

MuleSoft
Connectivity
Benchmark
Report
2018

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no longer a case of 'if' but 'when'
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1 Introduction

The forces of digital disruption continue to impact organizations of every size and in every industry, as consumers, employees, and partners expect everything to be on demand and fully connected. To flourish in the digital economy, organizations need to become more agile; they must develop and release new products and services quickly, as soon as the market demands them. To put it bluntly, those organizations that fail to digitally transform will start to lose revenue, and fast.

Unsurprisingly, at a business level, there is now growing impatience to make digital transformation a reality. As Ross Mason, MuleSoft's founder, points out, "With major disruptions happening in multiple industries, no company is too big to have the rug pulled from under it. It is no longer about the big eating the small; it is now about the fast eating the slow."¹ This, in turn, puts a huge amount of pressure on CIOs and IT decision makers (ITDMs) to meet business expectations, especially when revenue is at stake.

In order to make sure that they remain competitive, companies are working on a number of digital transformation initiatives like improving how efficiently their IT operation works, transforming their customers' experiences and interactions, and increasing their overall business efficiency.

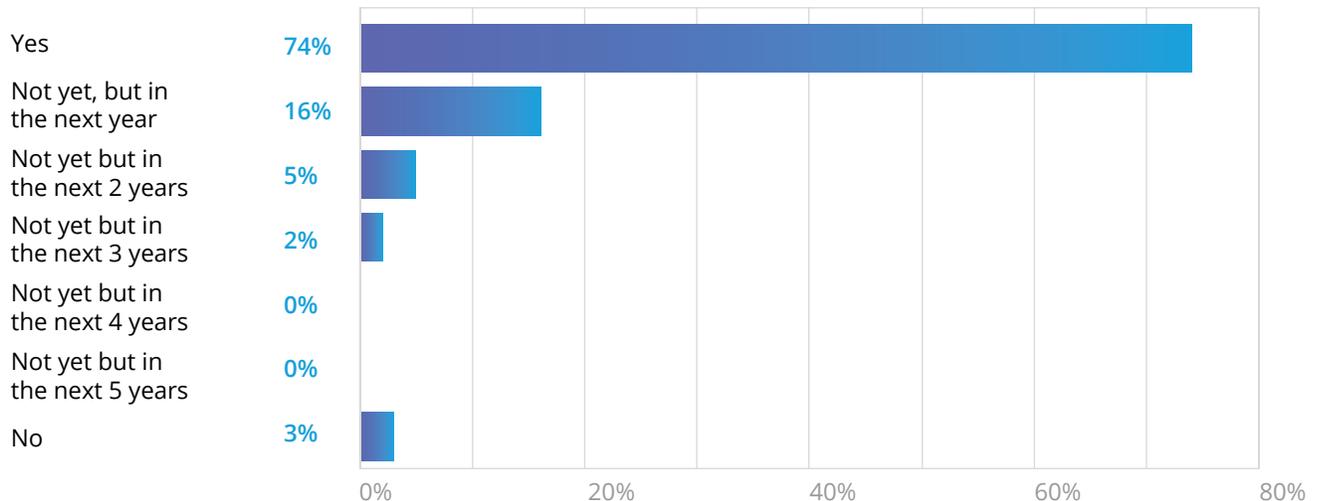
But for many organizations, there are still huge barriers to digital transformation like integration, lack of resources, and misalignment between IT and the rest of the business. This report, which benchmarks how IT decision makers are handling digital transformation, IT operations, and change management, takes an in-depth look at where organizations are on their digital journey and uncovers the challenges they face when integrating new and existing technologies.

¹ Mason, Ross. First, Break IT. 2016, p. 3

2 Digital transformation: no longer a case of 'if' but 'when'

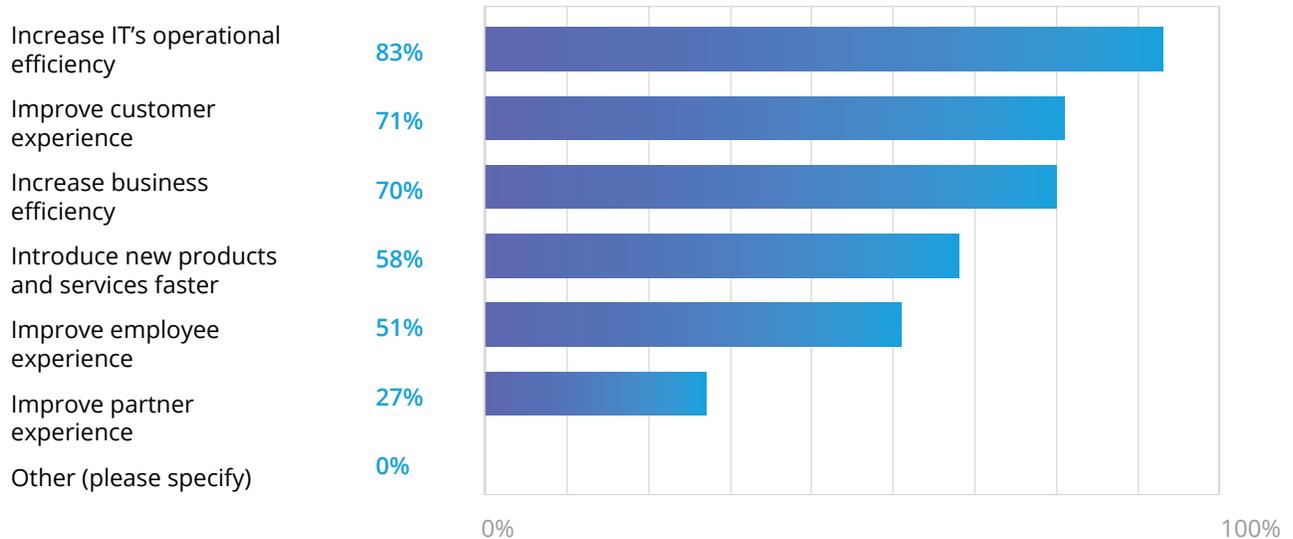
When it comes to digital transformation it is no longer a case of 'if' but 'when', and over the last 12 months, organizations have moved beyond planning to execution. Nearly three quarters (74%) of IT decision makers are currently carrying out digital transformation initiatives, with a further 23% planning to over the next three years.

Is your company currently undertaking digital transformation initiatives?



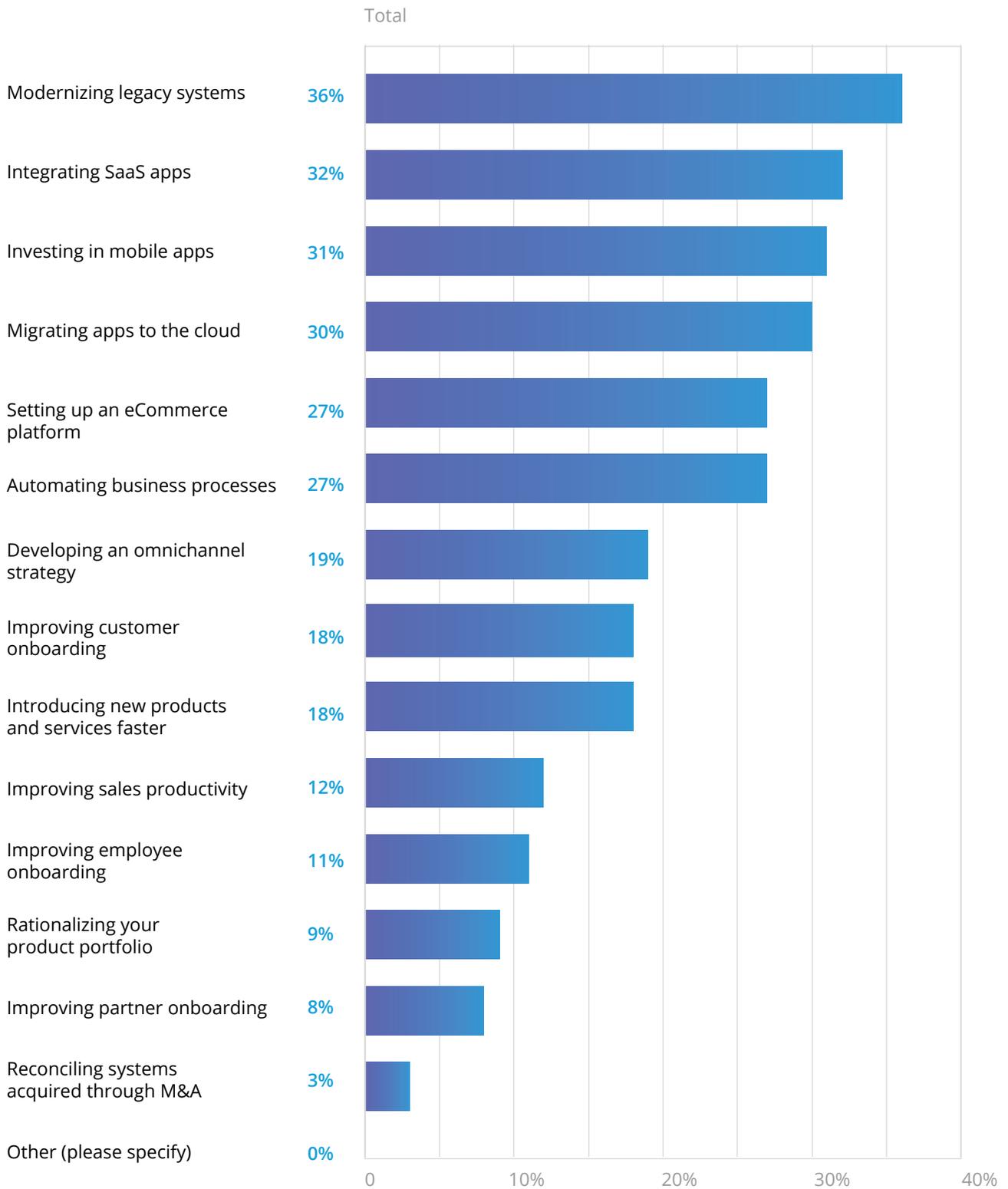
ITDMs were very clear on what business goals they wanted to achieve with digital transformation. They cited increasing IT's operational efficiency (83%), improving customer experience (71%), and increasing business efficiency (70%), as their top three goals for digital transformation. Given the tight budgets for IT and the increasing number of projects that IT decision makers are tasked with, it's not surprising that operational efficiency is the top initiative they want to achieve with digital transformation.

What are the goals you would most like to achieve with your digital transformation initiatives in your organization?



In order to achieve these goals, ITDMs identified a number of specific initiatives they wanted to achieve. Top amongst them were modernizing legacy systems, integrating SaaS apps, and investing in mobile applications, which is not at all surprising given the popular goals of increasing efficiency and improving customer experience.

What are the most important initiatives that you will work on to achieve your organization’s business goals? (Combination of responses ranked first, second or third)

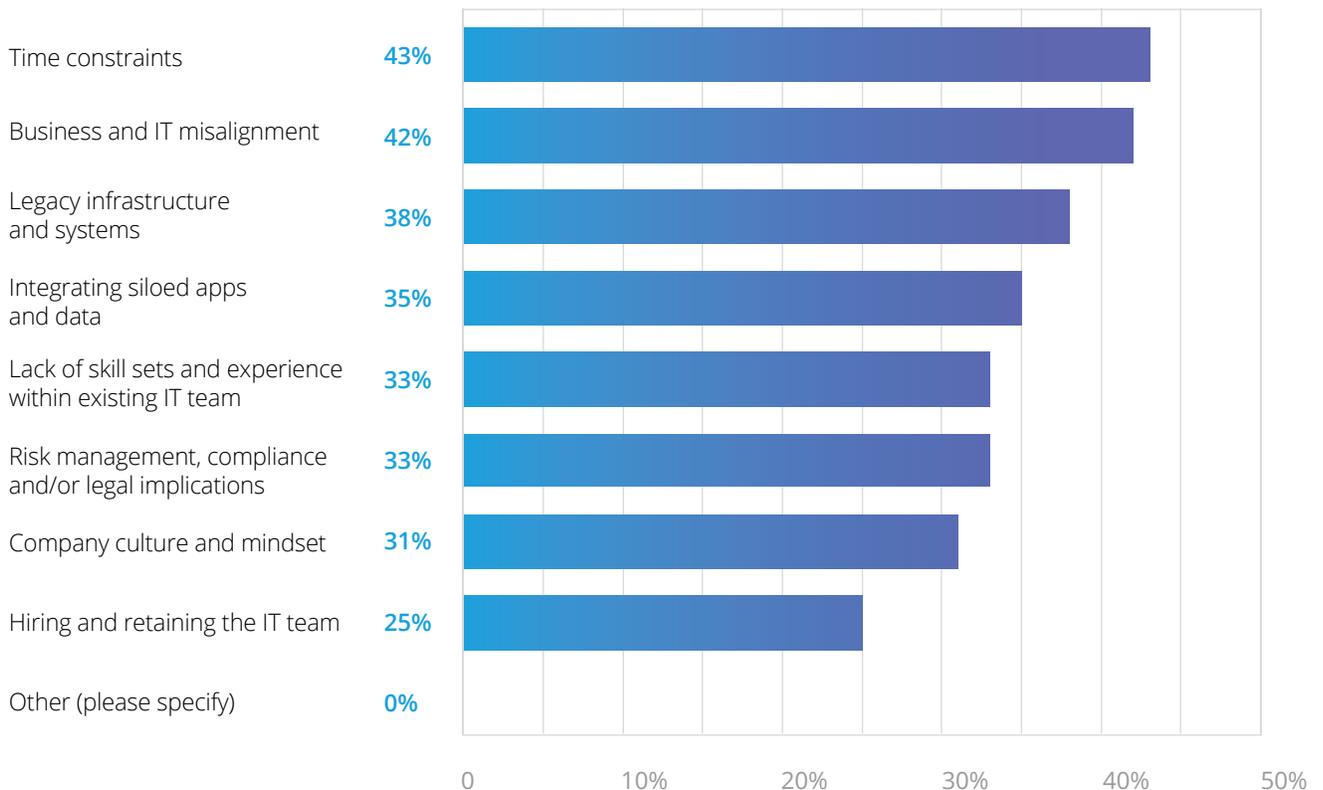


3 Getting digital transformation right - and what's going wrong?

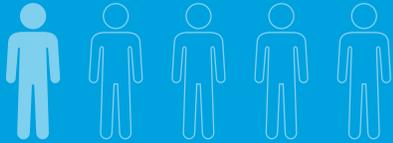
Carrying out these digital transformation initiatives isn't easy for organizations because they face a number of cultural and technological barriers. Business and IT misalignment (43%), legacy infrastructure and systems (42%), and resources/budget allocation (38%) were cited as the top three barriers to digital transformation. A further third said that integrating siloed apps and data is an additional obstacle.

These results highlight that organizations are not only facing these challenges but in most cases failing to overcome them. But for how much longer can this continue?

Which of the following are the three biggest challenges to digital transformation within your organization?

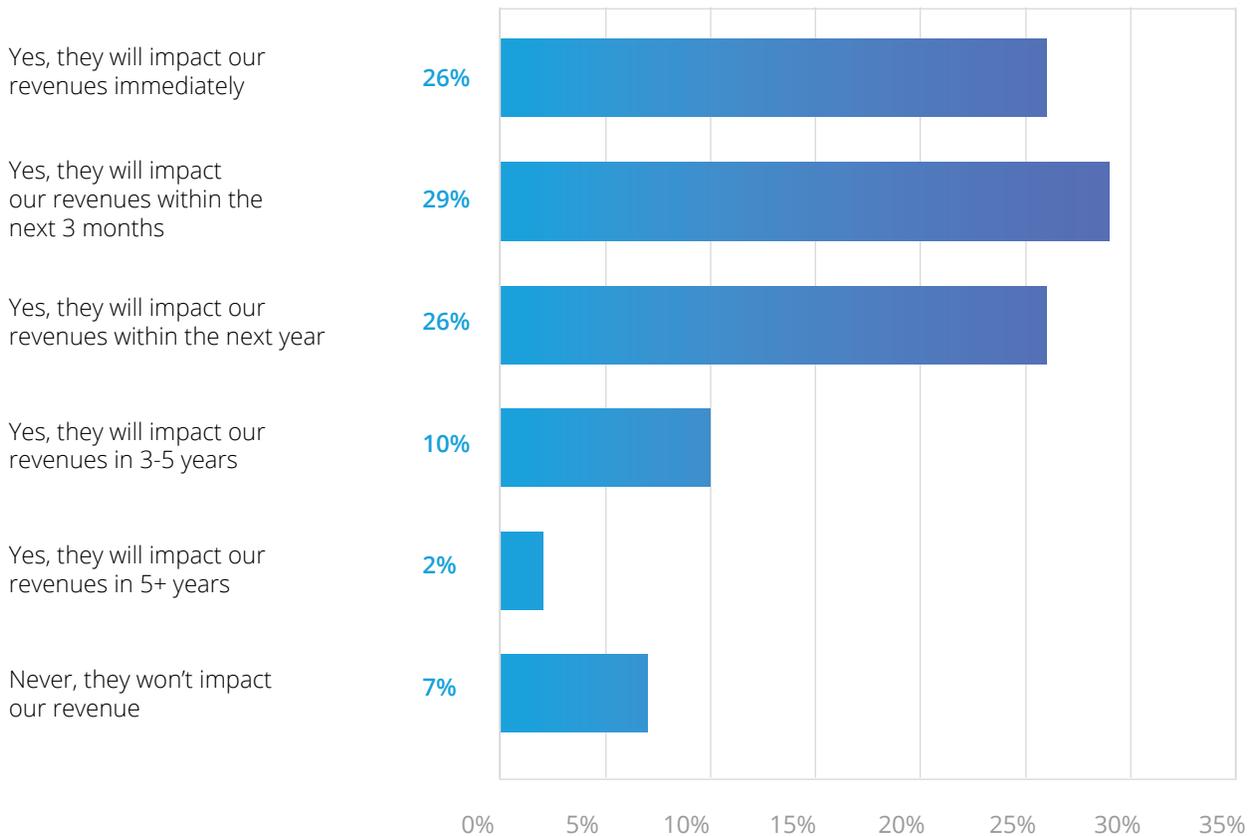


The answer is not very long. Four out of five ITDMs said that if their organization’s digital transformation initiatives were not successfully completed, then it will negatively impact their revenue within the next year. It seems likely that digital transformation could make or break a lot of organizations in the coming years.



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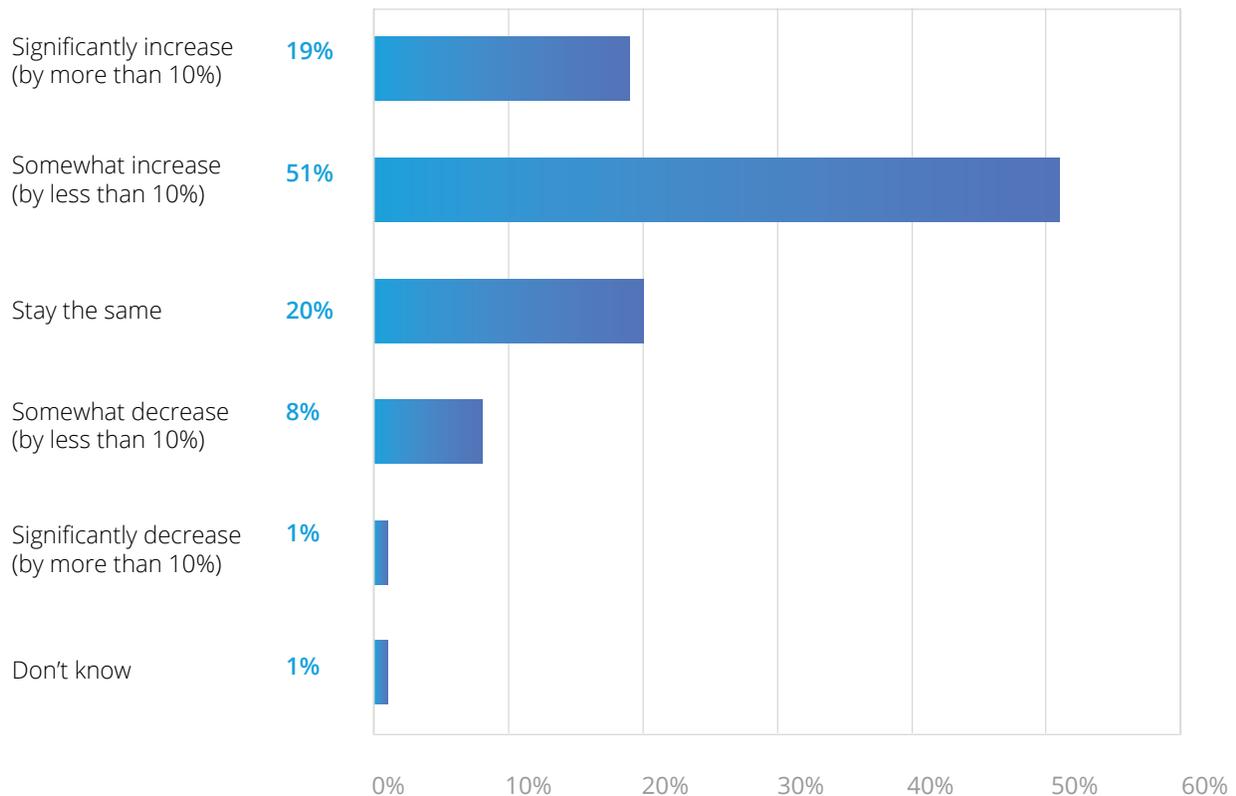
Do you think your digital transformation initiative(s) will impact your organization’s business revenue negatively if they aren’t successfully completed?



4 The IT delivery gap continues to widen

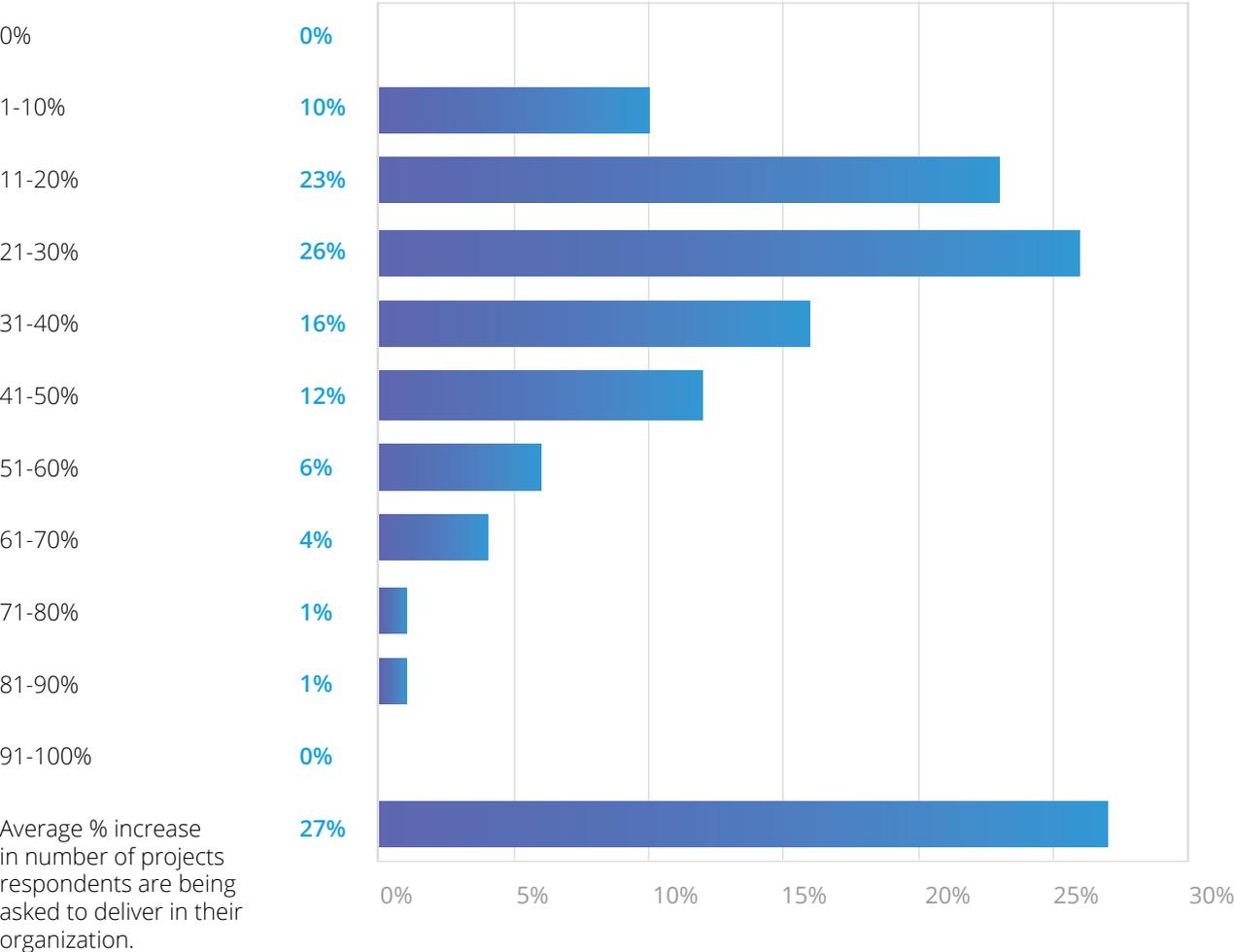
This pressure to transform comes at a time when IT budgets have remained relatively static, but IT is simultaneously being asked to deliver more projects to the business than ever before. Never has the term “do more with less” been so prophetic for ITDMs. The Connectivity Benchmark Report 2018 reveals that 71% of ITDMs say their IT budget will either increase by less than 10%, or will stay the same in the coming year.

How will your IT budget change over the coming year?

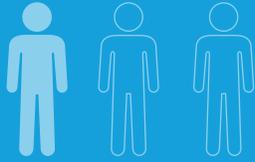


Yet nearly all of the surveyed ITDMs said the number of projects they are being asked to deliver in their organization is increasing; on average, they reported a 27% increase in projects since last year.

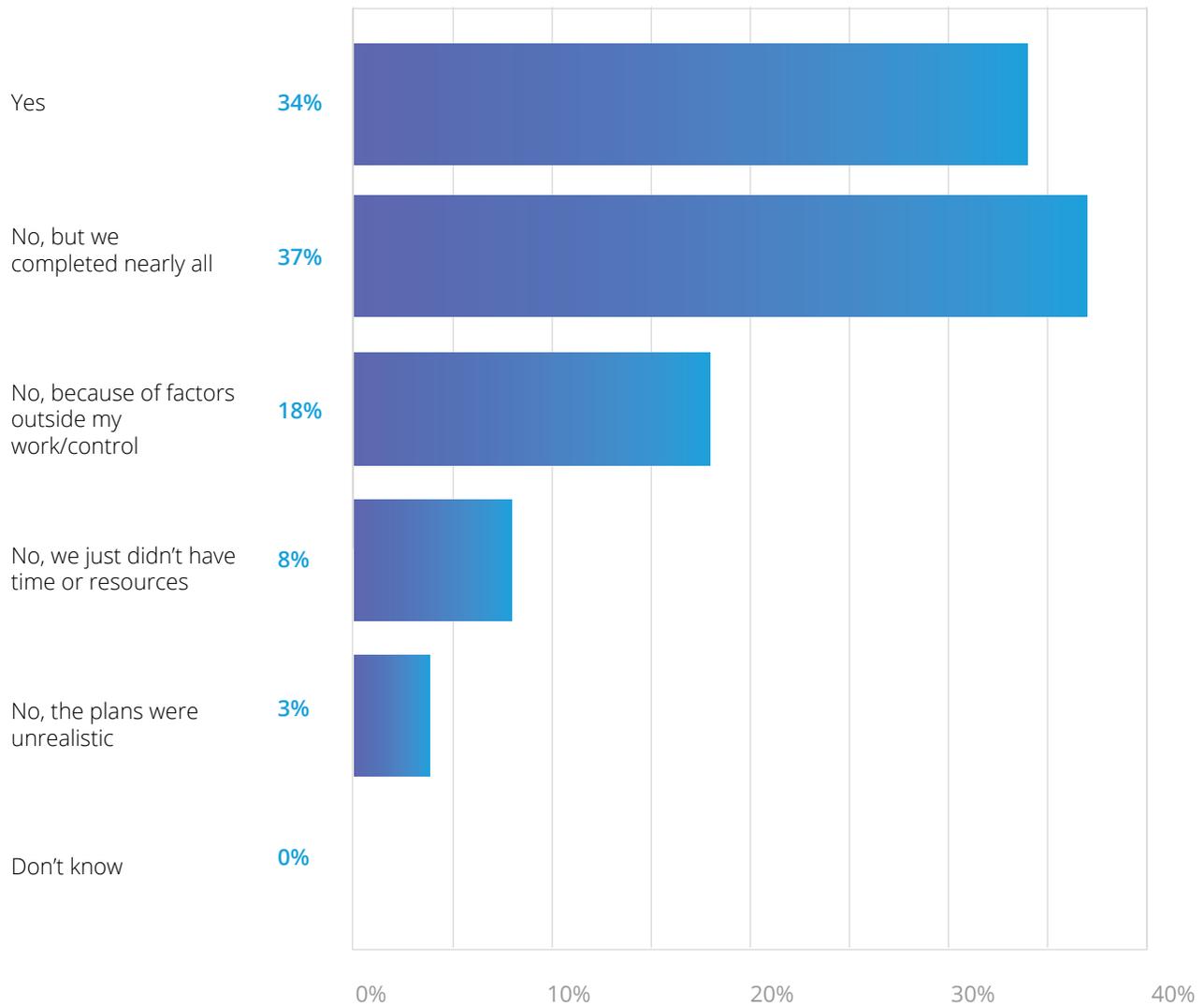
By what percentage are you finding the number of projects you are being asked to deliver in your organization is increasing?



Against this backdrop, it is hardly surprising that the IT delivery gap is widening at an alarming rate – with ITDMs struggling more than ever to deliver all the projects asked of them. Two-thirds of ITDMs admitted they were not able to deliver all of the projects asked of them last year.



Two-thirds of ITDMs admitted they were not able to deliver all of the projects asked of them last year.



5 Why point-to-point integration must die (even if it is sometimes necessary)

Respondents identified that a major obstacle to digital transformation was integration. And organizations have a lot to integrate. Driven by trends such as cloud, mobile, and 'shadow IT', the number of applications used by companies today is huge. Our Connectivity Benchmark Report 2018 reveals that, on average, organizations are using 1,020 individual applications across their business.

A common way organizations tackle the challenge of connecting applications together is by custom coding their applications and APIs — often referred to as point-to-point integration. For an organization with two applications, this is not an issue. But if your organization is like our respondents and has an ecosystem of over 1,000 applications, this level of tight coupling can create issues when changes occur. Loose coupling reduces dependencies between components so that the impact of change is isolated.

1,000+

On average, large organizations are using more than 1000 individual applications across their business.

How many different, individual applications do you think are in use in your organization?

1,020

Average number of different, individual applications that respondents think are in use in their organization

Despite the huge number of individual applications organizations use, a relatively small number (29%) are integrated or connected together.

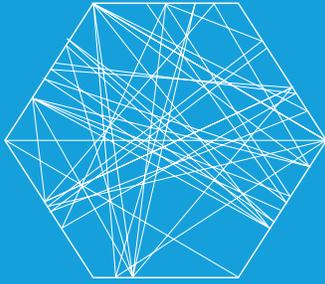
What percentage of these applications does your organization currently integrate/connect together?

29%

Average percentage of applications that respondents' organizations currently integrate/connect together

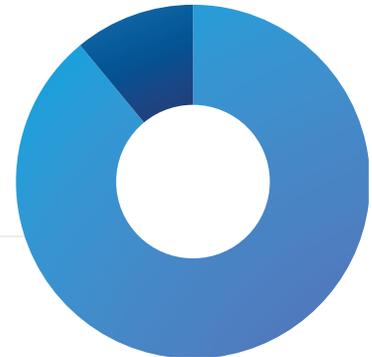
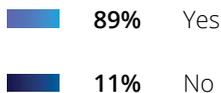
These figures highlight two things. First, integration continues to pose a challenge for most organizations. Second, there is still a huge opportunity for organizations to increase business efficiency and innovate by integrating and connecting more of their applications.

The vast majority (89%) of ITDMs believed that integration challenges are slowing or hindering digital transformation in their organization. In fact, 81% said point-to-point integration had created the biggest IT headaches they had seen.

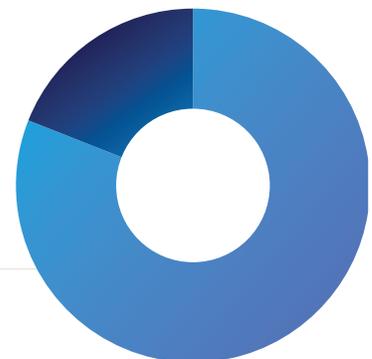
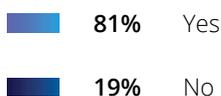


The vast majority (89%) of ITDMs believed that integration challenges are slowing or hindering digital transformation in their organization. In fact, 81% said point-to-point integration had created the biggest IT headaches they had seen.

Are integration challenges slowing/hindering digital transformation in your organization?

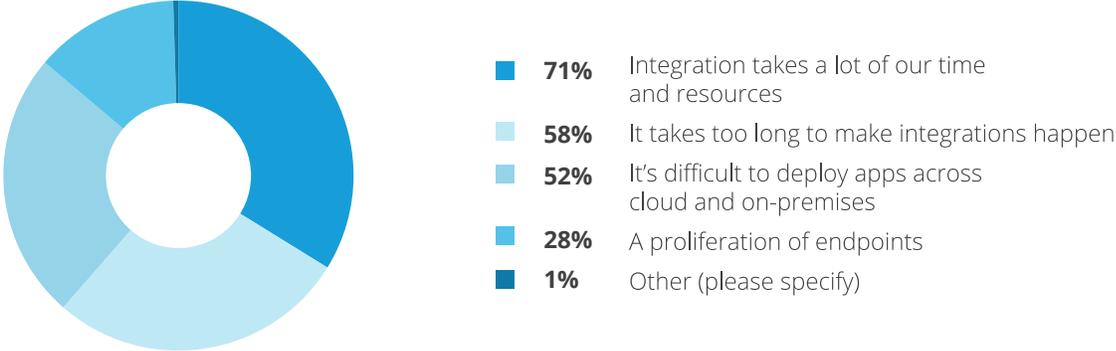


Would you agree that point-to-point integration has created some of the biggest IT headaches you have seen in your organization?



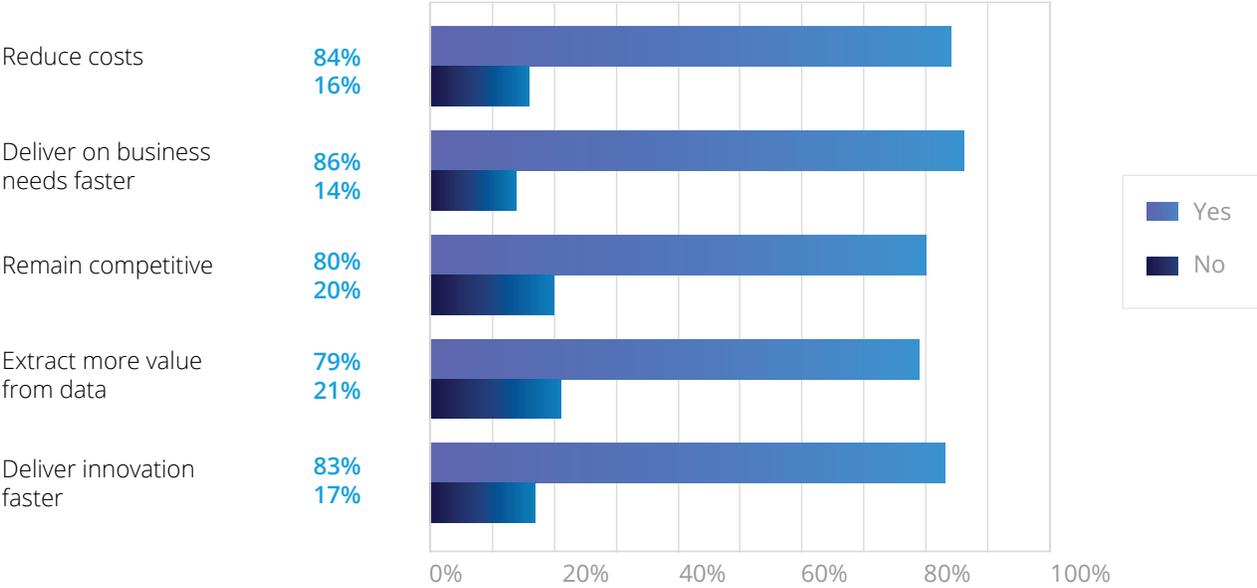
When asked specifically what headaches were being caused by point-to-point integration, taking up too much time and resource (71%), taking too long for integrations to happen (58%), and difficulties in deploying applications across cloud and on-premise (52%), were cited as the biggest issues.

Can you be specific on what the headaches caused by point-to-point integration are? (From those who answered yes for previous question)

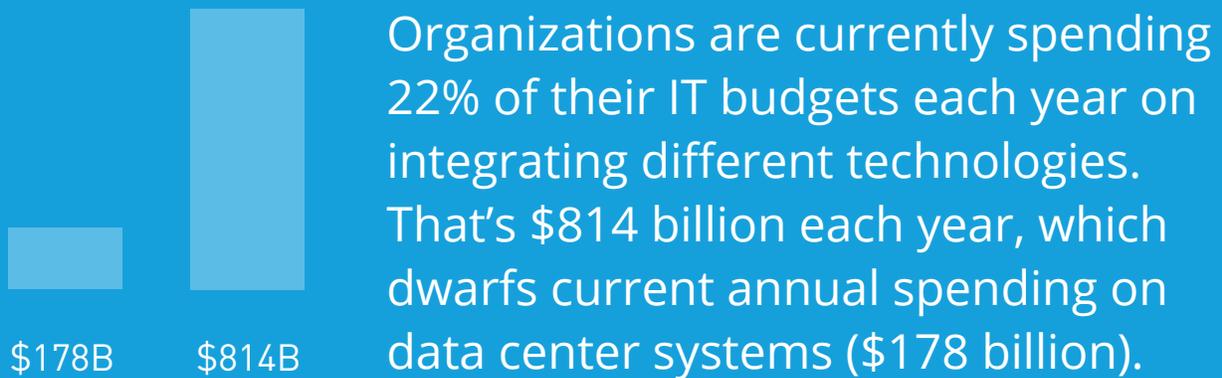


These challenges are clearly a source of huge frustration; so much so that eight out of ten ITDMs said point-to-point integration must die in the next five years if they are to reduce costs, deliver on business needs faster, deliver innovation faster, remain competitive, and extract more value from their data. While there are times when point-to-point integration is necessary, it's clear that relying on it too much is causing IT decision makers big problems.

Do you believe that point-to-point integration must die in the next 5 years if organizations are to:



It is clear that integration challenges are contributing directly and indirectly to IT departments being unable to deliver all the projects being asked of them. In fact, the research shows that organizations are currently spending 22% of their IT budgets each year on integrating different technologies. Put another way – that equals \$814 billion each year, which dwarfs current annual spending on data center systems (\$178 billion)². With the pressure on to digitally transform, organizations can no longer afford integration to be a drain on time, resource, and budget.



On average, how much of your IT budget is spent each year on integrating different technologies?



² 22% of latest Gartner IT spending estimate for 2018 | <https://www.gartner.com/newsroom/id/3845563>

6 Overcoming an inefficient IT model

It is apparent that organizations need to adopt a more efficient IT model, which requires both a cultural and technological change. On the face of it that is easier said than done, as ITDMs continue to face the age-old dilemma of 'keeping the lights on' versus 'innovating'. As the figures show, IT departments are spending nearly two-thirds (63%) of their time on 'running the business' activity, compared to innovation and development projects.

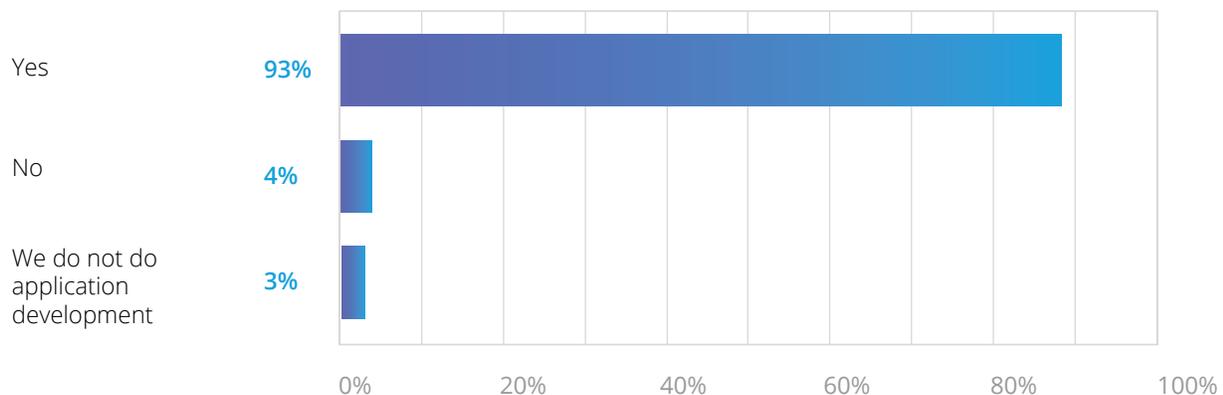
What percentage of your time is spent on running the business (i.e. keeping the lights on) compared to innovation and development projects that are designed to change the business?

63%

Average percentage of respondents' time spent on running the business compared to innovation and development projects

When it comes to building new applications and services, it is still very common for development teams to work in isolation, meaning organizations are unable to discover and reuse the assets that have been created. This can often result in a duplication of effort as new applications and services are built from the ground up. Unsurprisingly, the vast majority (93%) of ITDMs admit their application development process could be more efficient.

Do you think your organization's application development process could be more efficient?



So how can organizations recalibrate their IT model to ensure they aren't spending too long keeping the lights on and doing the same projects over and over, instead of innovating? Organizations are now starting to recognize the problem and adopt new approaches to application development. The concept of reusing assets to make application development more efficient has been around for some time. But in most companies, software components and assets (e.g. code, APIs, best practice templates) often can't be reused by other applications. The Connectivity Benchmark Report 2018 reveals that just a third of organizations' internal IT software assets and components are available for developers to reuse. Further, 83% of respondents went as far to say that their organization does not always reuse software assets when it comes to developing new products and services.

What percentage of your organization's internal software assets and components (e.g. code, APIs, best practice templates) are available for developers to reuse?

33%

Average percentage of respondents' organizations' internal software assets and components that are available for developers to reuse

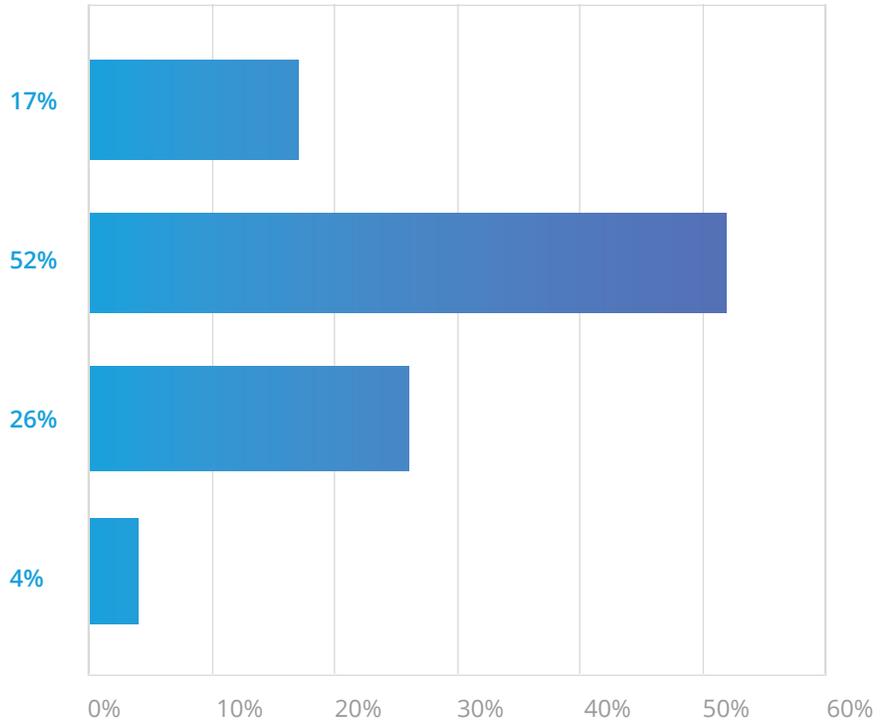
Which of the following statements best applies to your organization?

We always reuse software assets (e.g. code, APIs, and design templates) when it comes to developing new products and services

We frequently reuse software assets when it comes to developing new products and services

We occasionally reuse software assets when it comes to developing new products and services

We never reuse IT assets when it comes to developing new products and services



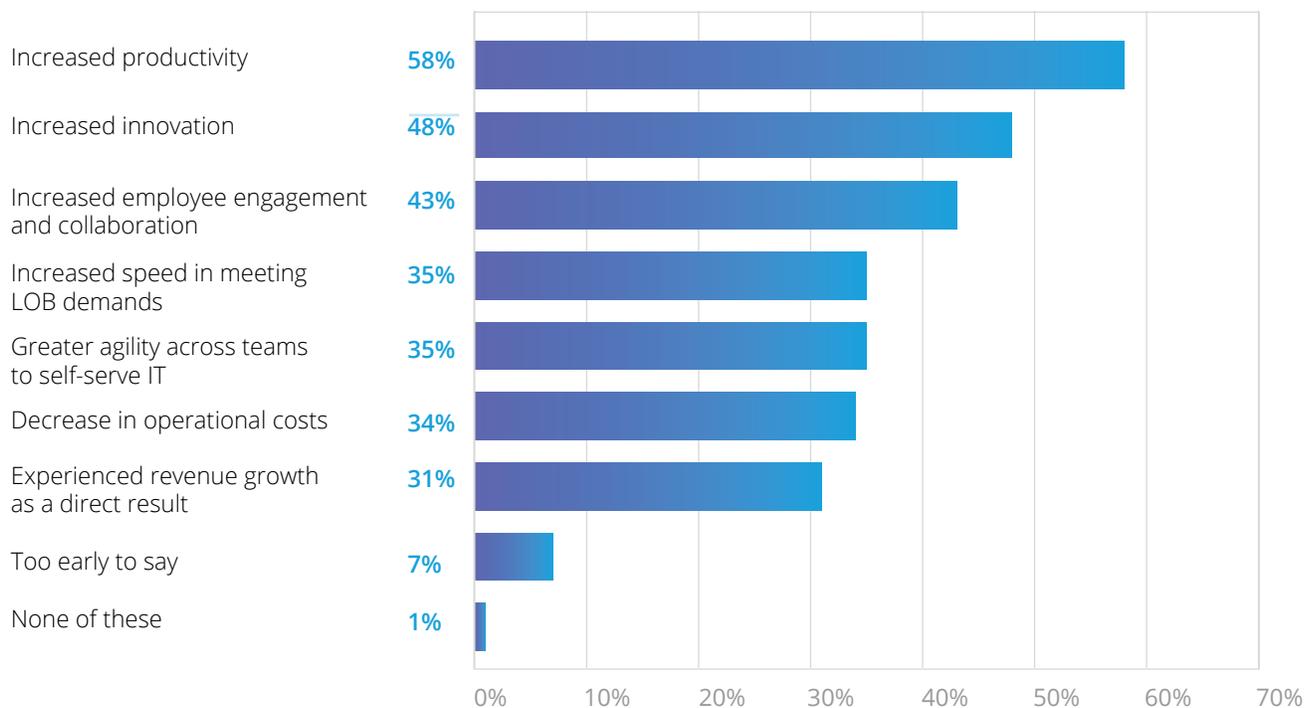
If organizations are to deliver digital transformation and innovate more quickly, being able to discover, connect, and reuse these software assets through APIs will be essential. By doing this, organizations will be able to move to a self-service model where anyone within the business can go to an API marketplace to find APIs and integration assets, which will allow them to connect applications and data. This will ultimately remove the need for costly and time-consuming bespoke integration projects. The research highlights that the vast majority (93%) of ITDMs believe that IT self-service will be critical to their digital transformation success. It seems the days of IT keeping tight hold of the reins may be coming to an end.

7 The API imperative

An API strategy is critical to thriving in today's digital economy. Expanding the capabilities of the business by becoming a digital platform allows organizations to increase their profits dramatically. APIs also unlock the value of internal data, making it easy for people throughout the business to consume data and applications in an easy and standardized way.

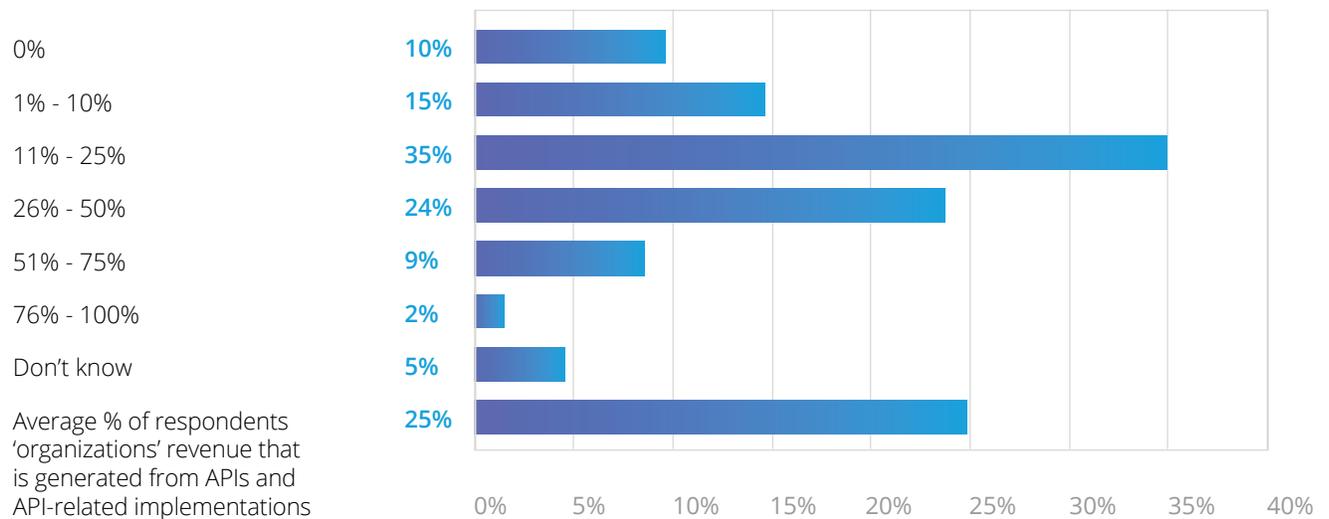
From those organizations that own APIs, more than half have been able to leverage them to increase productivity; while nearly half have increased innovation and employee engagement, and collaboration. The research also shows that organizations have been able to increase IT self-service and decrease operational costs through leveraging APIs.

What business result(s) has your organization realized from leveraging APIs?



On average, ITDMs report that a quarter of their organization’s revenue is now generated from APIs and API-related implementations. More than a third (35%) of respondents stated that over a quarter of their organization’s revenue came from APIs. These are further indicators that more and more organizations are starting to realize the benefits of having an API strategy and the financial benefits it can bring.

What percentage of your organization’s revenue is generated from APIs and API-related implementations?





Vertical market insight

Is your company currently undertaking digital transformation initiatives?

	Healthcare (public and private)	Financial Services	Retail
Yes	69%	83%	73%
Not yet, but in the next year	20%	6%	18%
Not yet but in the next 2 years	5%	4%	7%
Not yet but in the next 3 years	4%	4%	0%
Not yet but in the next 4 years	0%	0%	1%
Not yet but in the next 5 years	0%	0%	0%
No	2%	4%	1%

The research reveals that the majority of financial services organizations have embarked on digital transformation initiatives. This is understandable considering the dramatic disruption in the industry being driven by innovative fintechs and open banking regulations. While healthcare providers and retailers are currently slightly further behind on their journey, the research shows that the vast majority will be undertaking digital transformation initiatives in the next year.

What are the goals you would most like to achieve with your digital transformation initiatives in your organization?

	Healthcare (public and private)	Financial Services	Retail
Increase IT's operational efficiency	75%	75%	80%
Improve customer experience	64%	77%	77%
Increase business efficiency	75%	64%	71%
Introduce new products and services faster	60%	52%	57%
Improve employee experience	43%	47%	57%
Improve partner experience	32%	24%	26%
Other (please specify)	0%	0%	0%

Increasing IT's operational efficiency, improving the customer experience, and increasing business efficiency were the top three goals for digital transformation. Improving the customer experience was an area of particular focus for both financial services organizations and retailers, sectors where the battle for customers is becoming increasingly fierce.

What are the most important initiatives that you will work on to achieve your organization's business goals?
 (Combination of responses ranked first, second or third)

	Healthcare (public and private)	Financial Services	Retail
Modernizing legacy systems	45%	33%	33%
Integrating SaaS apps	33%	30%	27%
Investing in mobile apps	32%	28%	33%
Migrating apps to the cloud	40%	31%	20%
Setting up an eCommerce platform	27%	28%	32%
Automating business processes	27%	36%	19%
Developing an omnichannel strategy	14%	26%	25%
Improving customer onboarding	14%	24%	25%
Introducing new products and services faster	12%	17%	14%
Improving sales productivity	10%	9%	19%
Improving employee onboarding	7%	8%	14%
Rationalizing your product portfolio	10%	7%	10%
Improving partner onboarding	7%	6%	10%
Reconciling systems acquired through M&A	6%	5%	2%
Other (please specify)	0%	0%	0%

The Connectivity Benchmark Report 2018 does reveal that initiatives do vary somewhat by sector. For instance, automating business processes is a big focus for financial services organizations, whereas in retail, the focus is on investing in mobile applications and setting up e-commerce platforms. In healthcare, modernization seems to be the name of the game – with legacy modernization and migrating applications to the cloud cited as the most important initiatives.

How will your IT budget change over the coming year?

	Healthcare (public and private)	Financial Services	Retail
Significantly increase (by more than 10%)	15%	15%	21%
Somewhat increase (by less than 10%)	47%	53%	55%
Stay the same	13%	21%	20%
Somewhat decrease (by less than 10%)	16%	8%	3%
Significantly decrease (by more than 10%)	6%	1%	1%

For three-quarters of financial services organizations and retailers, IT budgets will either stay the same or increase by less than 10%. However, encouragingly for a fifth of retailers, they will see a budget increase of more than 10% this year. Interestingly, in healthcare, IT budgets appear a lot tighter with 60% of ITDMs stating they will either stay the same or increase by less than 10% - a further 22% said their budget would decrease this year.

Were you able to deliver all the projects asked of you last year?

	Healthcare (public and private)	Financial Services	Retail
Yes	20%	27%	34%
No, but we completed nearly all	42%	32%	40%
No, because of factors outside my work/control	21%	24%	16%
No, we just didn't have time or resources	9%	11%	6%
No, the plans were unrealistic	7%	6%	4%
Don't know	1%	0%	0%

Project delivery issues were particularly acute in financial services and healthcare, where 73% and 80% of ITDMs respectively were unable to deliver all of their projects.

How many different, individual applications do you think are in use in your organization?

	Healthcare (public and private)	Financial Services	Retail
Average number of different, individual applications that respondents think are in use in their organization	917	1259	1054

The research reveals that financial services organizations use on average 1,259 individual apps which is significantly more than the global average (1,020). Despite the large number of individual applications organizations use, a relatively small number (29%) are integrated or connected together.

What percentage of these applications does your organization currently integrate/connect together?

	Healthcare (public and private)	Financial Services	Retail
Average percentage of applications that respondents' organizations currently integrate/connect together	27%	27%	31%

Across all sectors, a relatively small number of applications are integrated or connected together. Driven by the need to connect different retail systems and deliver a more connected experience to customers, it perhaps isn't surprising that retailers have done the most integration. However, they still have only integrated just under a third of their applications.

What percentage of your organization’s revenue is generated from APIs and API-related implementations?

	Total	Healthcare (public and private)	Financial Services	Retail
0%	10%	26%	11%	6%
1% - 10%	15%	18%	16%	10%
11% - 25%	35%	32%	39%	36%
26% - 50%	24%	19%	19%	33%
51% - 75%	9%	3%	9%	9%
76% - 100%	2%	0%	2%	4%
Don't know	5%	2%	4%	1%
Average percentage of respondents' organizations' revenue that is generated from APIs and API-related implementations	25%	15%	23%	29%

Currently, retailers are generating approaching a third of their revenue from APIs and API-related implementations. In fact, 42% stated APIs generate more than a quarter of revenue. In contrast, healthcare providers are only generating 15% of revenue. This may be because healthcare organizations are very late to the game when it comes to digitization at all. For example, many hospitals were not using electronic records even 10 years ago. It follows that they may also be behind in adopting ways to monetize through APIs.

9 IT trends for 2018

When ITDMs were asked about the technology areas they are currently investing in or planning to invest in, big data /analytics (57%), and Internet of Things (52%) were the biggest areas of focus, followed by a multi-cloud strategy (44%) and AI / machine learning (43%). The big focus on big data and analytics is understandable as this will be key to deriving value from IoT and AI / machine learning initiatives in the future.

Which of the following technologies is your organization currently or planning to invest in?

	Total
Big data/analytics	57%
Internet of Things	52%
Multi-cloud strategy	44%
AI/machine learning	43%
Virtual reality/augmented reality	34%
Voice recognition	33%
API monetization	29%
Streaming big data	28%
Blockchain	28%
Bots (chatbots + RPAs)	18%
BYO PaaS (PCF, OpenShift)	18%
CI/CD and monitoring	15%
Streaming events	14%
Other (please specify)	0%
None of these	3%

Another key trend for 2018 is creating a connected consumer experience — e.g. improving customer experience through connecting all customer-facing systems. Undoubtedly, improving the customer experience is an area where many organizations can do better. It isn't surprising that 92% of ITDMs say creating a connected user experience for both employees and customers is a priority for their organization. Currently, only 39% of organizations say they offer a completely connected user experience across all channels. This data corroborates the findings of MuleSoft's Connected Consumer Report, which reveals more than half of consumers feel they receive a disconnected experience from banks, retailers, insurers and public services.

How much of a priority is it for your organization to create a connected user experience for employees and customers?

	Total
Very much a priority	50%
Somewhat of a priority	42%
Not very much of a priority	7%
Not a priority at all	1%

To what extent does your organization provide a connected user experience across all channels?

	Total
We provide a completely connected user experience across all channels	39%
We provide a somewhat connected user experience across all channels	51%
We don't provide a connected user experience across all channels	10%

10 Conclusion

At a time when budgets and resources remain tight, it is clear that the old approach of IT trying to deliver all the projects itself won't work for the fast pace of change. IT decision makers are telling us that their workloads are increasing, their budgets and resources are only going up slightly, and the pressure is on to complete the digital transformation initiatives that they are now tasked with or else the consequences could be severe.

IT decision makers know that it's time for a change. Digital transformation isn't just a matter of buying new software and hoping it solves all problems; the number of applications they are integrating and traditional integration approaches are simply creating new issues. IT decision makers investing in APIs, reusable software assets, and more efficient ways of developing applications suggest they are thinking about new solutions to these challenges.

For more about how MuleSoft is transforming how IT functions in the modern enterprise, and real-life case studies on how a number of companies have overcome obstacles to digital transformation, take a look at MuleSoft founder Ross Mason's book, [First Break IT](#).

The survey was commissioned by MuleSoft and independently carried out by Vanson Bourne. The total sample size was 650 IT Decision Makers (ITDMs) working at organizations with 1,000+ employees:

US (250 ITDMs), UK (100 ITDMs), Germany (75 ITDMs), Netherlands (50 ITDMs), Australia (50 ITDMs), Singapore (50 ITDMs) and China (75 ITDMs). Fieldwork was undertaken in November / December 2017.