Appian

2018 Digital Transformation Readiness Survey

Executive Summary

Digital transformation is crucial to most companies' long-term vision, but are organizations truly ready for it? Do they have the technical infrastructure and staff to support that vision? Appian and DevOps.com endeavored to answer these questions through what we've dubbed the 2018 Digital Transformation Readiness Survey.

What we've found is that organizations are eager and optimistic about their digital transformation prospects in the coming years. But they still feel understaffed and overwhelmed when it comes to delivering the software that will support the transformations they have in mind.

No matter the company size or even which industry an organization operates in, growing revenue and enacting digital transformation are what truly drives IT strategy these days. Long gone are the days of IT as a simple cost center and it's no longer considered a 'win' for CIOs to simply keep the infrastructure running.

82%
of organizations can't attract and retain the quality and quantity of software engineers they need to feed the business with innovative technology.

72%
of respondents don't believe they'll be able to scale their efforts to keep up with business demands in the coming years.

More than 1 in 5
organizations say they've got 50 or more major application development requests in their application backlog.

93%
of organizations say AI is a top area of focus for digital transformation efforts in the next five years.

91%
of organizations struggle with technical debt

What the analysts are saying

"While IT delivery is still a responsibility of the CIO, achieving revenue growth and developing digital transformation were identified most often as top business priorities for organizations in 2018. If CIOs want to remain relevant, they need to align their activities with the business priorities of their organizations."

— **Andy Rowsell-Jones, VP and distinguished analyst at Gartner.**

"Digital transformation is not elective surgery. It is the critical response needed to meet rising customer expectations, deliver individualized experiences at scale, and operate at the speed of the market."

— **Forrester Research Predicts 2018**

"Digitization has made providing consistent, high-quality customer interactions a competitive differentiator, no matter the channel."
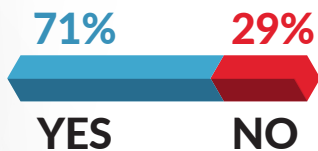
— **Tanguy Catlin, Liz Harrison, Candace Lun Plotkin and Jennifer Stanley of McKinsey & Co.**
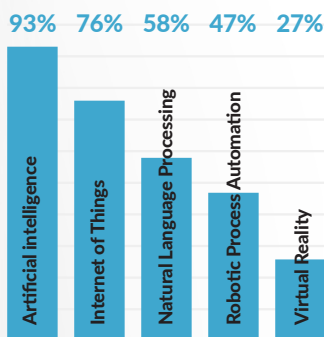
High Hopes for Transformative Change

Does your current application portfolio provide adequate means to enable an optimum customer experience today?

54%   **46%**
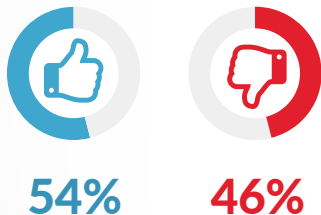
Will your technology be able to keep up with customer demands in the next 24 months?

71%   **29%**

YES   **NO**

What are the top areas of digital transformation that your organization will drive toward in the next five years?

93%   76%   58%   47%   27%

Artificial Intelligence
Internet of Things
Natural Language Processing
Robotic Process Automation
Virtual Reality

What the transformation means for technical strategy is highly individualized, but survey results show that respondents are putting heavy bets on artificial intelligence and internet of things (IoT) in the coming years. When asked their top areas of focus for digital transformation through 2022, a whopping 93% cited AI and 76% reported IoT within their top choices.

Ultimately, digital transformation is about improving the customer experience. Even with so many respondents planning initiatives in areas such as AI and IoT to bolster that experience, many aren't confident they can truly execute where it matters. When asked whether their technology stack can keep up with customer expectations in the next two years, nearly a third of companies believe they'll fall short in this department.
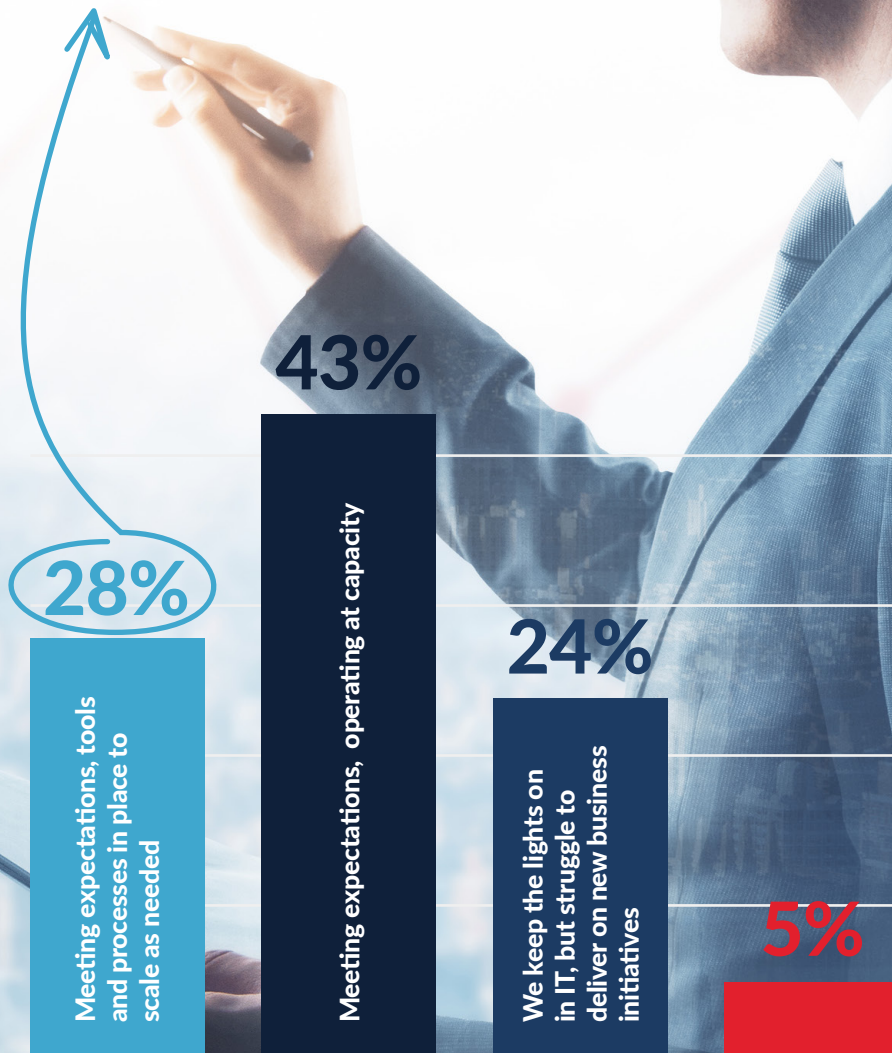
Future Projections May Be Overly Optimistic

When looking at the current capabilities of organizations' application portfolios in supporting ideal customer interactions, the situation is even more dire: Nearly half of respondents believe they're unable to build software to keep customers satisfied and engaged.

Looking even deeper into the current state of affairs, we find that even when organizations are keeping up with what the business demands of IT, they still are just barely keeping their noses above water. The reality is that the minority of organizations are poised to support the business as it scales up its requests for IT innovations in the coming years. Fewer than 1 in 3 organizations report that their team not only currently meets business expectations, but also has the capabilities in place to scale to business needs in the future. The rest of respondents are either meeting business needs now but operating at max capacity or are already behind on strategic software delivery.

Fewer than 1 in 3 organizations report that their team not only currently meets business expectations, but also has the capabilities in place to scale to business needs in the future.

How well equipped is your development team to support the future work within your organization?

43%

28%

24%

5%

Meeting expectations, tools and processes in place to scale as needed

Meeting expectations, operating at capacity

We keep the lights on in IT, but struggle to deliver on new business initiatives

Our team is struggling in every aspect of software & IT

Backlog is a Real Problem

How many applications/key features are in your current application backlog?

- 0-5: **15%**
- 5-10: **24%**
- 10-20: **23%**
- 20+: **38%**
- 50+: **22%**
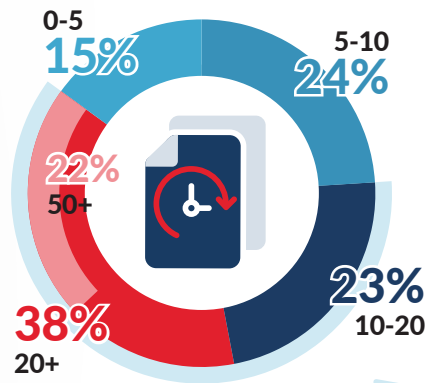
As we drilled down into the tactical realities of software delivery for respondents, we began to draw an even clearer picture of the limiting factors standing in the way of organizations making future strategic gains on digital initiatives.

The truth is that they're already so buried in yesterday's work that they barely even have a chance to think about the challenges of today and tomorrow. **More than 61% of respondents state that they've got more than 10 new applications or major feature requests waiting on the backburner of their application backlog.** More than 1 in 5 of them say they've got a staggering 50 or more major application development requests waiting to be fulfilled.

Respondents admit that these backlogs are staying stagnant for extended periods of time. For many organizations, it takes months to even start the race, let alone cross the finish line. Approximately 41% of those surveyed said it takes their organization three months or longer to initiate projects once they're requested from the business. Only a miniscule 17% said they could get started within a month of a business request.

Once the projects are kicked off, most businesses are looking at many more months before developers deliver anything to the business. More than 72% of those surveyed say it takes at least three months to deliver once a project is started, and more than 41% say it takes six months or longer.
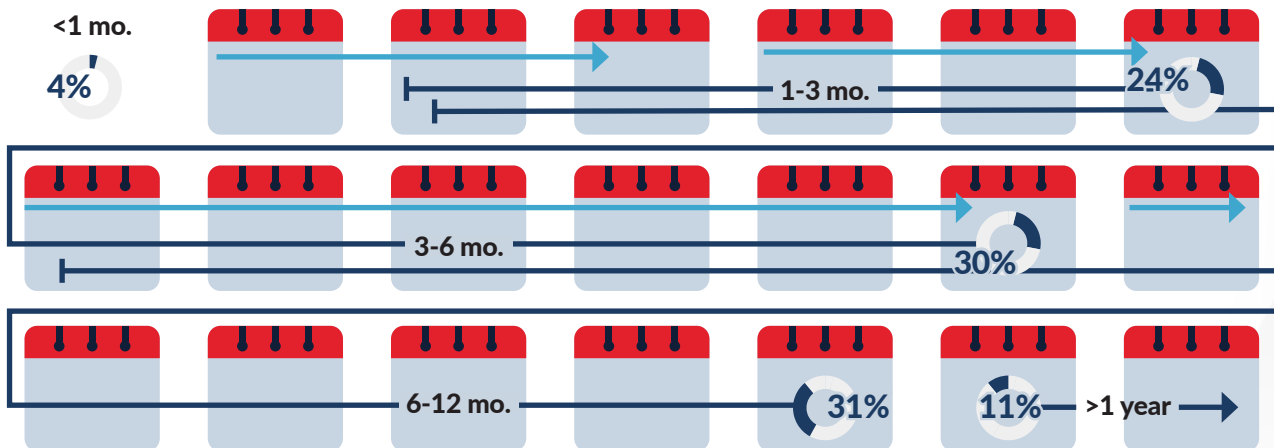
Based on the project initiation and delivery time distribution in this survey, if the vast majority of organizations take at least one to three months to get projects started and a similar proportion take three months or longer to deliver once started, then the bare minimum wait time is four to seven months.

In a fast-moving market, that is enough time to make or break a company's competitive positioning. That's a head start of one to three financial quarters that an organization could be handing directly to a faster-moving competitor.

How long does it take for new projects to be initiated once requested from the business?

<1 mo.
17%

42% — 1-3 mo. →

25% — 3-6 mo. →

12% — 6-12 mo. →

4% →
>1 year
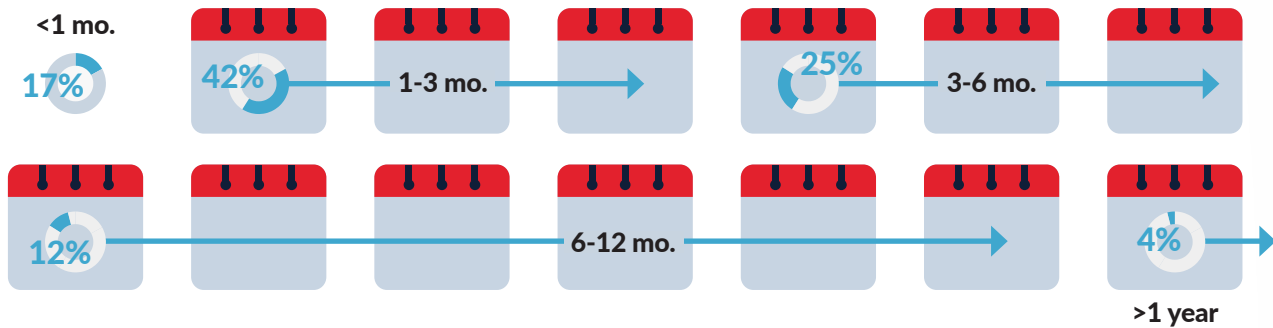
How long does it reasonably take to get from project initiation to product delivery?

<1 mo.
4%

1-3 mo. — 24%

3-6 mo. — 30%

6-12 mo. — 31%   11% — >1 year →

If the vast majority of organizations take at least one to three months to get projects started and a similar proportion take three months or longer to deliver once started, then the bare minimum wait time is four to seven months.

83% — 1-3 mo. minimum →

← 3 mo. minimum — 72% →
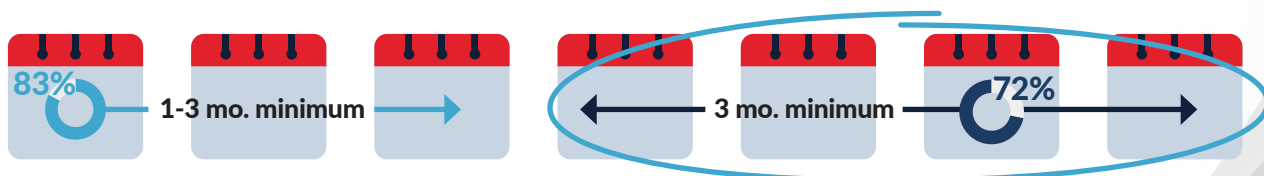
Backlog is a Real Problem, cont'd.

And, of course, that to-do list continues to grow. Maintenance of old applications adds another significant strain to the workload. More than half of organizations say they have to either consolidate or refactor 10 or more legacy applications in the next year. Around 1 in 10 organizations say they'll need to refactor more than 20 legacy applications in the next 12 months. This is a major hump for organizations, as many of those legacy apps are monolithic behemoths rather than the loosely coupled and well-contained new projects designed in the DevOps era.

All of that strain is making it more difficult for organizations to move quickly with the new projects that will truly put the business on the spear tip of innovation. In an era where software is tantamount to business success, a surprising 77% of respondents report delivering 10 or fewer new applications in the next year.

How many legacy enterprise applications need to be consolidated or refactored in the next year?

49%
0-5

27%
5-10

13%
10-20

11%
20+

More than half of organizations say they have to either consolidate or refactor 10 or more legacy applications in the next year.

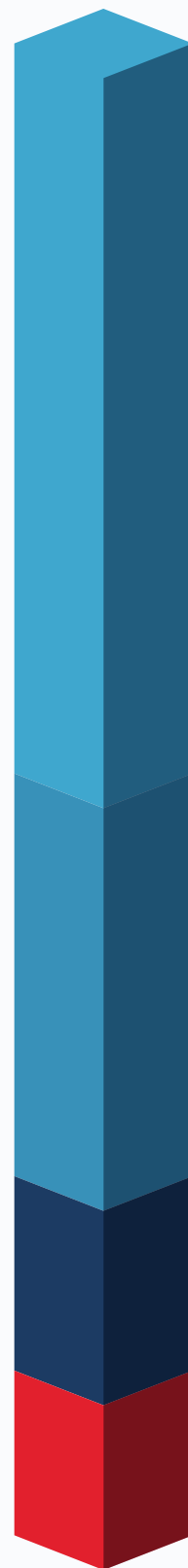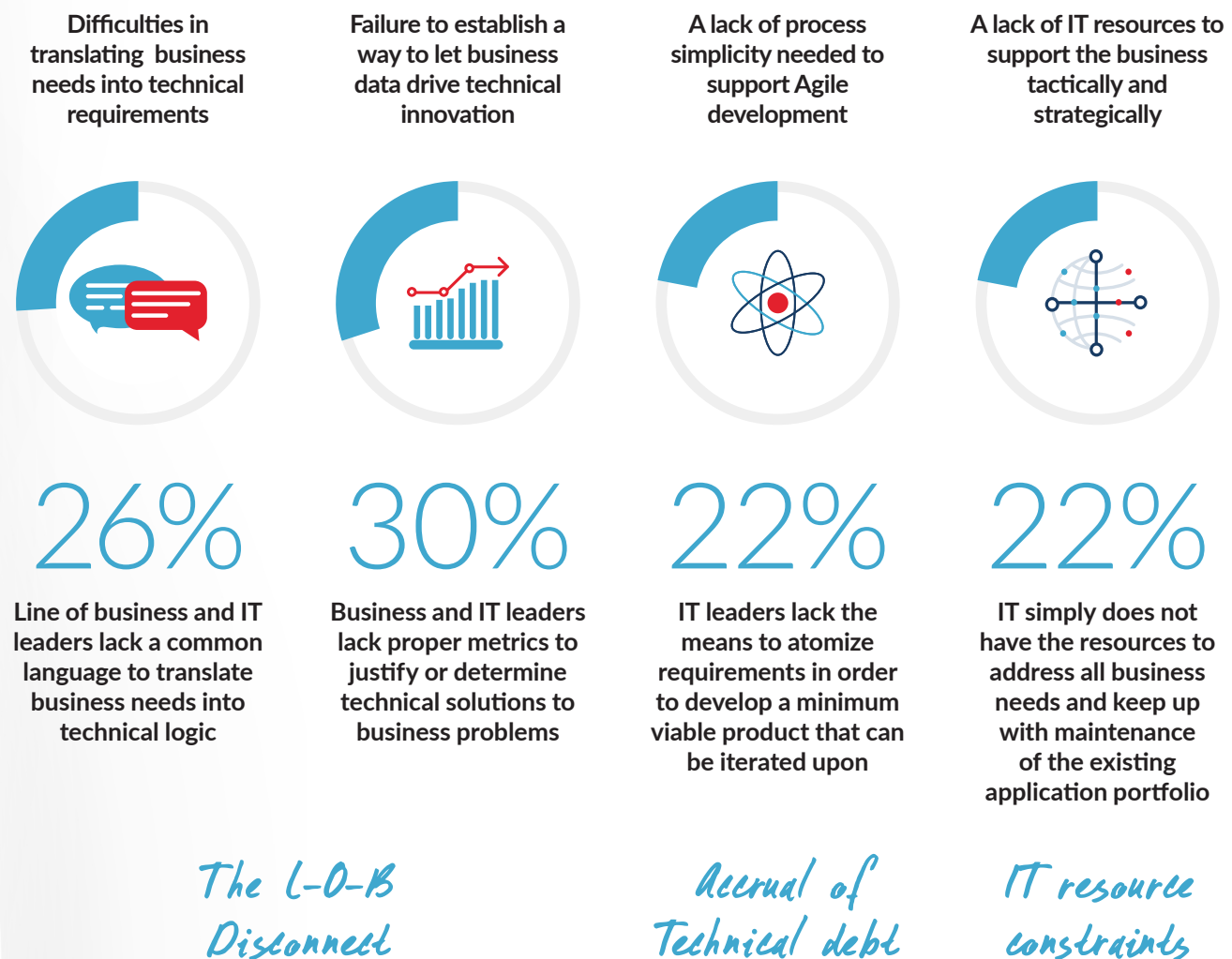# Understanding the Obstacles to Transformation Readiness

Many of the delays detailed by survey participants so far are actually symptoms of low transformation readiness, rather than root causes. The underlying problems vary, but participants' answers to further questioning suggests issues in three major categories:

The LOB-IT disconnect   •   Accrual of technical debt   •   IT resource constraints

We saw this breakdown most clearly when we asked respondents about what stood in their way when gathering requirements to start a new project. As we explained already, it is taking months for organizations to initiate projects, so what's the holdup? According to those questioned, the issues were fairly evenly weighted among four common problems:

Difficulties in translating business needs into technical requirements	**Failure to establish a way to let business data drive technical innovation**	**A lack of process simplicity needed to support Agile development**	**A lack of IT resources to support the business tactically and strategically**
26%	**30%**	**22%**	**22%**
Line of business and IT leaders lack a common language to translate business needs into technical logic	Business and IT leaders lack proper metrics to justify or determine technical solutions to business problems	IT leaders lack the means to atomize requirements in order to develop a minimum viable product that can be iterated upon	IT simply does not have the resources to address all business needs and keep up with maintenance of the existing application portfolio

The L-O-B Disconnect   *Accrual of Technical debt*   *IT resource constraints*

The LOB-IT Disconnect

Circling back to the answers above, the top two most cited answers point to one of the most fundamental problems standing in the way of digital transformation—namely, a disconnect between the line-of-business and IT that inhibits the business from tuning technological innovation to specific business needs.

This disconnect starts with measurement. Gut instinct may be a powerful tool for making business decisions when wielded by experienced leaders, but nothing performs quite so well as sound instinct backed up by good data — particularly when making decisions about when to risk investments on new innovations.

When business and technology leaders don't arm themselves with the means to analyze business problems with solid metrics, they increase the chances that they'll bet the race on the wrong horse. With IT already struggling to keep up with application workloads, there's only one thing worse than developing software that works as designed but doesn't offer the business outcome that leaders hoped for: Not having the visibility to tell them what went wrong or the nimbleness to change software accordingly to fix that problem.

But even when business leaders are armed with the appropriate data to choose the right strategic direction, it still is a struggle to render it into a technological approach that will support that strategy.

"Turning business ideas into working code is still a major source of problems, even as Agile, DevOps, and the latest requirements definition practices have improved the process," said Diego Lo Giudice of Forrester Research.

The problem is that LOB and IT don't come to the table from the same point of reference. They speak in different 'languages.' This makes it tough to translate business problems into technological solutions. When this happens, it doesn't matter how Agile an engineering organization is—the speed of delivery is irrelevant if the software doesn't suit the business.

Racking Up Technical Debt

Beyond the LOB-IT disconnect, many organizations with low transformation readiness struggle with the pernicious problem of technical debt. Technical debt accumulates each time developers, testers and engineering leadership opt to fix things right now rather than fix things right. In many instances, choosing the quick-and-dirty route for churning out new features or tweaks the business needed yesterday makes sense for the sake of expediency. But when that method is chosen every time, things gets messy on a very large scale, and ultimately the team ends up spending more time cleaning up and patching through the mess than actually getting meaningful work done.

Technical debt can accumulate in myriad ways — everything from the code complexity that comes from a tangle of copied and pasted code to the highly coupled mess that builds up through an ever-increasing maze of dependencies. It can come in the form of a rickety development infrastructure that the engineering team never has time to update because they are too busy delivering new code. Or, it can be tests that constantly break because not enough time is spent in the care and feeding of automation. Regardless of how it builds up, technical debt is a problem that the vast majority of organizations today grapple with.

Fewer than 10% of our survey respondents reported that technical debt hasn't negatively impacted their software delivery capabilities in the last year.

"The reason that we call these compromises and mistakes technical debt is that in a very real sense you are borrowing against your future to get something done in the moment that you will pay for later, one way or the other. But just like real debt, technical debt, unless managed properly, can accumulate to the point where the only thing you are doing is servicing debt and not making progress on the products you financed with it," wrote Microsoft CTO Kevin Scott.

> *"(Businesses) need to go beyond 'innovation theater. They need to be able to detect changes that are coming. They need to be able to mobilize their resources to create new advantages to replace the ones that have gone away. And they have to do all of that much faster than they had to in the past."*
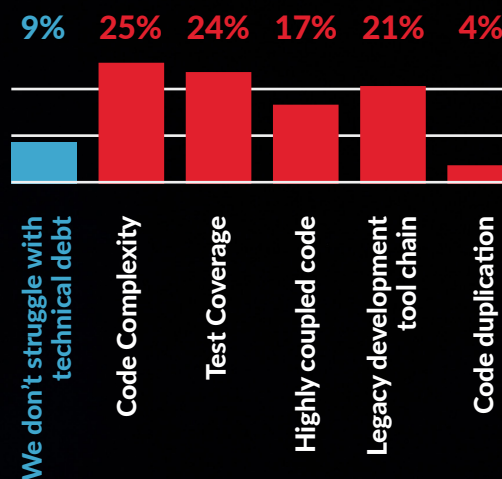>
> **— Rita Gunther McGrath, professor, Columbia University Business School**

Our respondents agree with that sentiment. It's the irony of technical debt: In many instances organizations are running to stand still. **According to nearly 3 in 4 survey participants, technical debt gets in the way of how fast they're able to develop new features.** Meanwhile another 40% and 35%, respectively, report that technical debt impacts their application quality such that customer satisfaction and uptime suffer.
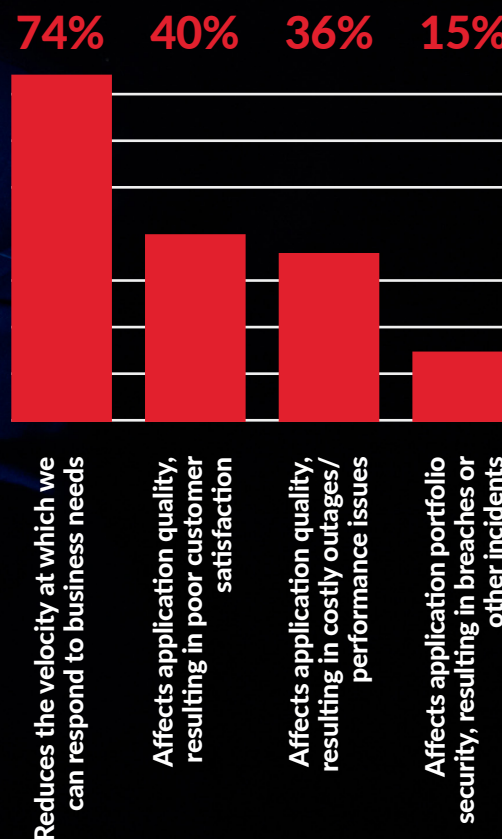
91% of businesses struggle with technical debt

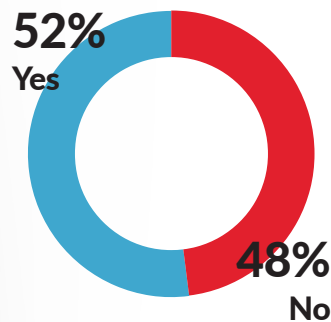**Which area of technical debt has most impacted your software delivery capabilities in the last year**

9%	25%	24%	17%	21%	4%
We don't struggle with technical debt	Code Complexity	Test Coverage	Highly coupled code	Legacy development tool chain	Code duplication

How much impact does technical debt currently have on your software development lifecycle?

74%	40%	36%	15%
Reduces the velocity at which we can respond to business needs	Affects application quality, resulting in poor customer satisfaction	Affects application quality, resulting in costly outages/ performance issues	Affects application portfolio security, resulting in breaches or other incidents

Dealing with Resource Constraints

Will expected budget increases be enough to meet business and IT innovation goals in the next 24 months?

52%
Yes

48%
No

> *"Most companies haven't modeled their processes. So, they don't understand how some cool new technology will help them improve customer service, claims processing, or other routine and knowledge-based tasks. The perfect storm for digital transformation is an openness to the adoption of new technology—having a current model of business processes, and a senior management team that is ready, willing and able to transform."*
>
> **— Stephen Andriole, Thomas G. Labrecque Professor of Business Technology, Villanova University School of Business**

In many cases, the problems that prevent organizations from breaking through transformation barriers boil down to resource constraints. Our survey shows that nearly half of IT leaders believe they simply will not get the kind of budgetary increases they need to meet business and IT innovation goals in the next two years.

Approximately 53% of organizations believe that they can't expect more than a 10% bump in budget in the next 24 months. Given what the business expects of them, for the majority of organizations that simply won't be enough to help them achieve meaningful digital transformation. Approximately 65% say they need more than 10% in budget increases to meet their goals. More than 1 in 3 say that increase needs to be more along the lines of 25% or greater.

One of the key ways that resource constraints manifest themselves is in how well the organization maintains its developer talent. Approximately 82% of organizations struggle in some way to attract and retain the quality and quantity of software engineers they need to feed the business with innovative technology. The most cited problem in this arena is that of simple manpower. About a third of organizations have a good mix of experience levels in their developer roster, but they simply don't have enough to keep up with the workload.

Meanwhile, 27% of organizations can find and afford to train junior developers, but have a hard time attracting the kind of experienced developers that can take their organizations to the next level. And 22% of organizations say that not only are they unable to attract experienced developers, but they also don't have the resources to train the junior developers. That's a recipe for stagnation.
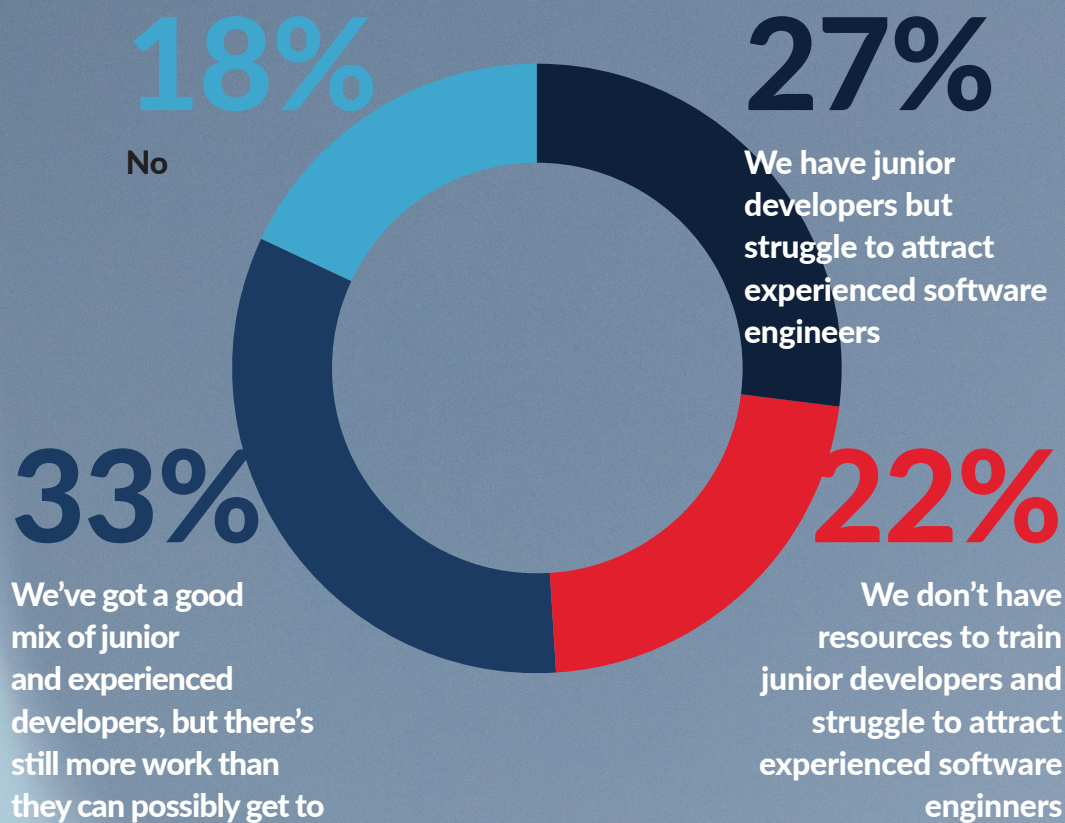
How much additional development budget would you need to add in order to meet business and IT innovation goals in the next 24 months?
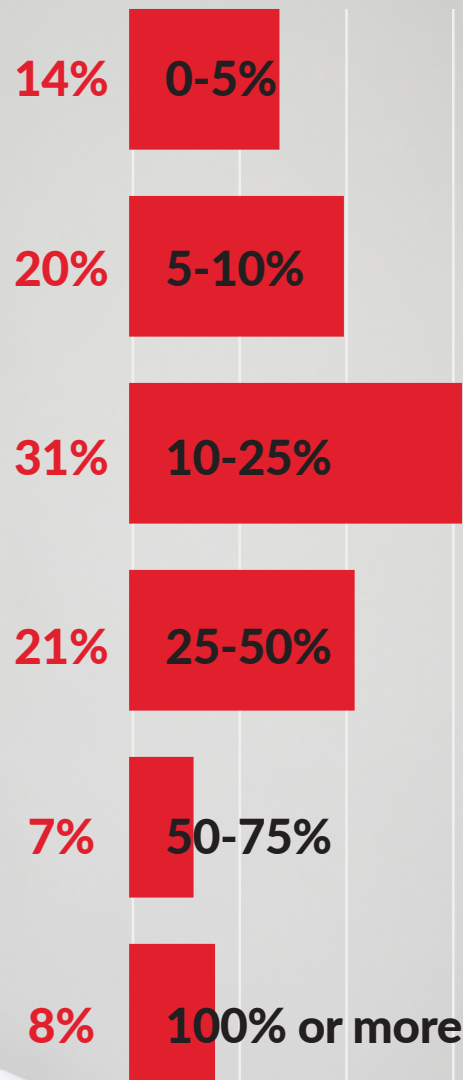
- **14%** 0-5%
- **20%** 5-10%
- **31%** 10-25%
- **21%** 25-50%
- **7%** 50-75%
- **8%** 100% or more

Approximately 82% of organizations struggle in some way to attract and retain the quality and quantity of software engineers they need to feed the business with innovative technology.

Does your organization struggle to maintain a qualified pool of developers capable of delivering the software your business needs to innovate?

18%

No

27%

We have junior developers but struggle to attract experienced software engineers

33%

We've got a good mix of junior and experienced developers, but there's still more work than they can possibly get to

22%

We don't have resources to train junior developers and struggle to attract experienced software enginners

Looking for a Better Way

Are you aware of low code development platforms as a potential alternative for relieving pressure on current IT development resources?

Yes

No

10% We've already deployed

11% We're in the process of deploying

16% We're evaluating products and plan to deploy in the next year

13% We're keeping an eye on the market and are considering acquisition in the next 24 months.

"What we're seeing now with low code is that the vision for BPM is now becoming a reality. ... Non-developers can now get involved in building solutions, and testing them out with customers. And so the takeaway is that digital transformation and innovation can't just be in the hands of a few people in the organization. That's a recipe for failure."

— Clay Richardson, CEO of Digital FastForward

As organizations scramble to get themselves ready for digital transformation, they'll need a secret weapon to help them overcome the three major inhibitors we've examined here:

- **LOB-IT disconnect**
- **technical debt**
- **limited budgetary and developer resources**

Low-code development technology offers organizations the means to deliver software faster without scaling their engineering team unsustainably. These platforms give business teams the means to translate their ideas into innovation quickly, with minimal technical debt.

But as things stand, many organizations are still unaware of low-code technology as an option—and those that do know about it are still in the early stages of deployment. Our survey shows that just about half of organizations today are aware of low-code development.

Among those, only about one in five have actually deployed the technology.

As organizations seek to transform their business, low-code clearly has tremendous opportunity to grow as a viable option for solving their readiness problems.
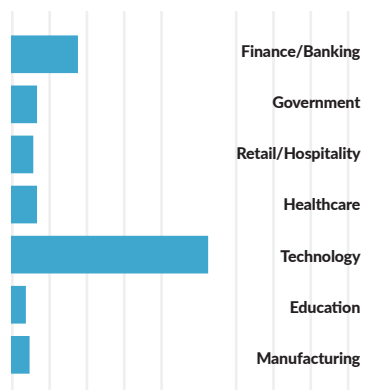
To learn more about Appian and how low-code technology can increase your digital transformation readiness, visit *www.appian.com/platform/*.

For a free trial of Appian, The Digital Transformation Platform™, visit *www.appian.com/appian-trial-edition-registration/*.
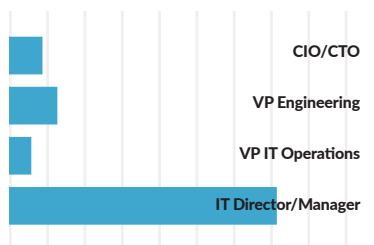
Methodology

The 2018 Digital Transformation Readiness Survey was conducted by DevOps.com and sponsored by Appian. The survey was conducted online in October 2017. Participants came from organizations of varying sizes and based around the world. They were invited to participate via social media and email invites sent to DevOps.com's qualified database of IT professionals. **Number of Respondents: 463**
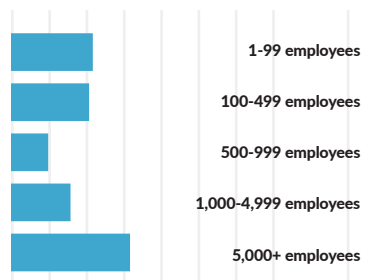
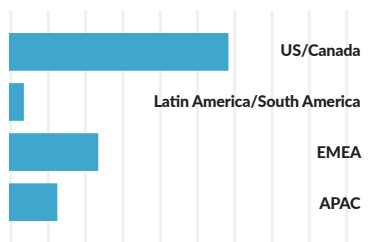**What industry do you operate in?**

- Finance/Banking
- Government
- Retail/Hospitality
- Healthcare
- Technology
- Education
- Manufacturing

What is your role at the organization?

- CIO/CTO
- VP Engineering
- VP IT Operations
- IT Director/Manager

How large is your organization?

- 1-99 employees
- 100-499 employees
- 500-999 employees
- 1,000-4,999 employees
- 5,000+ employees

Where are your headquarters based?

- US/Canada
- Latin America/South America
- EMEA
- APAC

Appian

Appian provides a leading low-code software development platform that enables organizations to rapidly develop powerful and unique applications. The applications created on Appian's platform help companies drive digital transformation and competitive differentiation. For more information, visit **www.appian.com**