



Global Research Report

In association with



Exploiting the Software Advantage

Lessons from Digital Disrupters

October 2015

Executive Summary

Exploiting the Software Advantage

Lessons from Digital Disrupters

Advances in digital technology and communications have already led to dramatic changes in customer behavior and expectations. These trends are set to continue as the web becomes ever more interactive, the devices we use get even smarter, and the software that enables it all grows in power, richness and sophistication. Against this background, a number of imperatives have emerged for enterprises in all industries.

Prepare for continued market disruption

Leveraging the power of software, market leaders and challengers can exploit broader technology and customer trends to rapidly and cost effectively enhance existing products and services, or bring whole new classes of digitally-enabled offerings to market. Barriers to market entry are coming down, often totally undermining the competitive status quo. Add into the mix the impact of digital techniques that support entirely new engagement and business models, and significant and continued market disruption is inevitable.

Drive disruption within your own organization

In order to succeed in fast-moving digital markets, some key aspects of your business are likely to require significant change. Some processes may need to be totally transformed, and traditional tools replaced or augmented with more up-to-date, flexible and efficient options. Such changes are collectively described as 'digital transformation', and there's no avoiding the fact that this will be disruptive. The alternative, however, is being continually constrained in your ability to succeed in the digital world.

Learn from those who are achieving the best results

A recent global research study has provided insights into how the imperatives translate to actionable specifics. Those achieving high returns from digital investments embrace or drive the kind of market and organizational disruption we have mentioned. The research tells us that these 'Digital Disrupters' have a number of traits in common.

Digital Disrupter Traits

- 1 High emphasis on emerging digital channels to the customer
- 2 Confident exploring new avenues to keep the value flowing
- 3 Strong appreciation of the role of software and apps
- 4 Focus on modern software development and delivery methods
- 5 More coherent and collaborative approach within IT
- 6 Exploitation of APIs for internal speed and efficiency
- 7 Managed use of APIs to engage the developer ecosystem
- 8 Use of digital to drive core business efficiency and effectiveness
- 9 Conscious reallocation of resources to fund digital investments
- 10 Focus on smarter management of investments to maximize ROI

The Software Imperative

Key statistics:

Compared to their mainstream peers, Digital Disrupters are:

3.5x

more likely to recognize the importance of being a software-driven business

2.5x

more likely to use agile software development techniques

2.5x

more likely to have broadly implemented DevOps

2x

more likely to leverage APIs to optimize internal development

2.8x

more likely to use APIs to enable the third party developer ecosystem

2x

more likely to implement portfolio management to maximize ROI

Results based on a global online survey of 1,442 IT and business professionals completed during June and July 2015.

Introduction

The world is changing, and it's changing fast. Markets are being continually disrupted as a result of advances in digital technology and communications. If you're going to keep up - let alone get ahead - you are likely to have to deal with disruption internally within your business too. Many traditional organization structures, processes and systems, while familiar, proven and well-established, will increasingly fall short of meeting the needs of today's highly connected, fast moving and digitally-enabled world. If you don't change or modernize these proactively, you end up doing it on someone else's terms.

The process of implementing such changes is known as 'digital transformation'. As the name suggests this is about exploiting modern technology and communications to transform one or more key aspects of your business to achieve a state of digital readiness.

Intimately linked with the concept of digital transformation is effective use of software. When discussing digital, it's easy to get caught up in the attraction of highly desirable mobile devices, or the impressive capacity and throughput now offered by modern IT infrastructure. But none of this counts for anything without the software that enables the delivery of effective, engaging and secure apps, applications and services.

In this paper, we will be exploring digital transformation and the role of software in more detail. Along the way we will draw on insights derived from a global research study in which input was gathered from 1,442 IT and business professionals.

Let's kick off our discussion with a look at aspirations and associated activity in this space.

Digital aspirations and initiatives

During our study, a whole range of aspirations came to the fore when participants were asked to indicate their top three drivers for embarking on digital initiatives (Figure 1).

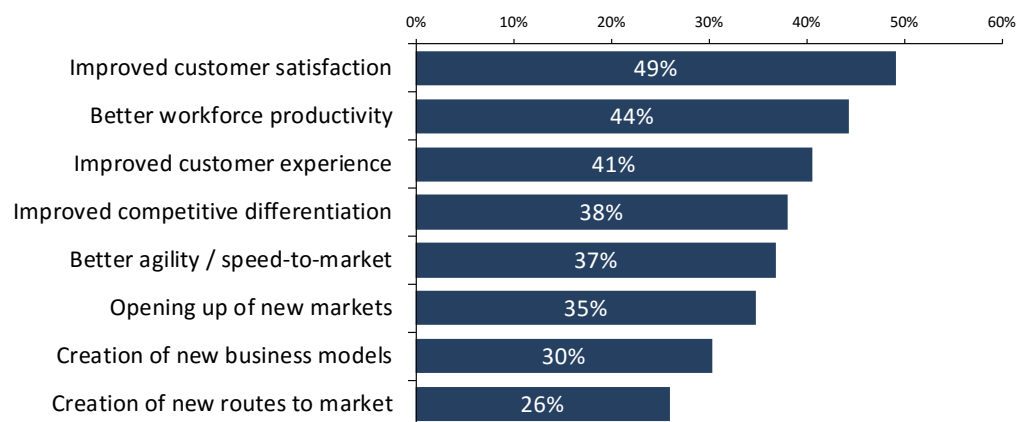


Figure 1

Beyond high level revenue and profit motives, which are the top three drivers, or potential drivers, of digital initiatives in your organization?

“Digital transformation has produced new services for customers and changed the way we work internally.”

*Operations executive
Global telco/service provider*

What's interesting here is the breadth of drivers acknowledged. Digital is clearly viewed as having a role to play in enabling developments and enhancing results across many aspects of the business. It's therefore no surprise that the majority of respondents indicated recent, ongoing or planned initiatives in pretty much every functional area, including customer services, workforce optimization, sales and marketing, product/service development, operations and delivery, and supplier/partner integration. Most organizations are currently active (i.e. have ongoing digital initiatives) in two to four areas, with the majority (53%) indicating a coordinated, strategic approach.

"We have to be very cognizant not just of developing technologies and solutions, but also of how our customers want to interact with us as a potential supplier."

*Operations executive
Global telco/service provider*

Overall impact and drivers of success

Does digital transformation make a difference? To investigate this we looked at how much some key performance indicators (KPIs) were influenced by digital initiatives.

Contribution to market competitiveness

One of the most striking findings from the research is that the overwhelming majority of study participants confirm a positive impact on market competitiveness, though the level of contribution achieved varies considerably within each area (Figure 2).

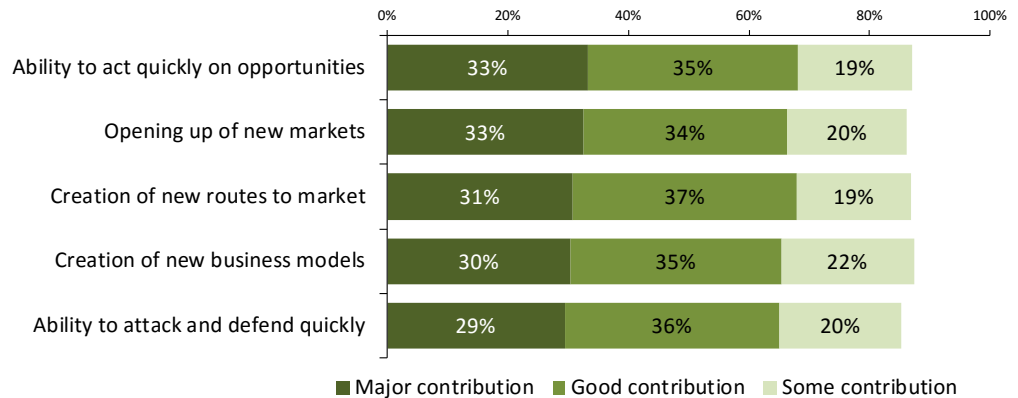


Figure 2

How much would you say your digital initiatives have benefited the business to date in the following areas?

The broad spread of responses from left to right on this chart indicates a wide variation in level of achievement. We can almost imagine what some refer to as 'Digital Darwinism' playing out within our study sample.

Impact on the business scorecard

Market and competitive achievements have in many cases fed through to measurable benefits registered on the 'boardroom-level' business scorecard, and even those yet to see results are generally optimistic (Figure 3).

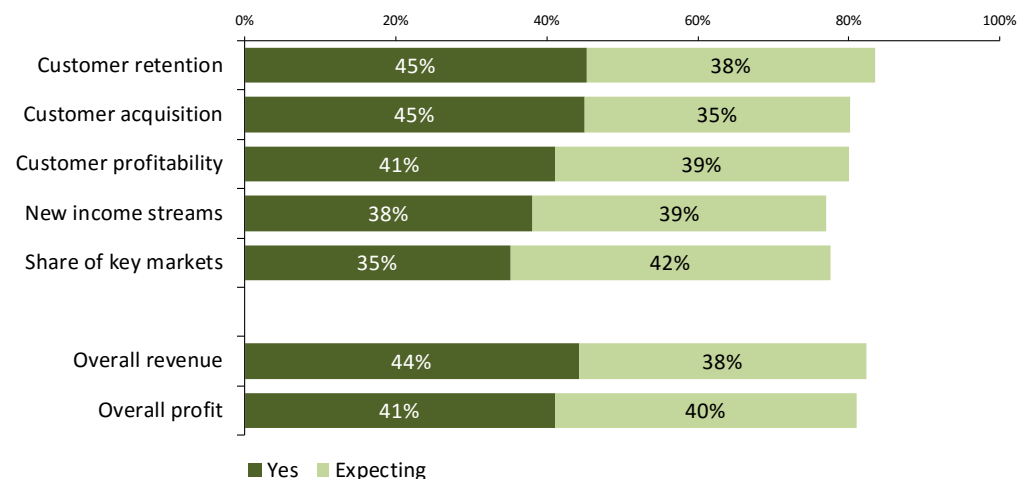


Figure 3

As a result of digital initiatives, have you achieved significant measurable benefits against the following key performance indicators (KPIs)?

What determines the depth and breadth of the benefit realized? To answer this question, we need to explore the results using a different kind of analysis.

The Digital Effectiveness Index (DEI)

Responses relating to market competitiveness and business scorecard metrics were translated into numeric scores then combined to form a 'digital effectiveness index'. Survey participants were then segmented according to their index scores (Figure 4).

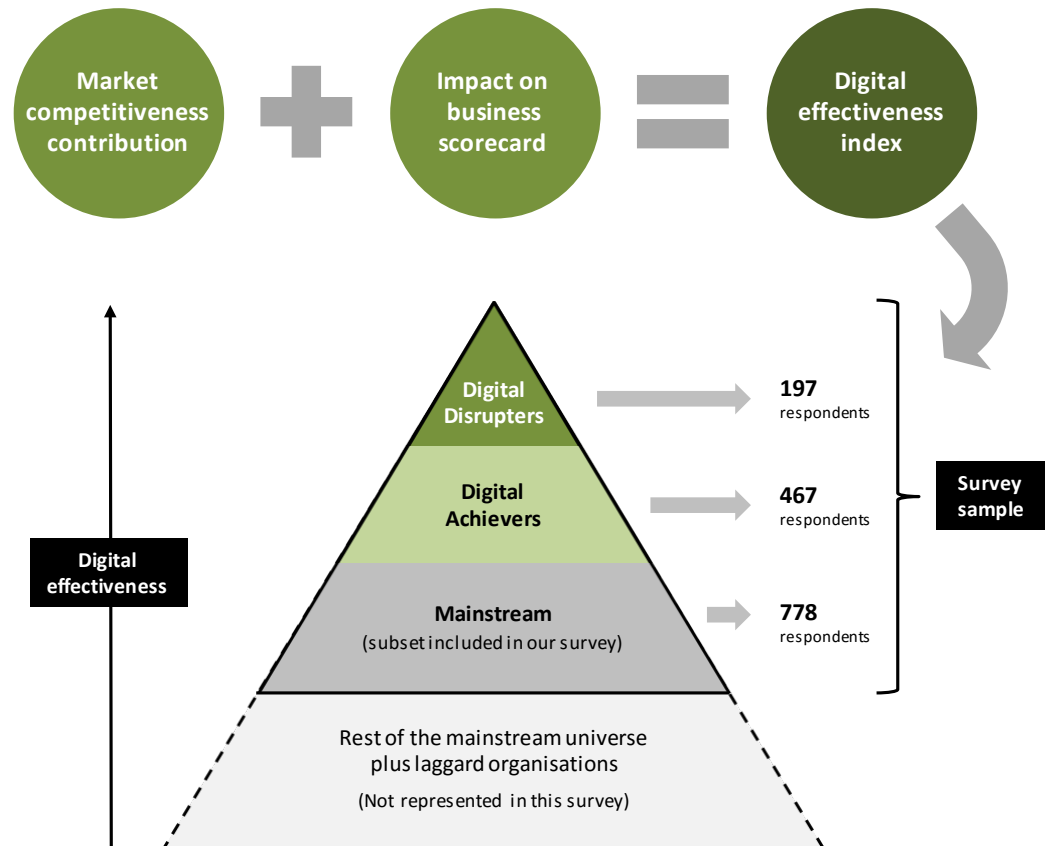


Figure 4
Segmenting respondents by digital effectiveness

"You can now collect data from pretty much anything - cars, planes, and people running along the road with their smart watches. What's changed is we have figured out how to build solutions to exploit this connectivity."

Customer services executive
B2B telco/service provider

At the top, of the pyramid we have a relatively tight but statistically significant group of 'Digital Disrupters' who are achieving particularly high results. We then have a group of 'Digital Achievers' who are doing better than most of their peers, but with significant room for improvement. In the third layer down, we see the Mainstream, made up of what we might think of as 'normal' organizations.

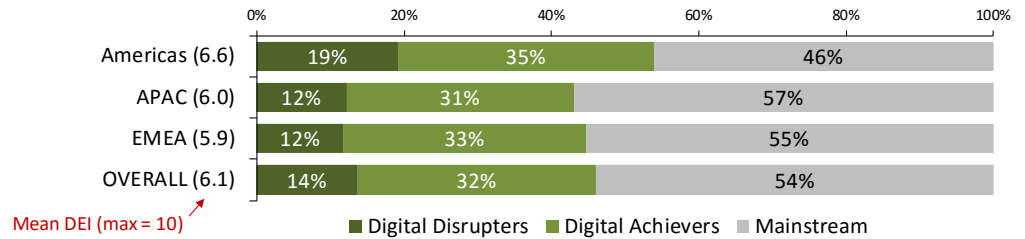
The fourth layer has been shown to indicate that studies like this tend to capture responses from those who are more progressive or advanced. With online questionnaires, respondents 'self-select' into the survey, and they are unlikely to do this if they have limited knowledge and/or interest in the topic covered. Based on this, we can assume that the mainstream is proportionally underrepresented in our sample, and that laggard organizations are unlikely to be represented at all.

The Mainstream group from which responses were actually captured still represents 'normal', we just need to remember that in the broader population this group would naturally be a lot bigger.

Analyzing variations in performance

Segmenting respondents based on their digital effectiveness reveals some interesting perspectives, e.g. the geographic view showing a higher overall average performance in the Americas compared to other regions (Figure 5).

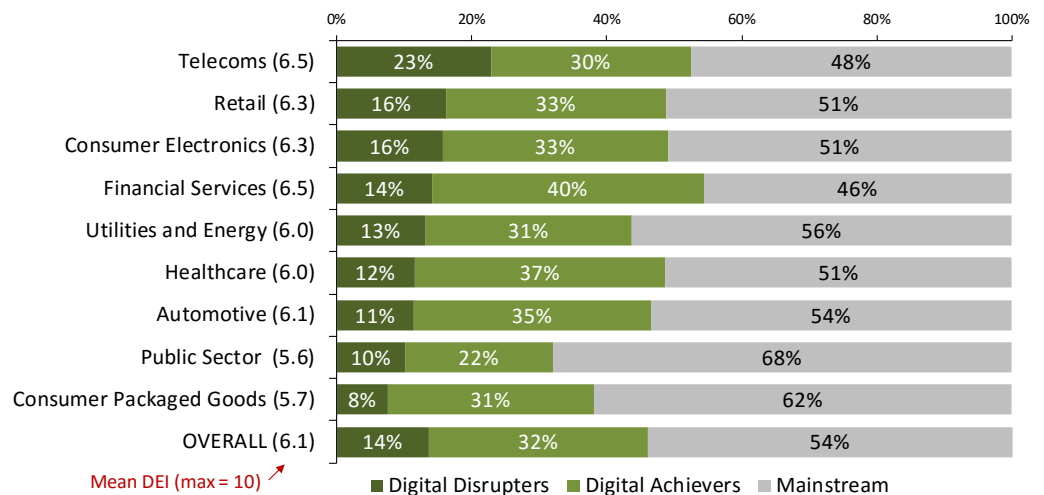
Figure 5
Digital effectiveness by geographic region



While we always need to be careful of cultural and language issues influencing the way in which people respond to surveys, the picture showing the Americas ahead of the game makes sense given the origin of much of the technology that underpins digital initiatives.

Another revealing perspective is the industry view (Figure 6).

Figure 6
Digital effectiveness by industry



It is not surprising to see Telecoms at the top of this list exhibiting the highest proportion of Digital Disrupters. Businesses in this sector have always arguably been inherently digital given the nature of their products and services. The rankings of other industry sectors also generally make sense – we can all think of examples of retailers and financial services companies moving online, consumer electronics becoming more connected, and utilities and energy investing heavily in telemetry and customer self-service, for example.

It is beyond the scope of this paper to drill into lots of geographic and industry-specific detail, but there's arguably a more important higher-level conclusion we can draw from this data. No matter which industry sector or geography we consider, we see examples of exceptional performers at one end of the scale, along with the mainstream majority achieving much more limited results at the other.

With this in mind, the obvious question is what allows the high-achievers to generate such a superior level of benefit. By looking more closely at the behavior of Digital Disrupters in particular, we are able to identify a range of common traits that appear to be determinants of success, regardless of market context.

"As much as possible we try to automate everything to maximize efficiency, to keep up our speed of development and make sure we can react quickly to changing needs or new marketing drives."

Software engineering lead
Global retailer, online division

Ten traits setting Digital Disrupters apart

Whatever their type of business and wherever in the world they operate, Digital Disrupters within the medium-large enterprise space have many things in common. Ten traits were identified that strongly align with the delivery of tangible results.

“We are starting to see a lot more coordination between product development and operations. This is bringing a clarity of purpose, with some streamlining in the way we are organized.”

*Customer services executive
B2B telco/service provider*

Digital Disrupter Traits	
1	High emphasis on emerging digital channels to the customer
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Looking at this list, even at a headline level, we can begin to see that Digital Disrupters gain advantage by adopting some of the same behavior that we see in successful digital start-ups and digital pure-play businesses. Significantly, however, it is also clear that Digital Disrupters bring their operational scale, IT capability and other substantial resources to bear. In this respect digital transformation in a medium/large enterprise context is as much about doing things differently as it is about doing different things.

If we look at some of the detail behind these traits, it is possible to derive a set of lessons that will help any larger organization optimize their digital transformation activity.

“Integration with other apps and devices is key as our aim is to make the car a context and location aware extension of the driver’s overall digital life.”

*Software strategy/delivery lead
Global automotive manufacturer*

Lessons from Digital Disrupters

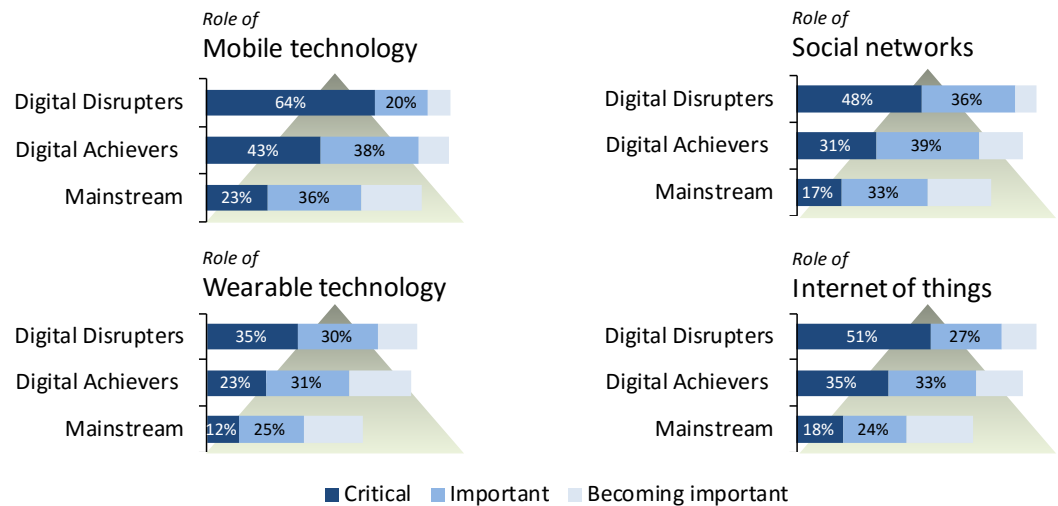
Digital Disrupter trait 1:

High emphasis on emerging digital channels to the customer

While customer engagement should never be the sole focus of Digital Transformation, it is an important part of it. In line with this, Digital Disrupters are between two and three times more likely than Mainstream organizations to regard emerging digital channels to the customer as critical to their business. This even includes newer areas such as wearable technology and the Internet of Things (Figure 7).

Figure 7

Digital channel focus in relation to customer engagement



The lesson here is to appreciate that technology adoption in a personal and home context is developing extremely rapidly, and that this in turn leads to changes in customer behavior, expectations, and interaction preferences.

Digital Disrupters recognize and act on this principle to provide a more up-to-date, compelling and natural set of engagement experiences which enhance the customer relationship, boost satisfaction and loyalty, improve up-sell and cross-sell potential, and ultimately drive up the level of revenue and profit.

In practical terms, providing consistent and harmonious interaction and capability across all channels, digital and traditional, is key to delivering an optimal customer experience.

Digital Disrupter trait 2:

Confident exploring new avenues to keep the value flowing

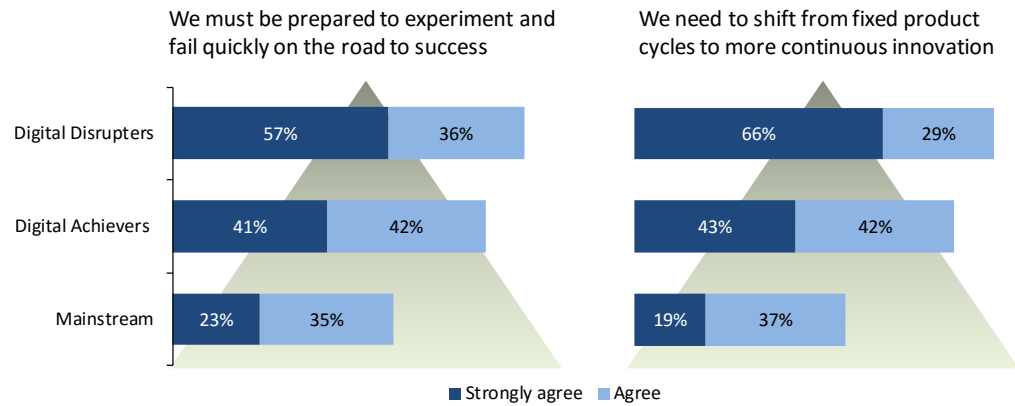
Many businesses, particularly larger ones, are used to traditional discrete product development cycles that often execute over months or years. However, given the way in which technology is lowering barriers to market entry, as well as driving a relentless increase in the general pace of business, taking this amount of time to deliver customer value is a luxury few will be able to afford in the future.

Against this background, Digital Disrupters appreciate the need for a much more fluid and iterative approach. Part of this is about shifting from fixed product lifecycles to more continuous innovation, but our top performers also know that you need to be willing to experiment and fail quickly along the way (Figure 8).

“We are trying to focus less on the milestones, and more on continuous delivery of value. You’ve also got to be the first sometimes.”

*Operations executive
Global telco/service provider*

Figure 8
Experimentation and innovation



Of course it's important to recognize that the iterative approach isn't inherently suitable for everything you do. Some products, for example, have an unavoidably long lead time between conception and market launch. This may be because of the amount of design, engineering or tooling involved, the lengthy nature of safety or compliance approval processes, or simply the inherent complexity of what you are building. That doesn't mean, however, that you can't innovate around the edges of the product with value-added services, new delivery models, and more.

Digital Disrupter trait 3:

Strong appreciation of the role of software and apps

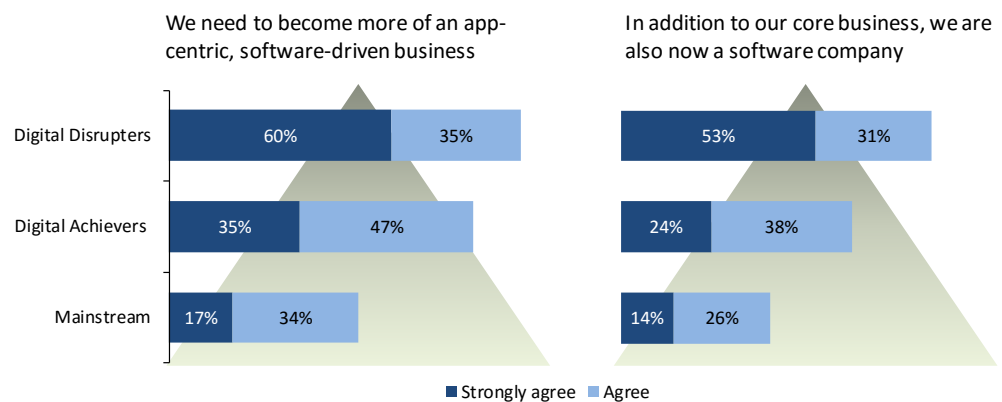
As we said at the outset, your business will become increasingly dependent on the software and apps that underpin your digital capability. Software, in effect, becomes a key enabler of efficiency, effectiveness, competitiveness and ultimate success.

It is therefore not surprising to see Digital Disrupters having a much more acute sense of the need to become a more app-centric, software-driven business, to the extent of many believing that in addition to their core business, they also now consider themselves to be a software company (Figure 9).

"We have based our infotainment team in Silicon Valley because we need to be at the forefront of software innovation."

Software strategy/delivery lead
Global automotive manufacturer

Figure 9
The role of software



Another way of thinking about this is that software development and delivery is in many cases shifting from being a peripheral support activity to a fundamental and integral part of the way the business evolves, differentiates and goes to market. With this in mind, it could be argued that an ability to build and deploy software effectively and efficiently should nowadays be considered a core competence, whatever industry you are in.

“Digital is promoting new forms of business. One of the things we’ve learned, which is a big lesson in our industry where we often obsess about control, is that we need to partner to bring new and competitive offerings to market”

*Customer services executive
B2B telco/service provider*

Of course it’s perfectly legitimate to rely on professional services in this area, but if you do it’s important to make sure you are working with the right kind of organizations. To be effective in the digital transformation context, the firms you use must maintain a clear understanding of your business and its priorities, and be willing and able to respond quickly and smoothly to assure continuous delivery of value.

But if you are cultivating your internal software delivery function, it’s important to recognize that you need the right kind of skills, expertise and approach.

Digital Disrupter trait 4:

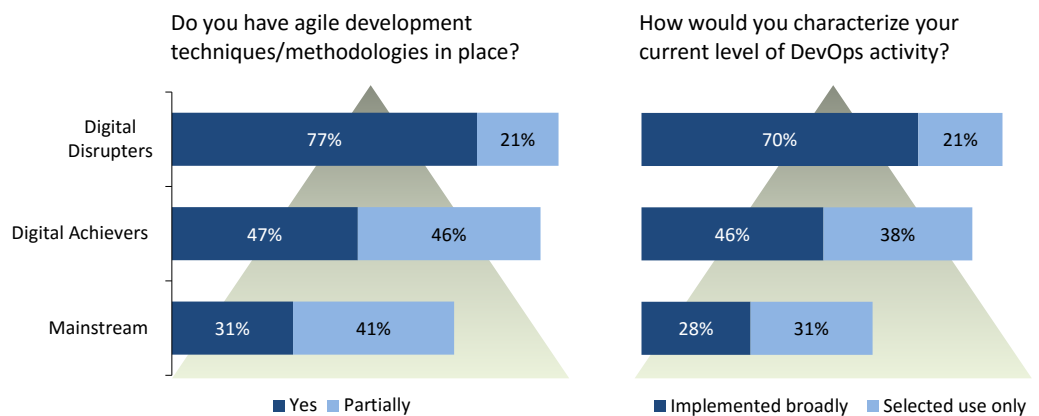
Focus on modern software development and delivery methods

One of the challenges with traditional software development and delivery methods is that they were designed for a slower-moving and more predictable world. As with product and service development within your core business, project lifecycles in software have historically been measured in months or years, again with a heavy dependency on rigorous upfront specification and planning.

This is clearly a problem given the adaptability imperative and the need to act on market opportunities and threats rapidly and efficiently. Long ‘waterfall’ style projects that lurch through the analysis, design, coding, testing, integration, release and operations phases in a serial manner are also inappropriate for delivering value on a more continuous basis.

Digital Disrupters therefore place much more emphasis than their peers on modern software delivery techniques, including agile development and DevOps (Figure 10).

Figure 10
Software delivery



These two approaches are both explicitly driven by business requirements and priorities. Furthermore, when applied together, they can be used to create an extremely flexible and responsive software delivery environment. This allows even the smallest piece of incremental value to flow rapidly, safely and efficiently through the whole of the application lifecycle. For example, it is perfectly possible for an idea on how to enhance a mobile app to be tabled at a morning meeting, then have the resulting new feature deployed into the hands of users in a robust and secure manner by the end of the day.

Homing in on DevOps in particular, the underlying principle here is to achieve a much higher level of integration between development and operations activity. Various management and automation tools are available to help, but as our next Digital Disrupter trait highlights, it’s about much more than technology enablers.

“The first version of an application is never perfect, so you need a continuous monitoring and improvement process.”

*Information/analytics lead
International retail bank*

“We created a small DevOps team for each of the major business functions, and these are close enough to the business users to stay fully tuned in to local priorities. We then have a central DevOps group that coordinates tooling and provides support.”

*Software engineering lead
Global retailer, online division*

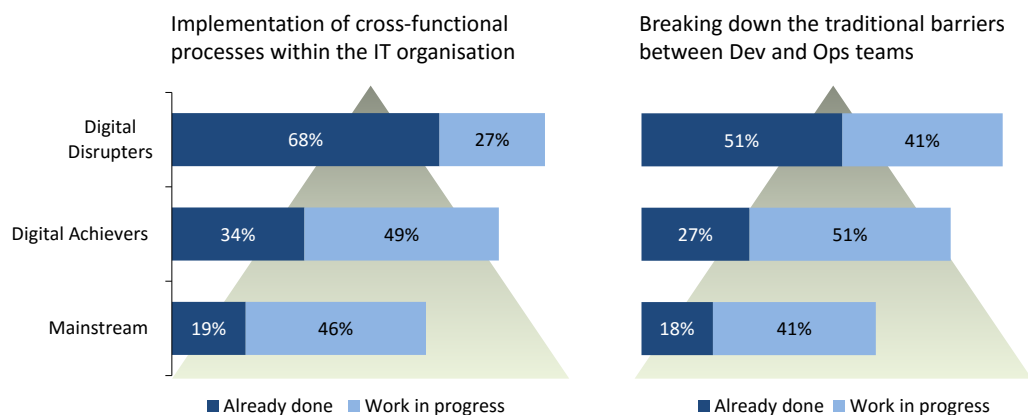
Figure 11
Organization and operation of the IT function

Digital Disrupter trait 5:

A more coherent and collaborative approach within IT

Over the years, IT functions have naturally ended up being organized into silos. This has partially been down to the need for specialist expertise in many areas, but also reflects the fact that disciplines are often driven by different priorities and objectives. While this has worked in the past, disjoints within IT create friction that impedes both progress and efficiency. This in turn undermines overall flexibility and responsiveness of the whole delivery cycle, and thus the organization’s ability to compete given the dependency on software and apps previously highlighted.

Against this background, Digital Disrupters are much more likely to be taking proactive steps to create a more joined up approach within IT. This includes implementing cross-functional processes to smooth handoffs between teams, but it also means breaking down some of the cultural barriers (Figure 11).



If we compare the progress made with regard to processes vs culture as shown on these charts, we see confirmation that the human aspects of IT transformation are often the most challenging - even many of our Digital Disrupters are still working through this.

Another aspect of IT coordination is making it easier for teams working on software in different areas to leverage each other’s work.

Digital Disrupter trait 6:

Exploitation of APIs for internal speed and efficiency

The use of application programming interfaces (APIs) to allow easier and more robust integration among systems is clearly nothing new in IT. However, with the pace of change in relation to web and mobile domains in particular, the need for convenient, flexible and robust ways of connecting software together is now higher than ever.

Part of this is being able to cope with the volatility of customer facing applications, e.g. the need to constantly create new experiences to keep customers interested and engaged. There is also an element of simply keeping up with trends and developments with regard to languages, tools and techniques. Given that few apps and applications stand-alone nowadays, we lastly have an ongoing need to integrate front-ends with back-ends, e.g. mobile apps with core transaction systems.

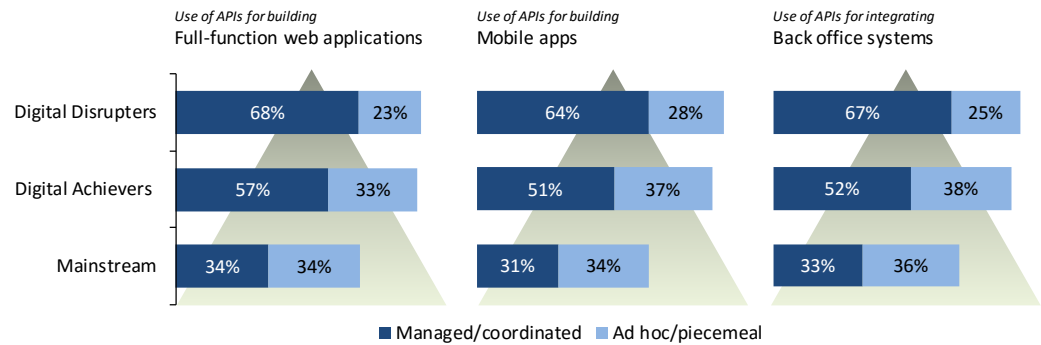
Against this background, Digital Disrupters put a high emphasis on the managed use of modern API techniques, standards and protocols to introduce speed and efficiency into

“We have a range of APIs that are used in our mobile apps. These have been developed to very high standards of security, and we have a whole framework in place to manage APIs.”

*Information/analytics lead
International retail bank*

the web and mobile development process, as well as to handle traditional back-office integration (Figure 12).

Figure 12
Internally-focused use of APIs



“We exploit APIs for internal and external access. We always see how well they work internally before external publication.”

Operations executive
Global telco/service provider

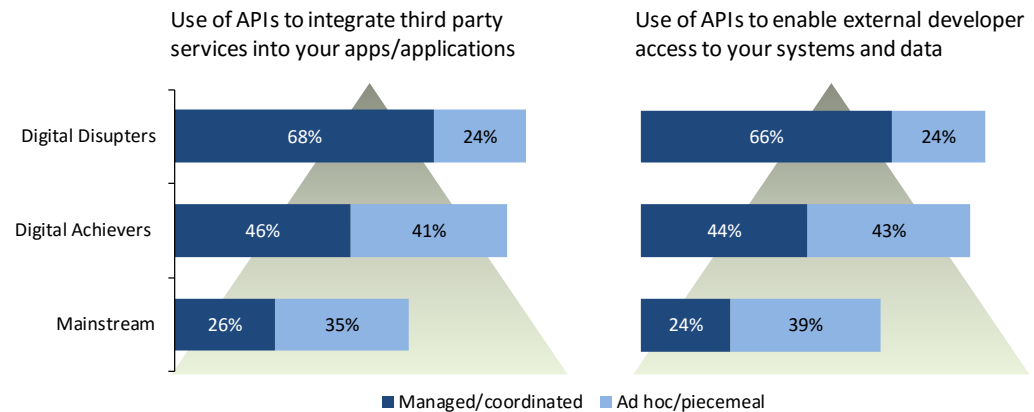
But APIs are not just about driving internal efficiency within the IT organization – there is an outward facing opportunity too.

Digital Disrupter trait 7:

Managed use of APIs to engage the developer ecosystem

This second view of APIs shows how Digital Disrupters are much more likely to be connecting to the outside world as both a consumer and producer of services (Figure 13).

Figure 13
Externally-focused use of APIs



The ‘managed/coordinated’ element of API use is particularly critical when calls and integrations are being made across organizational boundaries. From an internally-facing perspective, a large part of the motivation centers around efficiency as we have said, but when third party developers are involved, risk management is perhaps more of a concern.

When consuming external APIs, it is important to perform necessary due diligence with regard to security and privacy, performance, availability, and stability. What you’re trying to avoid is a critical app exposing customer data, being slowed unacceptably, or failing because the remote service is down or the API no longer works as it did originally.

Turning to the publication of APIs to allow third party access into your own systems, the benefits of doing this are many-fold. Apart from leveraging an innovative ecosystem of independent developers that can bring value to your customers in new and different ways, it’s also possible to create whole new business models around provision of digital access to your services and data. As the Digital Disrupters highlight, however, a managed and coordinated approach is again important. You need to be able to monitor and manage performance to maintain SLAs, and, of course, assure security at all times.

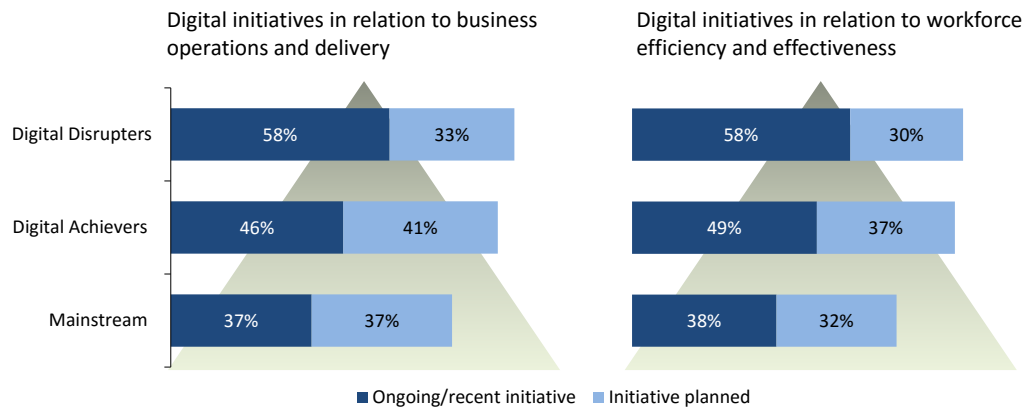
“We have to integrate with a wide range of organizations, so APIs are defined and managed centrally in a standardized way.”

IT executive
International banking group

*Digital Disrupter trait 8:***Use of digital to drive core business efficiency and effectiveness**

Much of our study was concerned with digital transformation as looked at through an IT lens, with a big focus on DevOps and the use of APIs as part of this. However, by capturing feedback on the breadth of digital transformation activity, we were able to reveal another interesting trait - Digital Disrupters place a higher emphasis on transforming or optimizing the backend of the business through digital techniques than their peers. Key areas here include including operations and delivery, and workforce enablement (Figure 14).

Figure 14

Optimizing the back end and enabling the workforce

Additional insights were gathered on both of these topics during a series of more in-depth drill-down interviews conducted by our analysts with senior people involved in digital initiatives. During these, the use of automation, collaboration and mobile technology figured prominently in many of the conversations, deployed both internally and to optimize the way in which supply and demand chains operate. The work we see going on here adds weight to the view that digital transformation is something that will ultimately affect the entire business.

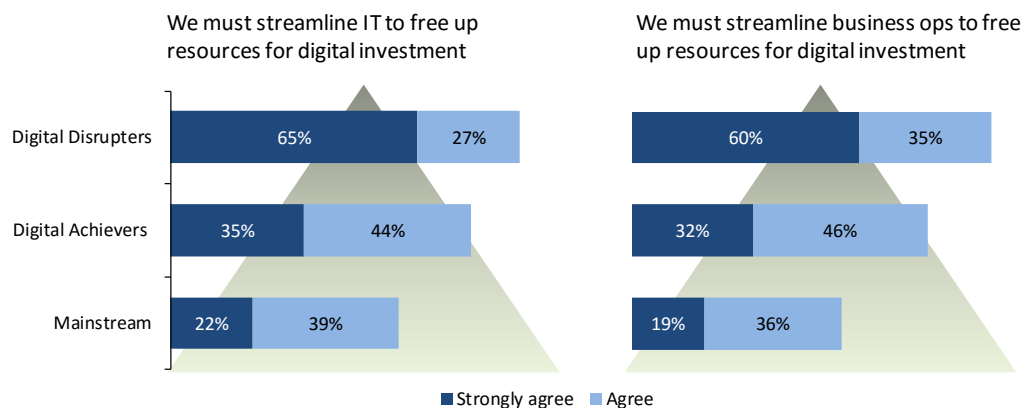
“The main idea is to find ways to digitize all internal processes in the bank, but everything depends on central IT.”

*Digital/innovation executive
Global commercial bank*

*Digital Disrupter trait 9:***Conscious freeing up of resources to fund digital investments**

Building on the above, from a resourcing and funding perspective, it is clear that Digital Disrupters benefit from a virtuous circle of benefit. Through the use of digital technology and techniques, they streamline business and IT operations, which frees up resources for yet more digital investments (Figure 15).

Figure 15

Making the most of resources

Of course we can also envisage the opposite situation. Some organizations undoubtedly find themselves caught in a vicious circle. When this happens, lack of investment in digital puts the organization at a competitive disadvantage, which in turn impacts business performance and reduces the funds available to make things better.

But creating a virtuous circle doesn't happen unless you take proactive steps to manage your project and investment portfolio.

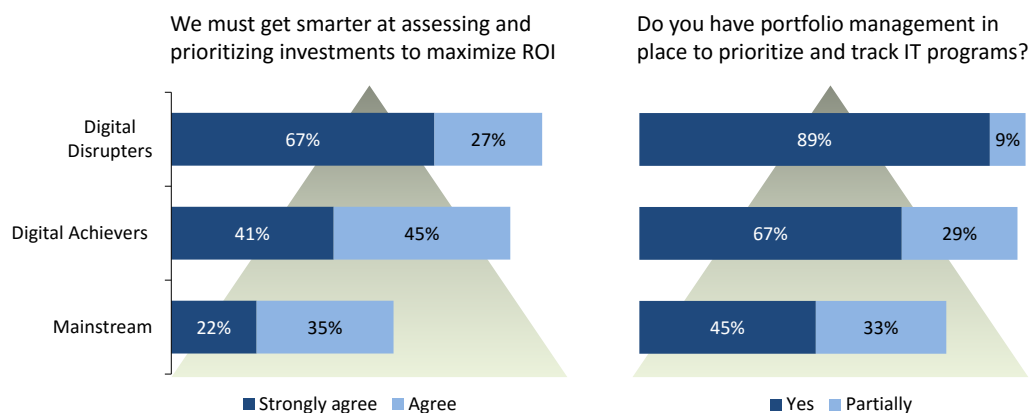
Digital Disrupter trait 10:

Focus on smarter management of IT investments to maximize ROI

One of the challenges in any large IT department is prioritizing and managing the project portfolio. This is particularly difficult when there are so many calls on IT time and budgets from different parts of the business. A key question in this area is which proposals get funding and resources allocated to them and on what basis? It would be nice to think that decisions are always made on firm business grounds, but other factors, not least the influence of company politics, can cloud discussions.

Digital Disrupters recognize the issues here and the need to get smarter about assessing and prioritizing investment. From a management perspective, they are also more likely to have a portfolio management process in place (Figure 16).

Figure 16
ROI and portfolio management



In the private sector investments may be amortized over many years, but our finance people only see the next accounting period. Now projects need to show clear returns within just a few months, certainly less than a year.

*IT/projects executive
Large city municipality*

We cannot tell from the survey responses how robust and rigorous the processes and tooling are that are in place, but we know from general experience that the better your capability here the more aligned IT will be with the business.

Manual or spreadsheet driven approaches can only take you so far in a larger scale environment, and a modern portfolio management solution can help you move things on to the next level. This is achieved through a combination of more accurate and complete ROI modelling, effective activity and cost tracking, and enhanced overall visibility.

With regard to the latter, one of the big advantages of technology-assisted portfolio management is that it allows all stakeholders from both the business and IT to look at the same project pipeline, activity schedule and associated metrics when making decisions.

The right portfolio management solutions will also understand the concept of services and continuous delivery, which further enhances IT-business alignment if you have adopted the DevOps approach as part of your digital transformation strategy.

Other essential considerations

The danger with the kind of results we have been looking at is that it trivializes the amount of work involved in implementing the kind of transformational change we have been discussing. A number of constraints and prerequisites need to be considered.

Core system dependencies

Sometimes implementation or overhaul of some fundamental parts of your infrastructure will be required. When asked about the three most prominent areas of investment to enable digital initiatives, a number of examples are highlighted (Figure 17).

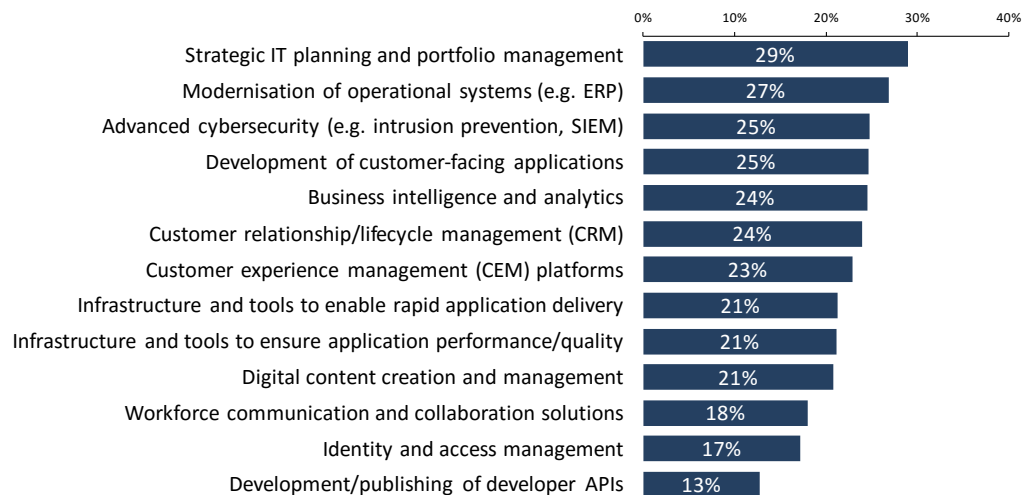


Figure 17

What are the 3 most prominent core areas of investment to enable digital initiatives in your organization at the moment?

“So far much of our focus has been on doing some key work on our back end systems to make it easier for us to provide secure, controlled access to core applications and data.”

*Digital/innovation executive
International insurance provider*

The variation we see here reflects the fact that every organization is starting in a different place. Only you can make an assessment of where your strengths and weaknesses are and what needs to be done. As part of your review, you also need to consider external factors such as regulatory and compliance implications, which will clearly vary by industry.

People and culture

The importance of dealing with the people and cultural aspects of digital transformation cannot be over-stated. The relatively slow progress in breaking down cultural barriers between IT teams (compared to implementation of cross-functional processes) is a good example. Defining new policies and procedures, even putting the right kind of tools in place, only gets you so far. Benefits start to flow when change is embraced by people.

If we zoom out to the bigger picture, this principle applies across the board - within IT, within the business, between IT and business units, and between business units themselves. Even differences between geographies or employees of different generations and backgrounds can trip you up.

The bottom line here is that digital transformation is no different to implementation of any other type of transformational change. The most difficult part is not to do with technology, processes or business models, it's bringing about the necessary changes in mindset, attitude and behavior while maintaining enthusiasm and moral.

A clear executive vision and strong leadership are important here, and it is no accident that we have put this front and center in our final recommendations.

Acting on the insights

A good place to start when looking at how to act on the insights we have been discussing is to consider some of the common pitfalls. One of the biggest mistakes we see is trying to implement digital transformation in silos. An example would be focusing on just digital campaign activity within the marketing department, without considering the whole customer journey. Returns will be limited if those responsible for marketing, sales, logistics, operations and customer service aren't actively collaborating on digital transformation to provide a coherent consistent and compelling customer experience.

Related to this, appointing a Chief Digital Officer (CDO) has pros and cons. If the role is concerned with cross-functional coordination and facilitation, then it can be very valuable. The risk, however, is that it lets senior managers off the hook, as they take the CDO appointment as a license to delegate their 'digital challenge' to someone else. Your digital transformation strategy needs to be owned and driven by the senior management team as a whole, and while we haven't presented the data here, it is no coincidence that Digital Disrupters are significantly less likely to have a CDO in place than their peers.

The overriding principle is that it's important to formulate a well-defined digital program, but executive vision and leadership is central to success (Figure 18).

"We have to be very proactive and try to build our systems in advance of users requesting the services. This requires planning ahead."

*IT executive
International banking group*

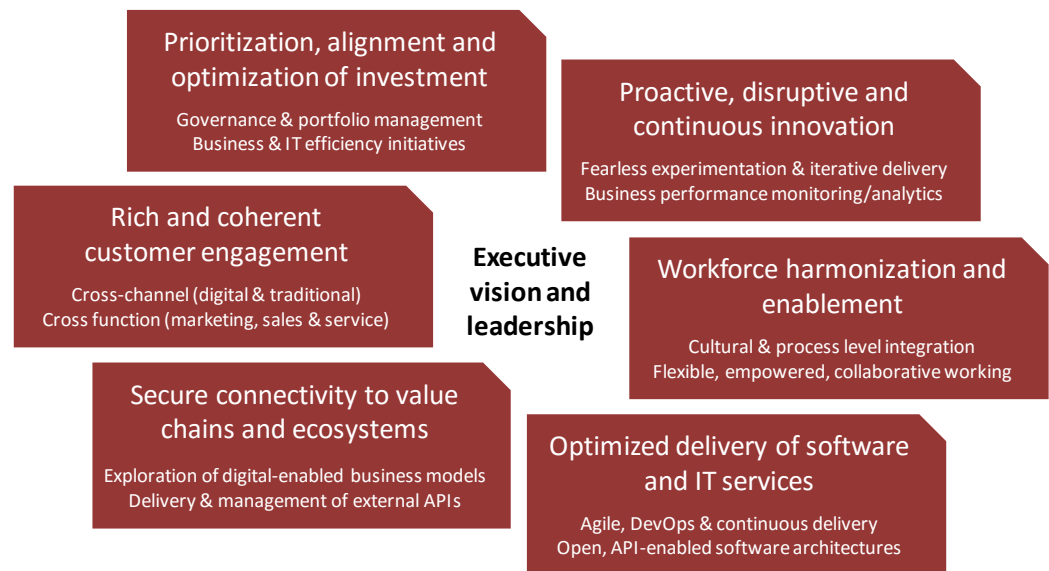


Figure 18
Essential components of a digital transformation program

The schematic we are looking at here has been partially derived from reverse engineering the 10 key traits of Digital Disrupters into a number of key activity streams. How you manage these depends on the size and nature of your organization, but an approach that works well is forming cross-functional teams to prioritize and coordinate activity in each area. This clearly needs to be complemented by appropriate escalation mechanisms; just as with any other type of strategic transformational program, resourcing issues, funding constraints and political conflicts will inevitably lead to hard decisions needing to be made from time to time, particularly in the early days.

As our Digital Disrupters have shown, however, the software advantage is there for the taking if you act on it in a digital transformation context.

"We have created an innovation group to develop solutions, products and offerings"

*Digital/innovation executive
Global commercial bank*

Appendix A: Research Sample

The study upon which this report is based was designed, executed and interpreted by Freeform Dynamics Ltd in collaboration with CA Technologies. Data was gathered from 1442 respondents via an online survey during June and July 2015. In addition, a number of in-depth interviews with senior managers involved in digital initiatives were conducted across a range of major markets, including the USA, UK, France, Germany and Italy. The quotes listed in the margin of this report originated from these discussions.

The sample distribution for the online survey was as follows:

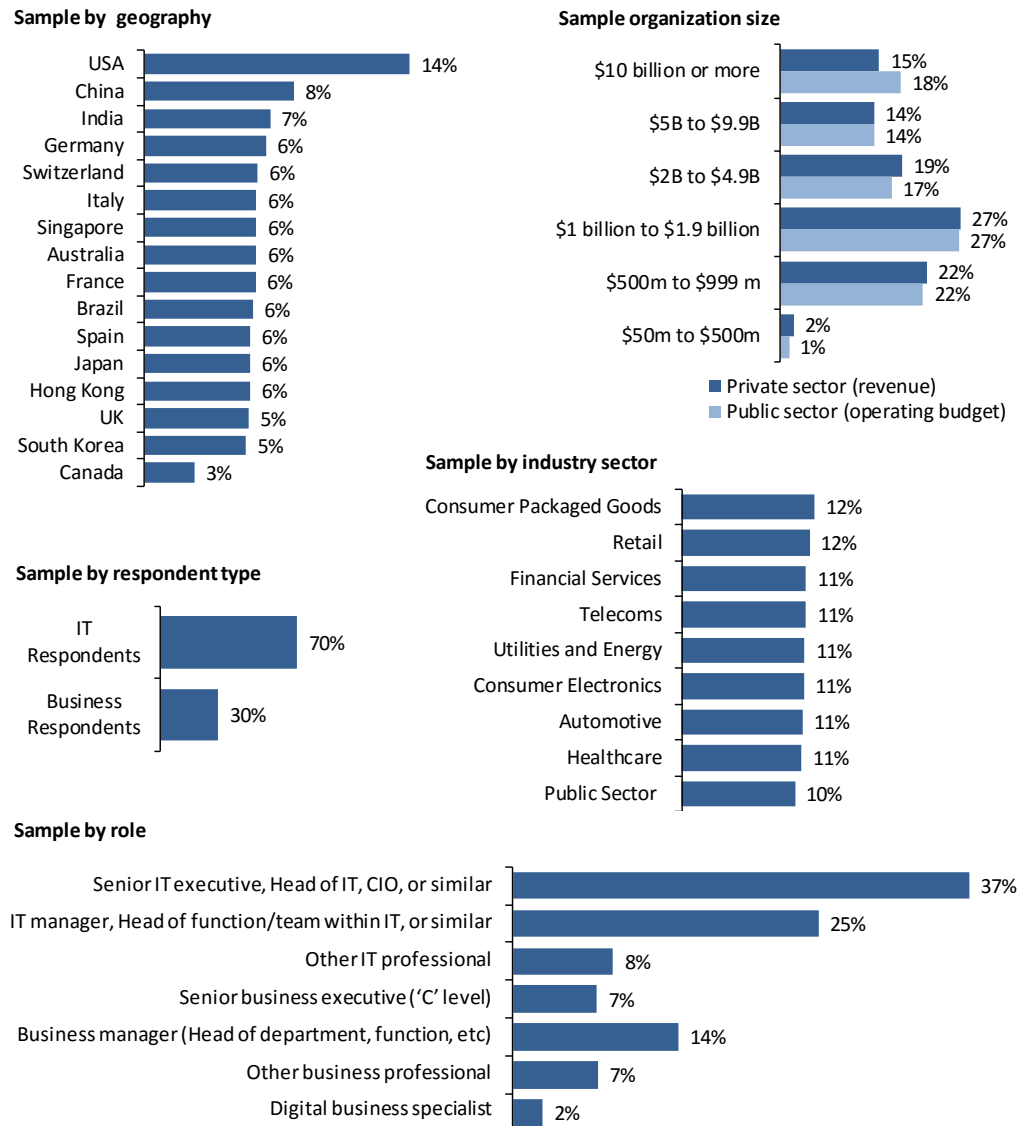


Figure 19

Composition of research study sample

Note on methodology

Respondents 'self-selected' into the online survey based on their interest in the theme and their ability to answer questions on specific software-related topics (DevOps and API management). The sample is therefore biased towards those exploring or active in the areas covered. This does not affect the discussion or conclusions of this report, but should be borne in mind when considering the data in another context.

About Freeform Dynamics

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