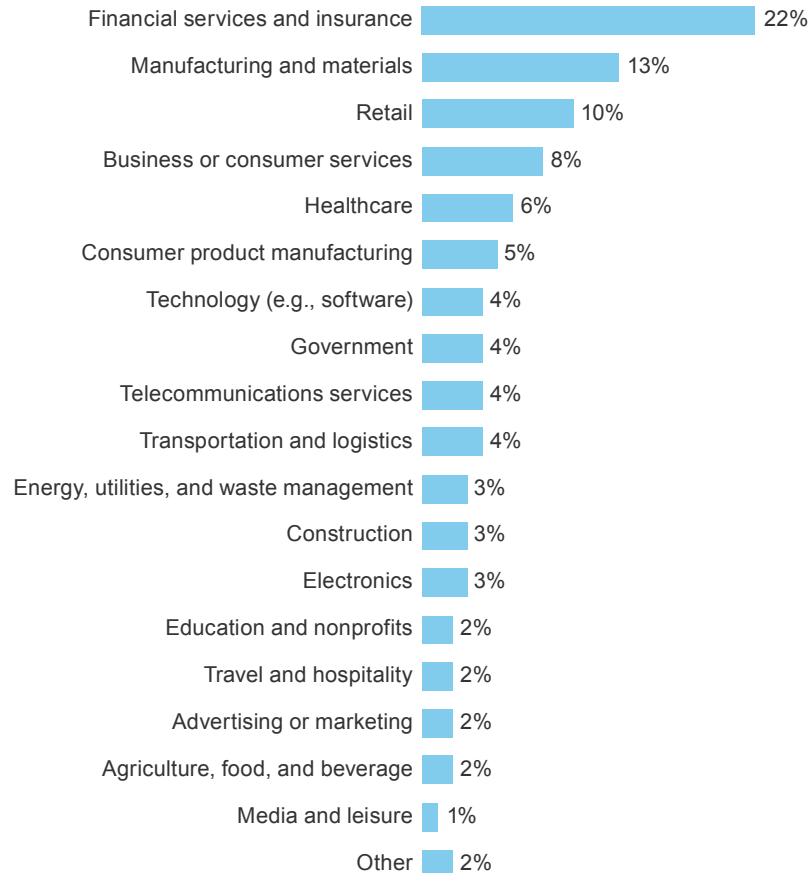


Base: 200 IT and business-decision makers at companies with outsourced custom software development
Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

FIGURE 9
Industry

“Which of the following best describes the industry to which your company belongs?”



Base: 200 IT and business decision-makers at companies with outsourced custom software development

Source: A commissioned study conducted by Forrester Consulting on behalf of ThoughtWorks, September 2014

Appendix C: Endnotes

¹ Source: “Build Five-Star Mobile Apps,” Forrester Research, Inc., November 7, 2012.

² Source: “Best Practices: Building High-Performance Application Development Teams,” Forrester Research, Inc., November 3, 2010.

³ Source: “Modern Application Delivery Drives Digital Business Success,” Forrester Research, Inc., March 4, 2014.