caspio

THE STATE OF CUSTOM BUSINESS APPLICATIONS

2020 REPORT

How forward-thinking business leaders are leveraging low-code platforms to bridge the expanding IT skills gap.

ABOUT
The Paper

How are businesses coping with the lack of IT resources in an age of growing demand for custom software applications?

This paper uncovers the priorities, challenges and opportunities surrounding the development and support of custom software applications for businesses of all sizes. Our research includes 268 IT decision-makers from small, medium and large organizations representing a wide range of industries. See *Figure 16: Survey Demographics* for details on survey respondents.

It highlights the organizational focal areas that are receiving the greatest investments as well as the motivations behind these investments, and evaluates the risks, barriers and technology challenges in developing and supporting custom applications.

The research data suggests that an overwhelming majority of organizations consider custom applications to be a strategic enabler for their business. At the same time, they also express a lack of confidence, to varying degrees, when it comes to their software development capabilities.

Many organizations struggle with finding or allocating resources to adequately fund custom application development, support and maintenance. When they do invest, they are hindered by not having access to sufficient talent, are disappointed by subpar execution of the envisioned application, or have concerns about newly created information security risks.

A key finding in our research is that organizations using low-code platforms are far more likely to have the requisite skills and resources to produce custom business applications over those not using this modern application development methodology. Low-code adopters are more successful in delivering custom applications on time, scope and budget, and can keep up with the demand for development projects across the business. What's most striking is that many business and technology leaders are not leveraging these modern application development platforms or partnering practices.

This paper proposes a modernized approach to custom software development: taking advantage of low-code platforms and managed application services to bridge the expanding IT skills gap.

The Author

Isaac Sacolick is the president of StarCIO and author of the Amazon bestseller Driving Digital: The Leader's Guide to Business Transformation Through Technology.

A contributing editor at InfoWorld and CIO.com, Isaac is a prominent industry speaker on low-code platforms, digital transformation and becoming a data-driven organization.

MACRO

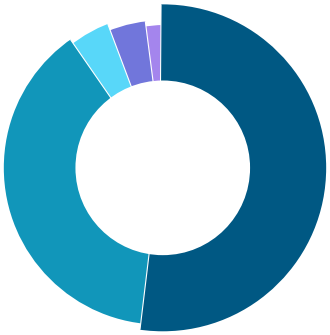
The Case for Custom Business Apps

How important is application development technology to your business? Do you consider it to be a commodity, or are you looking for ways to invest in custom applications to establish a strategic advantage?

If you believe application development technology is a commodity, you are in a small minority. Our research shows that 90% of all respondents consider custom software applications to be a strategic enabler for their business.

Companies know that unlike years ago, they cannot rely on enterprise and SaaS solutions alone; they now need to include custom business software in the mix. The landscape has changed.

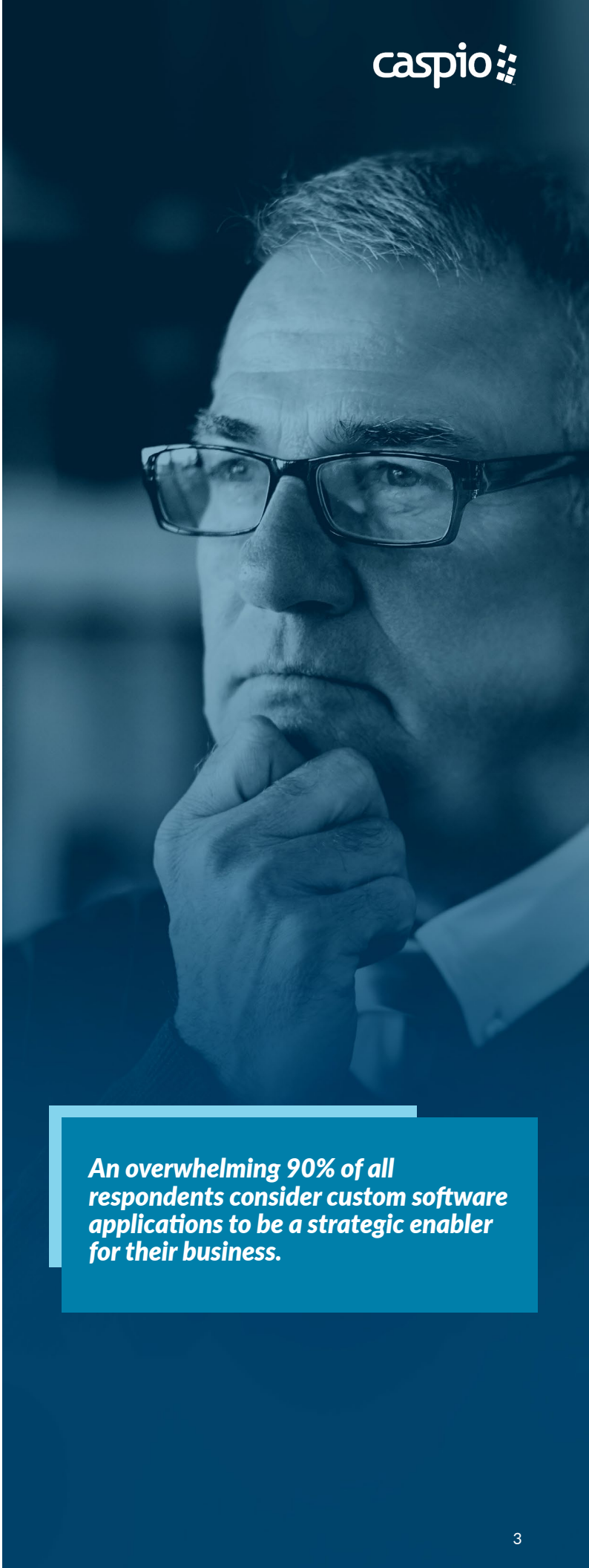
Q: Custom software applications are a strategic enabler for our business.



- Strongly Agree **(52%)**
- Agree **(38%)**
- No Opinion **(5%)**
- Disagree **(2%)**
- Strongly Disagree **(3%)**

Figure 1: *Custom applications are a strategic business enabler*

The figure rises to almost 93% for respondents who are VP-level and above. Business executives understand that custom applications are a critical success factor in today's highly competitive digital arena and information-based economy.



An overwhelming 90% of all respondents consider custom software applications to be a strategic enabler for their business.

Nearly two-thirds of respondents consider optimizing customer experiences and internal workflows as the top focal areas for custom application development.

DRIVERS

Revenue and Efficiency Gains

What motivates organizations to build custom software?

Nearly two-thirds of respondents state that optimizing customer experiences and internal workflows are the top focal areas for custom application development. Delivering and improving new products/services, as well as enhancing access to data to support decision-making, are also high on their list.

Q: Where are the focal areas for custom application development within your business?

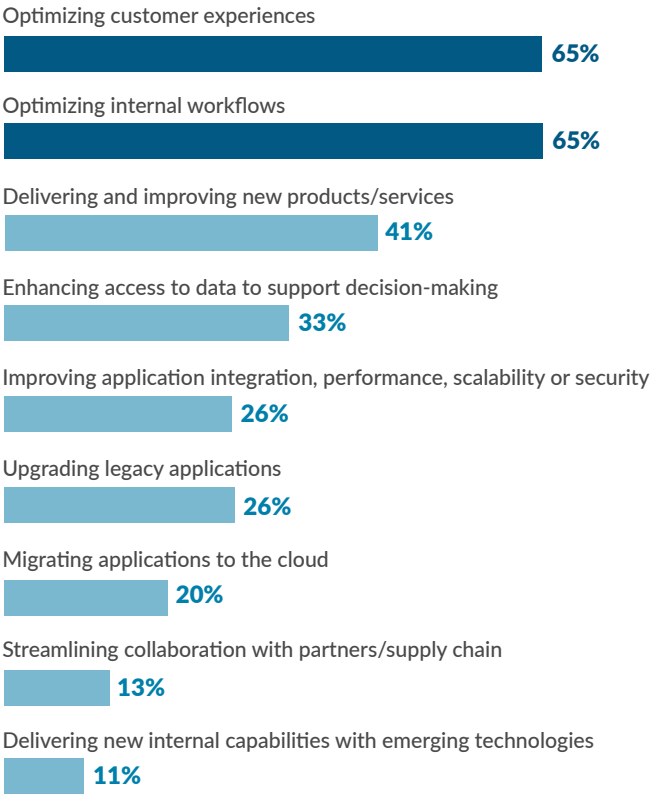


Figure 2: *Focal areas for custom application development*

Businesses develop custom applications to support industry-specific or proprietary workflows. These purpose-built applications fill in the gaps where commercial software solutions do not meet functional, operational, performance, compliance or integration requirements.

Survey results indicate that custom apps are often developed in areas where a business believes they can gain a competitive edge through the use of proprietary software.

Examples include:

- A clinical research support provider that streamlined and enriched customer journeys while reducing its data management burden by 80%.
- A national energy equipment supplier that developed wide-scale custom applications in-house to weather a market downturn, without hiring additional IT personnel.
- A global logistics provider that slashed invoicing turnaround from 13 weeks to two weeks, accelerating the collection of millions of dollars.

Do motivations change with the size of the company?

For large organizations, optimizing internal workflows emerged as the top priority, followed by optimizing customer experiences and enhancing access to data to support decision-making.

Compared with small and medium companies, large organizations also focus more on upgrading legacy applications, improving application integration and performance and migrating applications to the cloud.

Meanwhile, small and medium organizations consider the delivery of new products and services as the third most important focal area after optimizing internal workflows and customer experiences.

Smaller, more nimble organizations are raising their competitiveness by improving products and services while larger organizations face pressure to modernize legacy systems.

Q: Where are the focal areas for custom application development within your business? (Segmented by company size)

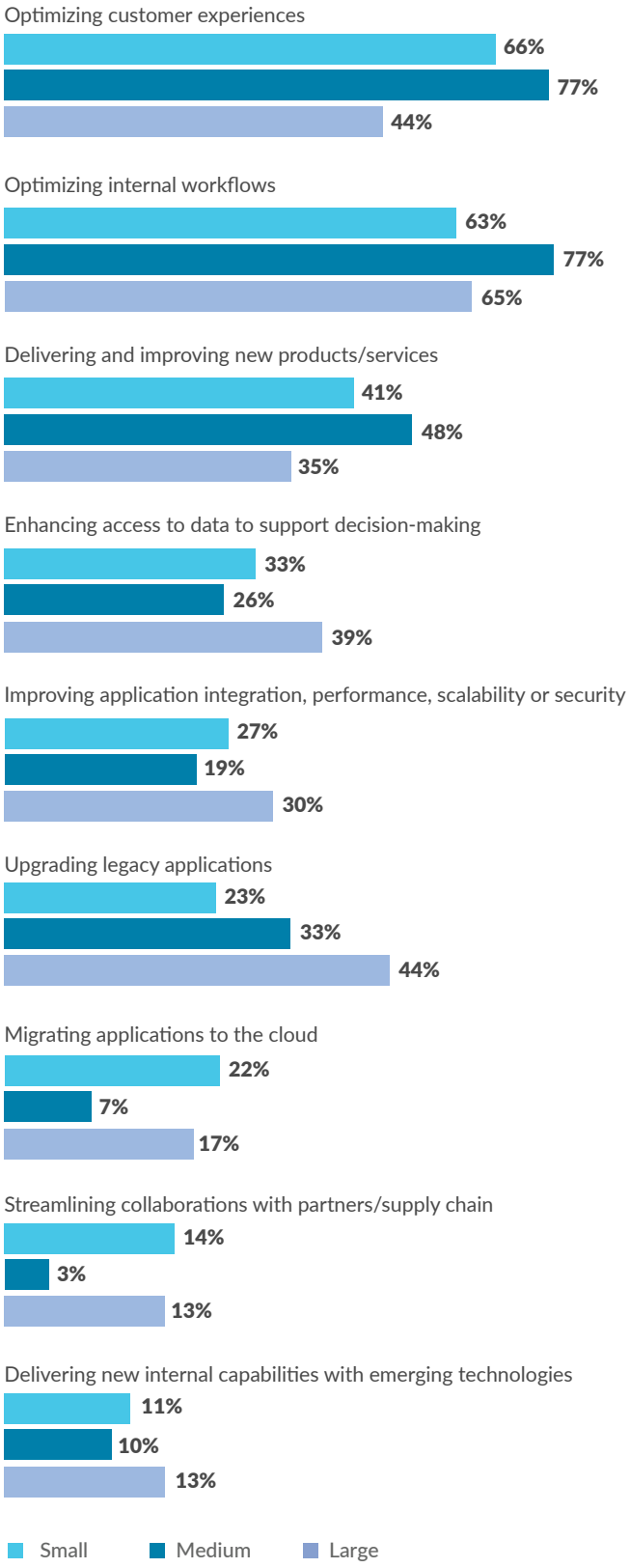


Figure 3: *Focal Areas by Company Size*

Organizations are investing development dollars in areas where speed and efficiency improvements generate financial benefit.

FOCAL AREAS

Greatest Opportunity

Businesses are focusing application development dollars in areas that directly affect the bottom line. They are prioritizing Operations and Customer Service/Support — areas where speed and efficiency improvements generate financial benefit for the company.

Over a third of respondents see opportunities to invest in IT, Marketing, and Sales/Distribution departments, which also drive business operations and impact revenue.

Meanwhile, organizations are less likely to develop software for non-differentiated internal functions such as Legal, Human Resources and Finance.

Q: What departments have the greatest need for custom application development?

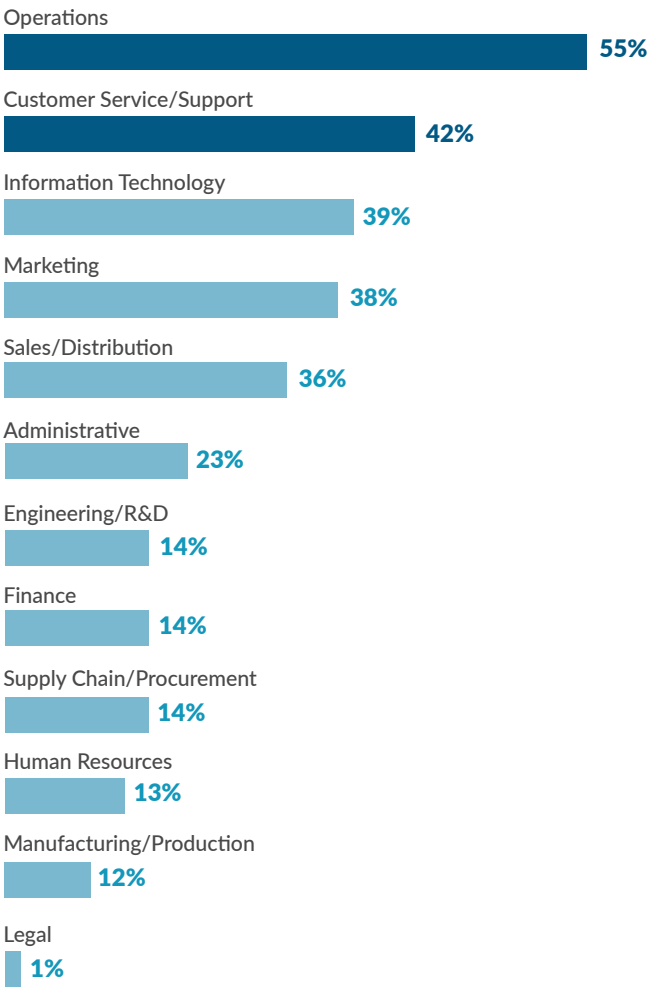


Figure 4: *Departments with the greatest application development needs*

RISKS

The Dangers of Not Investing

For many businesses, the optimization of internal workflows makes all the difference between breaking even and clearing a profit. For others, it is ensuring a smooth customer experience. No matter the motivation, one thing is constant: investing in custom software helps companies remain competitive.

What, then, happens if app development projects stall?

Q: What are the risks to your business if your custom application development initiatives are not completed?

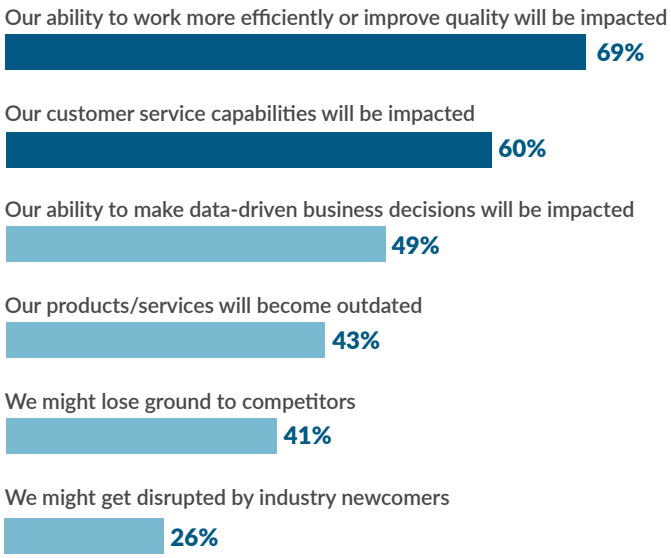


Figure 5: *Risks of application development projects not being completed*

The biggest risks echo the primary motivations for building applications: improving the bottom line. A majority of respondents said their ability to work more efficiently or improve quality will be impacted, while 60% also expressed concern that customer service capabilities will be impacted.

Nearly half of all respondents identified the ability to make data-driven decisions as being at risk if the company does not invest in software development. After all, custom applications enable businesses to capture data and key performance indicators (KPIs), providing visibility into opportunities and other decision points.

Meanwhile, respondents who are VP-level and above consider losing ground to competitors as the next biggest risk after efficiency, quality and customer service.

Executives, more than any other respondent profile, see the bigger picture. They perceive the tactical risks of falling behind in app development and its adverse outcomes such as waning service quality and loss of market share.

Q: What are the risks to your business if your custom application development initiatives are not completed? (By respondent seniority)

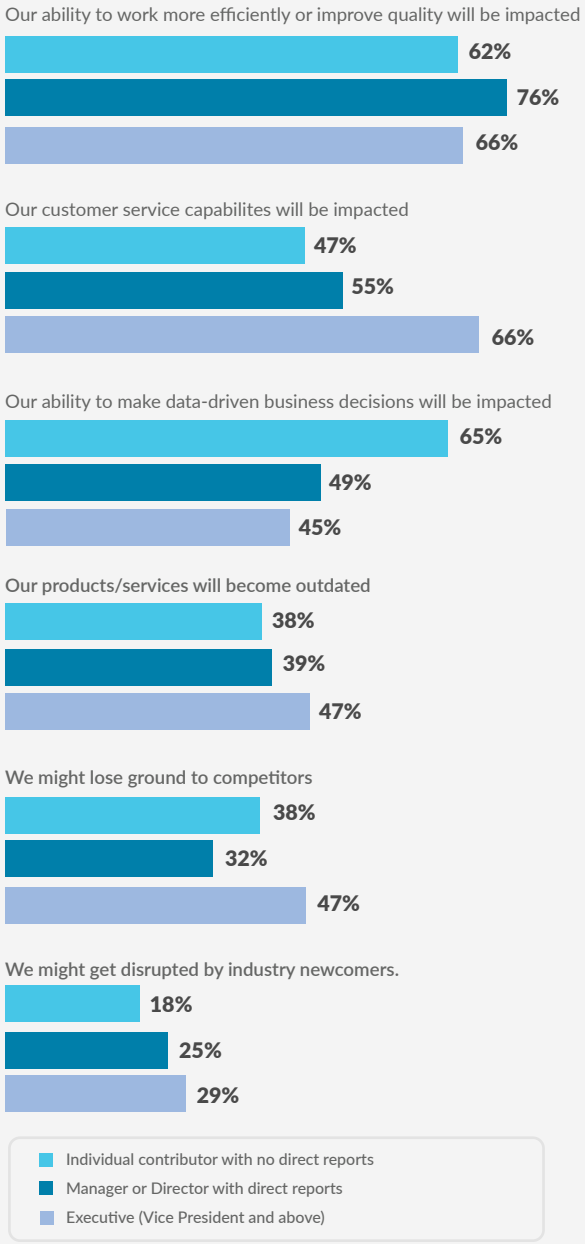


Figure 6: *Business risks segmented by respondent seniority*

CIO CORNER

Expand IT Capabilities With Citizen Developers and Managed Services

By Isaac Sacolick

When I was a CIO, I had to establish application development competencies that were comparable to software companies — except we were not a software company. We could not hire the same software engineering talent that the broader IT industry typically attracted.

After looking for alternative ways to acquire these capabilities, we became early adopters of low-code platforms and established a partnering model with managed application service providers.

We recognized that some of our employees had the technical acumen and interest to get more involved in the application development process. Some of them were subject matter experts who worked directly with our engineers and application service providers to define requirements and review enhancements.

Others, who showed interest in getting hands-on with technology, were able to create department-specific applications on their own using low-code platforms.

We expanded our capabilities beyond the walls of our IT department. Our marketing department used low-code platforms to build ad tracking applications, while our finance and operations teams transformed spreadsheets into online databases and managed workflows.

This is now called citizen development.

While this practice is growing quickly, many businesses have yet to adopt it. Our research confirms that companies embracing citizen development through the use of low-code tools are delivering higher-quality applications with greater success.

An overwhelming 81% of respondents have little to no budget for application development and ongoing support.

CHALLENGES

1. Application Development Budgets Are Scarce

In terms of funding, an overwhelming 81% of respondents have little to no budget for application development and ongoing support.

Only 13% said they have a substantial budget across the enterprise while 6% said they have sufficient funding, but only within their department.

Q: How would you describe your budget allocation for custom application development in the coming fiscal year?

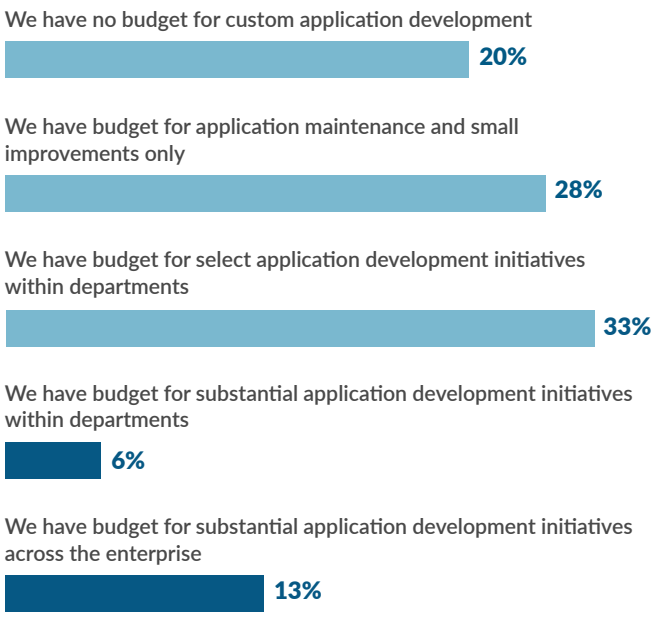


Figure 7: *Budgets for custom application development*

With application development budgets being so limited or even nonexistent for the majority of respondents, it's no surprise that lack of funding emerged as one of the largest obstacles preventing companies from delivering custom software.

For the full list of barriers, see *Figure 8: Challenges in developing custom business applications*.

2. Delivery is Saddled With Roadblocks

Given that the majority of survey respondents view custom applications as a strategic enabler, we asked them to share more insight into their IT capabilities.

Lack of talent and inadequate funding remain the greatest hindrances to producing custom applications, across the board. Integration with legacy systems and slow development processes are also major roadblocks.

Q: What challenges do you have in developing custom business applications?

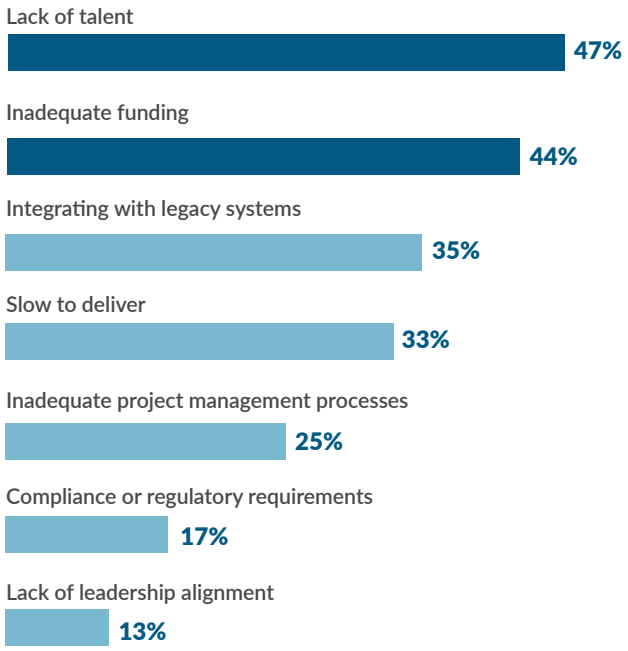


Figure 8: *Challenges of developing custom business applications*

Barriers vary depending on the size of the organization.

- Nearly half of respondents from small companies ranked lack of talent and inadequate funding as their top two challenges.
- Medium-sized organizations also worry about resources, but they are most troubled by integration with legacy systems and speed of delivery.
- Larger organizations are concerned about integration with legacy systems as much as they are with funding.

Q: What challenges do you have in developing custom business applications? (Segmented by company size)

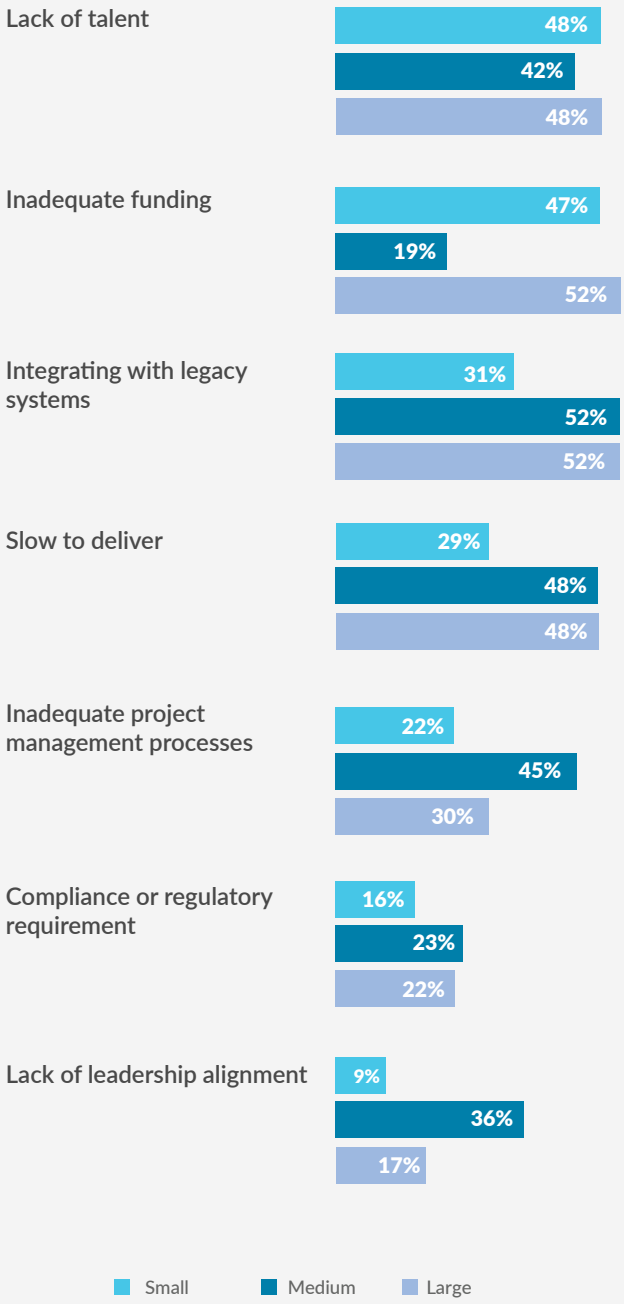


Figure 9: *Challenges segmented by company size*

3. Lack of Internal Confidence

We asked respondents about their degree of confidence surrounding five key performance indicators:

1) Our current business applications address the needs of our business.

2) Our custom business applications are secure and will adhere to current security best practices if tested.

3) Our IT teams can keep up with the demand for application development projects and workflow needs across the business.

4) We have the skills and resources required to fulfill the demand for custom business application requests throughout our entire organization.

5) We typically deliver custom business applications on time, on scope and on budget.

We identified respondents who agreed or strongly agreed with at least four KPIs as having high confidence; those who agreed or strongly agreed with two or three KPIs as having some confidence; and those who agreed or strongly agreed with one KPI or less as having low confidence.

The result? Overall, only 41% of organizations have a high level of confidence in delivering custom business applications. The remaining 59% have either some confidence or low confidence.

Respondents classified by their level of confidence in overall application delivery capabilities

Figure 10: *Confidence in application delivery capabilities*

Q: Our IT teams can keep up with the demand for application development projects and workflow needs across the business.

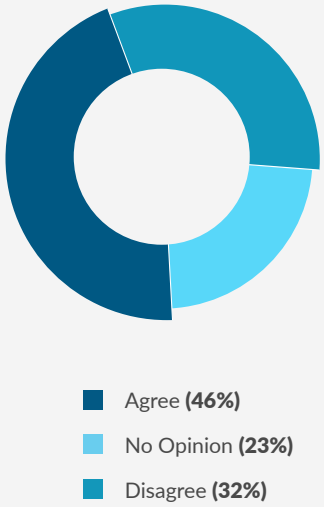
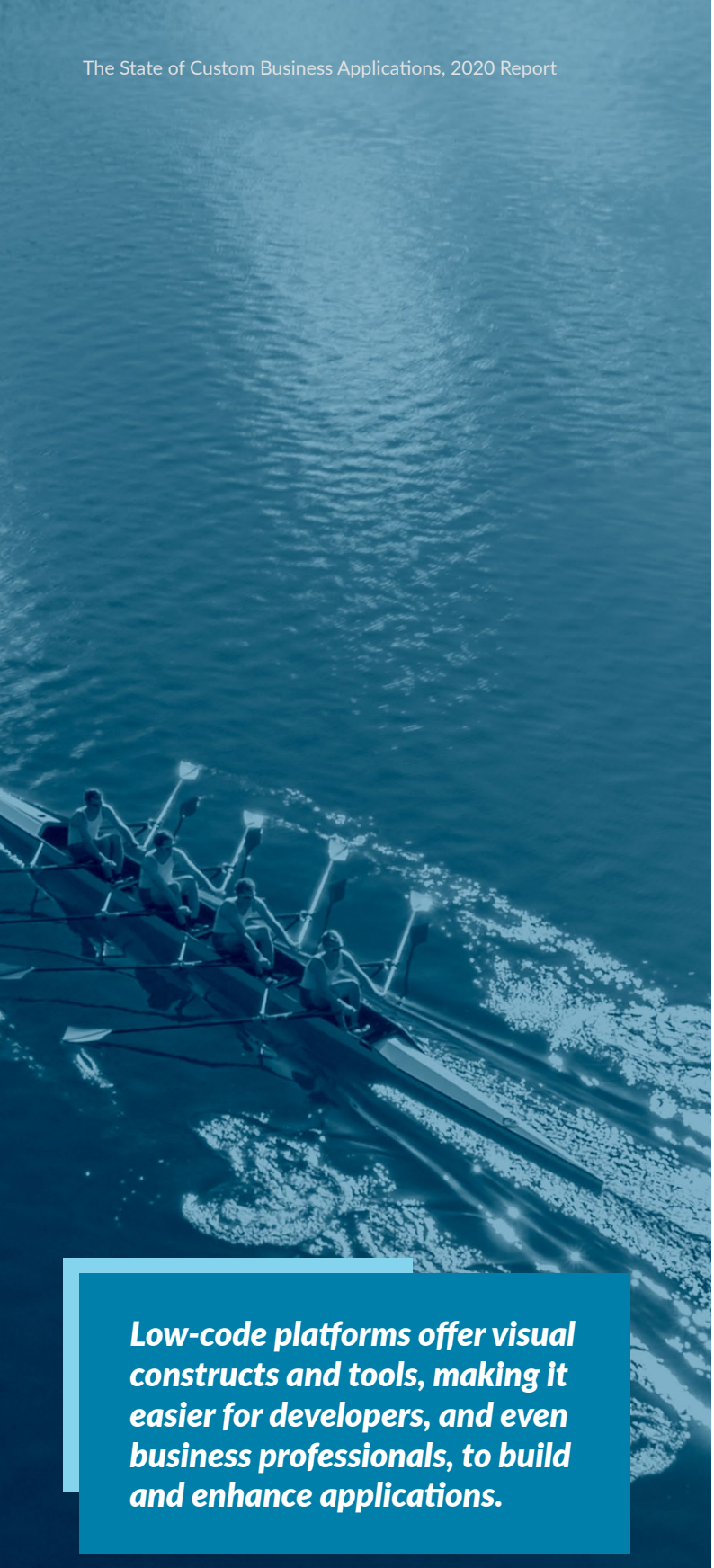


Figure 11: *Confidence in IT teams keeping up with demand*

Drilling down further, when asked specifically if their IT teams can keep up with the demand for application development projects and workflow needs across the business, only 46% of respondents agreed or strongly agreed. The rest either disagreed or had no opinion.

That's a sizable gap between business needs and the IT department's ability to deliver.

Nearly 60% of respondents expressed a lack of confidence in their overall application development capabilities.



Low-code platforms offer visual constructs and tools, making it easier for developers, and even business professionals, to build and enhance applications.

RIPPLE EFFECT

Advantages of Low-Code Platforms

Building applications with low-code platforms provides many benefits versus hand-coding them in programming languages such as Java, .Net, PHP and JavaScript.

Low-code platforms:

- Provide tools that simplify the development of underlying databases, mobile and web user interfaces, workflows, integrations and role-based security configurations.
- Offer visual development tools, making it easier to construct and enhance applications. Lower-skilled programmers and even non-technical business professionals can build applications without having to learn programming languages.
- Are constructed with embedded best practices. This increases the likelihood that business professionals and customers will find the user interfaces and workflows intuitive.
- Encourage developers to follow prescriptive approaches for requirements gathering prior to designing, developing and testing applications.
- Produce apps that are much easier to enhance and evolve, since they require little to no coding.
- Provide runtime infrastructure, so IT departments have fewer support responsibilities given that the majority of solutions are cloud-based platforms.

In summary, low-code platforms facilitate the development of custom software to digitize proprietary workflows, freeing up IT resources to focus on core business systems. That's a win-win.

LOW-CODE
Building Custom Apps Efficiently, Successfully

LOW-CODE

Building Custom Apps Efficiently, Successfully

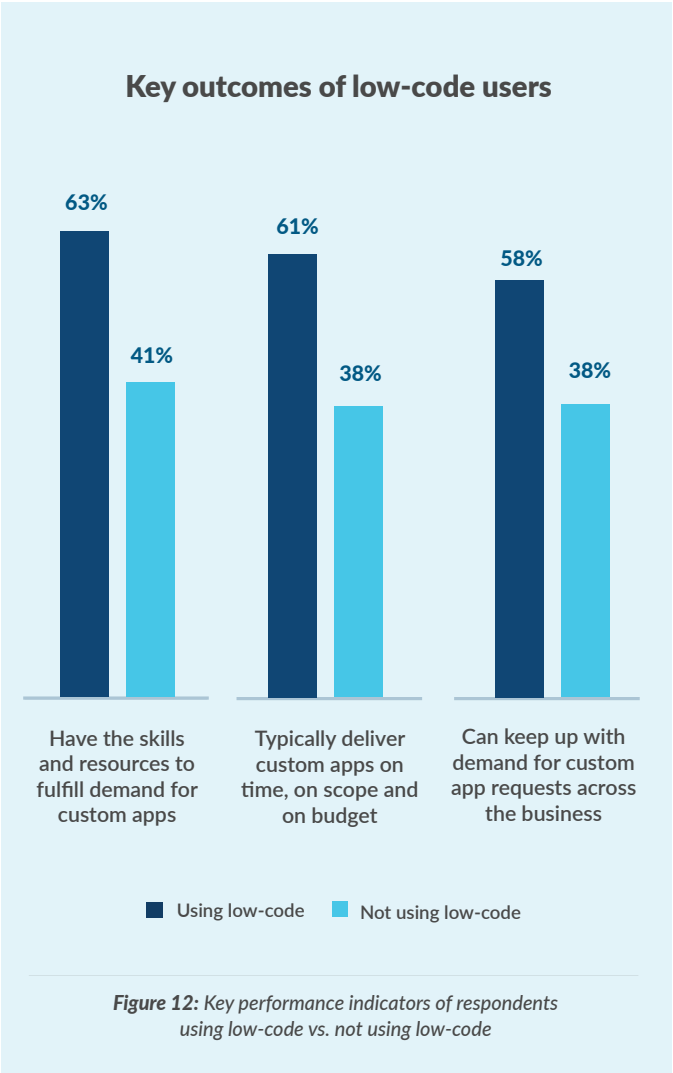


Figure 12: *Key performance indicators of respondents using low-code vs. not using low-code*

A key finding in our research shows that organizations using low-code platforms are far more likely to have the requisite skills and resources to produce custom business applications over those not using this modern application development methodology.

They are more successful in delivering custom applications on time, scope and budget, and can keep up with the demand for development projects across the business.

By making application development less complicated, organizations will deliver higher-quality applications on schedule. Developers will significantly reduce app creation time by leveraging visual development tools, cloud-based infrastructure and other features of low-code development platforms. Also, when business professionals are empowered to self-build the applications they need, more applications will be created without taxing IT teams.

Another striking insight from our research is that low-code adopters are spending more time where it matters most: creating new products and services, as well as enhancing access to data to support rapid, intelligent decision-making. They are far less likely to be upgrading legacy systems. In other words, companies that invest in low-code platforms generate results in areas that drive financial benefit.

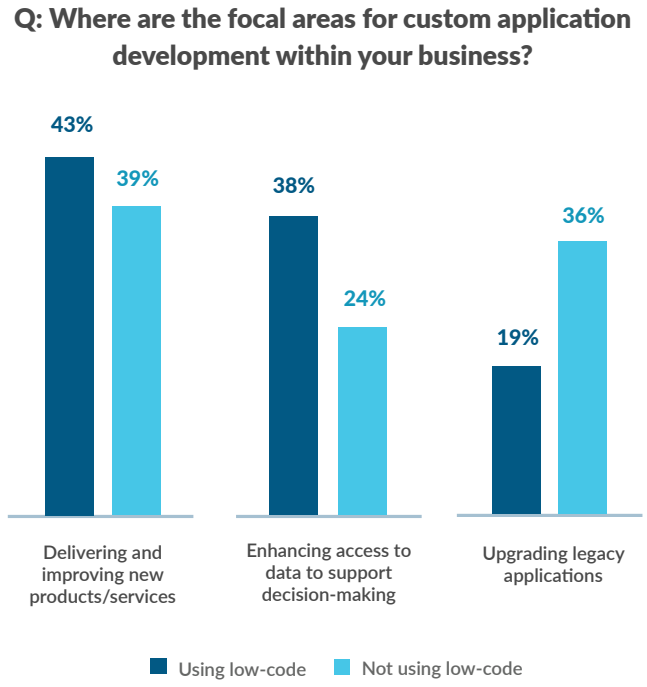


Figure 13: *Focal areas of custom application development of respondents using low-code vs. not using low-code*

With low-code, teams are rapidly paving the road ahead rather than spending precious time patching and fixing legacy systems.

MANAGED SERVICES

Most Successful Segment on App Delivery and Security

Another significant takeaway from our research is the higher success rate among respondents that use some form of managed services to build and support applications.

While this group represents a minority at less than one-third of respondents, managed services users are 20 percentage points more confident in their application development abilities in all key performance areas researched.

Q: How familiar are you with "managed services" for fulfilling your application or infrastructure needs?

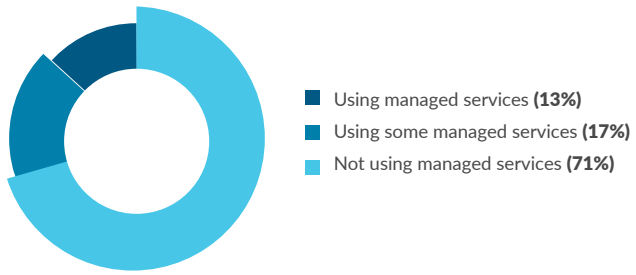


Figure 14: Percentage of respondents using managed services

Respondents state that by expanding in-house IT resources with external partners, they are more successful in managing the growing demand for custom applications.

Internal IT staff already have a vast array of responsibilities placed upon them to ensure business systems function correctly. When paired with outside experts to develop applications, the IT organization gains a higher likelihood of keeping up with business needs and expectations.

Data shows that managed services users:

- Deliver applications on time, scope and budget.
- Are more confident in the security posture of their applications.
- Can keep up with the demand for application needs across the business.

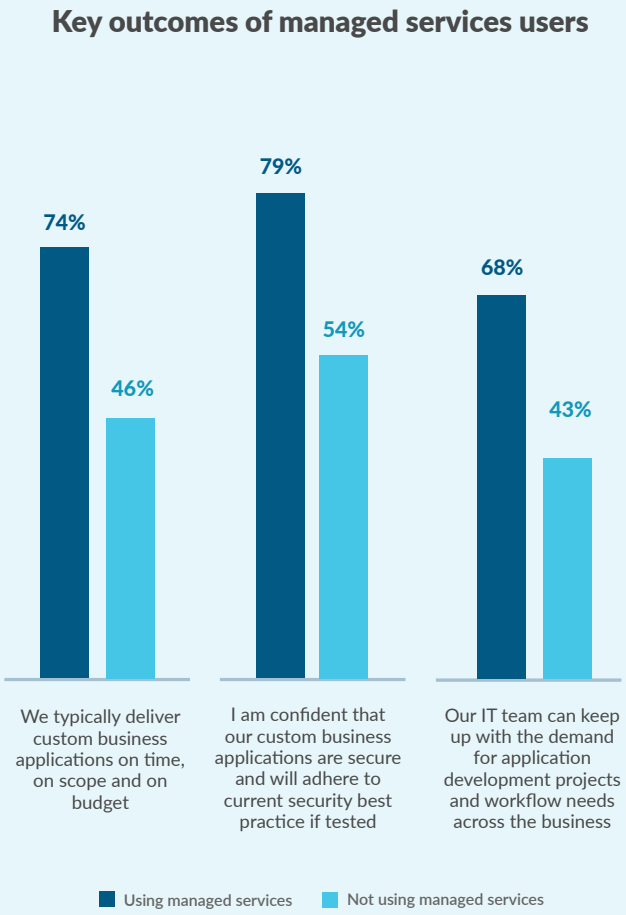


Figure 15: Key performance indicators of respondents using managed services vs. not using managed services

Organizations that make use of managed application service providers expressed greater confidence in the security posture of their applications, with nearly 80% saying their applications are secure and would adhere to current security best practices if tested. That is a stark contrast between those who do not leverage managed application service providers, at only 54%.

While many organizations are investing in application development, they may not have the skills, technologies, best practices or up-to-date knowledge on how to develop code securely and test applications for vulnerabilities. Performing essential security testing and related work requires deeper technical expertise such as data modeling, user experience design, integrations and performance tuning. Leveraging managed services here is an opportunity for organizations to gain the necessary technical expertise.

STARCIO TAKE

Low-Code Platforms and Expert Managed Services Drive Agile Delivery of Custom Business Applications

The Challenge

Many organizations still view application development as a one-time effort.

In this mindset, a business group justifies the investment, develops requirements, and works with IT on building and implementing the solution. The IT team is then held responsible for managing the application, including responding to incidents, providing support to end-users, upgrading systems and enhancing apps whenever the business group prioritizes changes. This approach is problematic because of the following reasons.

- **Companies need to innovate continually.** They must recognize that application development is not a one-time effort, because competition evolves. To remain competitive, business leaders must listen to feedback from customers and application end-users and allocate budget to improve applications on an ongoing basis.
- **Technical requirements may get lost in translation.** Decision-makers know where applications can deliver business value. However, they often cannot articulate technical development requirements. This heightens the possibility of receiving an application from IT that does not meet the exact needs of the department, even after waiting a long time for the finished product.
- **IT teams are already overwhelmed.** They need to support existing legacy and modernized applications. They are unlikely to have the resources, skills, time, focus and processes to support ongoing application development. Business and IT leaders should consider partnerships, including using managed service providers, to accelerate application development.
- **Traditional development can be slow and expensive.** Developing applications in Java, .Net, and other software languages that require dedicated cloud or data center infrastructure has significant overhead and may be too costly and complicated for small IT teams.

The Solution

StarCIO advocates a modernized approach to managing people, processes and technology. Businesses must adopt practices that are proven to deliver custom applications with positive results.

Our research and work with clients show that even small organizations with scarce IT resources can succeed using this approach:

- **Look beyond corporate walls to acquire expertise and talent.** Use managed service providers that are experts in the platforms, practices and application needs of your business.
- **Leverage low-code.** Use platforms that enable app development while reducing overhead and infrastructure costs. Take advantage of low-code platforms that have been shown to support diverse business needs.
- **Embrace agile development practices.** Companies that adopt a nimble approach to app development are more likely to deliver on strategic business benefits. Focus on delivering a minimum viable product and then evolve. Applications should be developed iteratively based on user feedback.

Action Plan

StarCIO recommends the following action plan:

- **Check current assets.** Review existing applications and evaluate whether they meet business requirements. Ensure they deliver compelling end-user experiences and capture sufficient data for expanding business insights.

- **Determine missing pieces.** Develop a list of new applications and data requirements that are difficult to complete, perhaps because of existing application development platforms, unavailability of IT skills, process inefficiencies, business/IT misalignments or budget factors.

- **Implement low-code as a strategic opportunity.** Evaluate opportunities to use low-code platforms to migrate legacy applications off of outdated systems. Rapidly prototype new applications instead of forcing new systems to adjust to the old.

- **Leverage technical experts.** Consider extending application development beyond IT by leveraging managed service providers and their technical expertise. Use business professionals to lead strategic application development projects or to get hands-on experience building departmental applications.

- **Look beyond your department.** Figure out where technology can strategically enable the business. Open discussions on why the organization requires nimble application development capabilities and how business and IT teams must collaborate on delivering fast, high-quality solutions.

With over 90% of respondents acknowledging the strategic importance of custom business applications, and 81% stating that in-house resources for application development are limited, organizations must consider new technology platforms, development processes and talent sources to achieve their goals.

Survey Demographics

The responses from 268 survey respondents were collected using a digital survey platform over two weeks in July 2019.

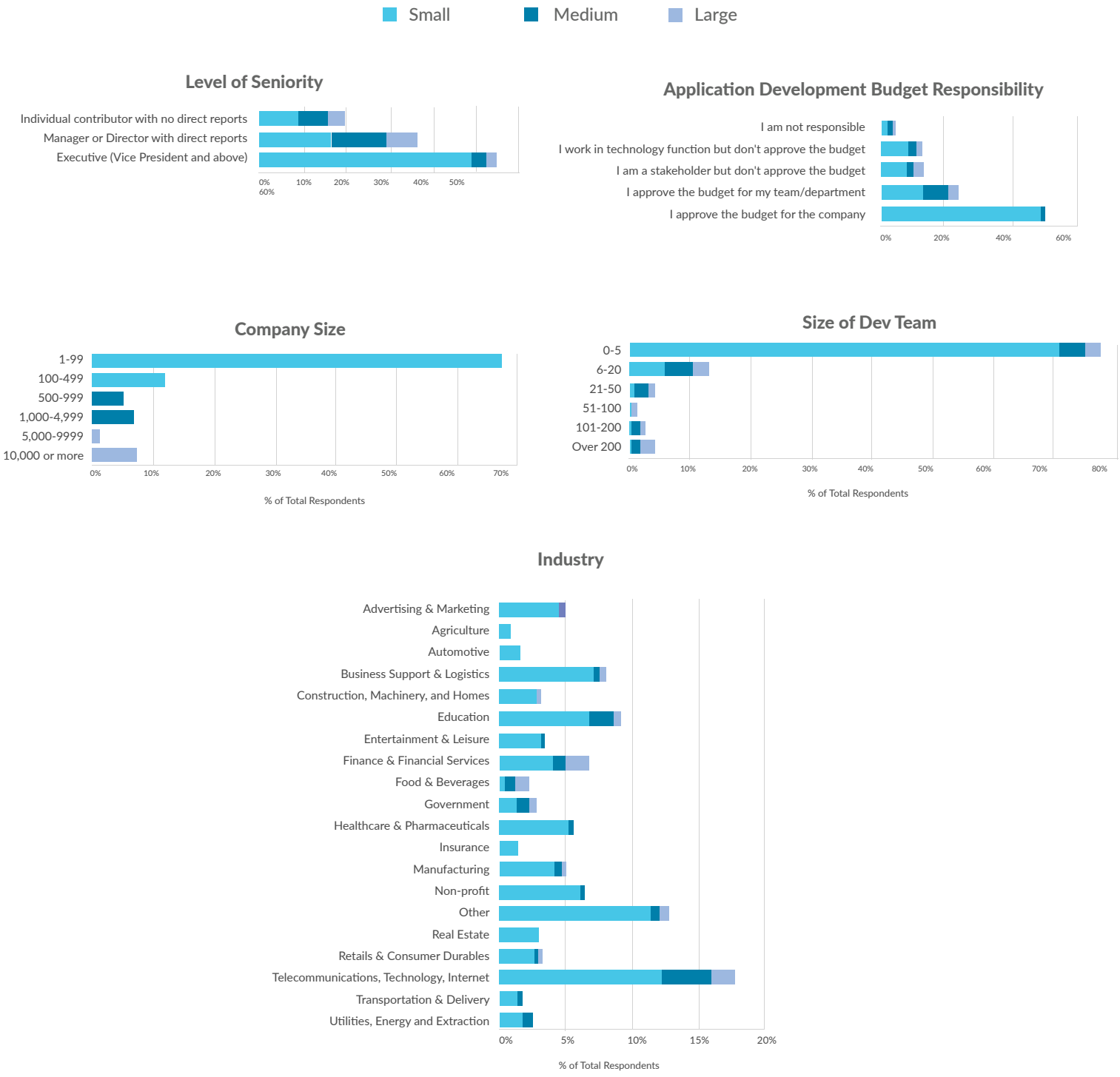


Figure 16: *Survey demographics*

Caspio is the leading low-code platform for building online database applications without coding. Ranked a Low-Code Leader by Forrester, Caspio is embraced by business professionals for ease of use and trusted by IT departments for security, compliance and scalability. Visual point-and-click tools accelerate the entire application development and deployment process, allowing users to produce enterprise-grade applications in a fraction of the time and cost versus traditional software development methods.

Caspio powers business applications for 12,000+ customers spanning 150+ countries, ranging from global corporations and government agencies to universities, nonprofits and small businesses.

Share your application vision and we'll help you achieve it. **Request a free consultation now.**

StarCIO helps companies drive smarter, faster, and more innovative business transformations leveraging data, analytics, software, automation and emerging technology. Our focus is guiding companies on maturing organizational practices, processes and technologies by delivering consulting, assessments and workshops. Our areas of expertise include market research, product development/management, agile management practices, DevOps, cloud migration and optimization, portfolio management, data/analytics/AI, becoming data-driven, and driving organizational and culture change.

StarCIO serves clients across a spectrum of industries and sizes, and its consulting, advisory programs and workshops help businesses become “Driving Digital” organizations.