



Primary Research Report

In association with



DevOps and Cloud Computing

Exploiting the synergy for
business advantage

Freeform Dynamics, 2017

DEFINITIONS OF DEVOPS

Operations personnel and developers working together through the entire software lifecycle, from design to production support.

CLOUD

Elastic and on-demand access to services, tools and other resources.

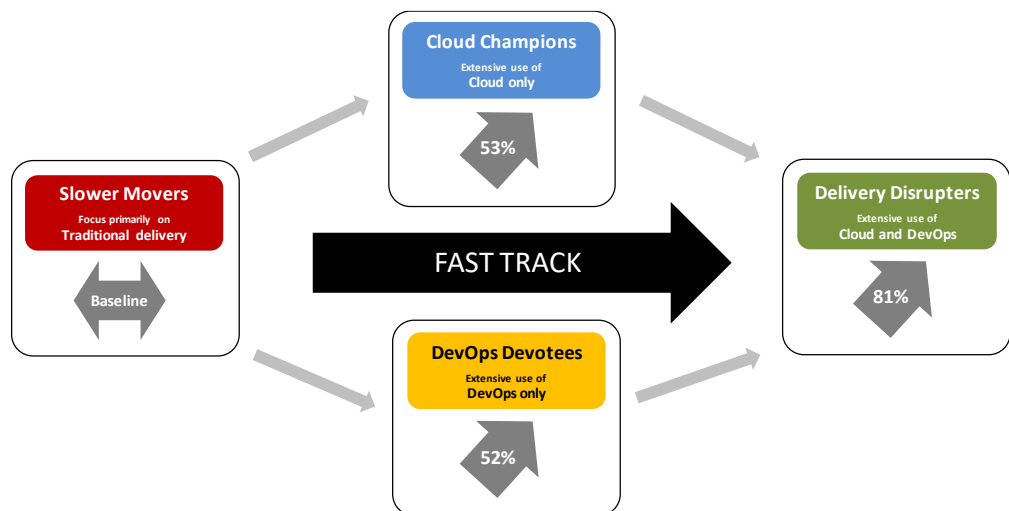


Management summary

We asked 929 IT professionals how well their organizations were meeting their software delivery objectives, and how committed they were to both Cloud computing and DevOps. We discovered that, while organizations can improve software delivery speed and quality by adopting either Cloud computing or DevOps practices, the real win comes from using the two together in an integrated way.

Key points

Planning for effective Cloud/DevOps synergy is the key: When we asked respondents how well their organizations were performing on key software delivery imperatives (Speed, Predictability, Quality, User/Customer Experience and Cost Control), the result was clear: while a firm commitment to either Cloud or DevOps can bring worthwhile gains, a commitment to both is significantly better. In other words, in today's competitive digital market the real win comes from synergy – from using Cloud and DevOps together.



Percentages indicate the level of KPI uplift achieved averaged across all 5 measures compared to the Slower Movers

Using either DevOps or Cloud is good, but using both is better.

Gains across the board, but especially on speed and cost: When we looked at the individual key performance indicators (KPIs) for software delivery, the gains were both more obvious and more nuanced. In particular, we saw that while the synergy boosted performance against all KPIs, it was especially beneficial to delivery speed and project cost control.

Cloud and DevOps are complementary accelerators: Not only can Cloud usage and DevOps both reduce friction in the software delivery process, but they do it in complementary ways, whether that is by providing easier and more scalable access to release automation or security testing tools, or by simplifying and speeding the delivery pipeline.

The perceived level of competitive threat correlates strongly with willingness to innovate.

Competitive threat drives the adoption of both practices: Our research suggests that a key factor is the perceived level of competitive and operational threat to the business, both from internal and external sources. Not too surprisingly, this appears strongly linked to an organization's willingness to innovate – for example by adopting a combined Cloud/DevOps strategy.

Introduction

In improving software delivery, DevOps and Cloud yield significant synergy.

While organizations can improve software delivery speed and quality by adopting either Cloud computing or DevOps practices, our research shows that the real win comes from using the two together.

In this study, we set out to discover how organizations are using – and overlapping – Cloud services and DevOps today, and to find out just how big is the resulting synergy.

It's a competitive world out there

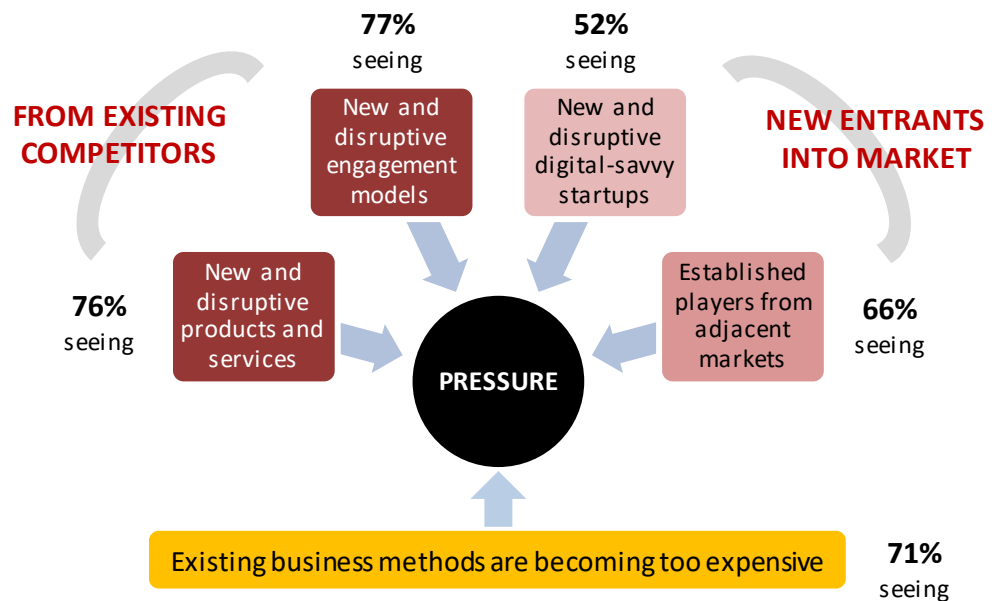
The perception of existential threats in the business environment is common, but by no means universal.

What level of business threat does your organization face? How active is it in areas such as digital transformation and improving organizational efficiency? And how adventurous are you in your willingness to adopt new technologies or are you risk-averse?

We asked all those questions in a recent study (see Appendix A for full details of the research sample), with the answers to the first one giving us a picture of the level of threat our respondents perceived, both within their organization and in its competitive environment (Figure 1).

Figure 1

How much are the following perceived to be threats to your organization today?



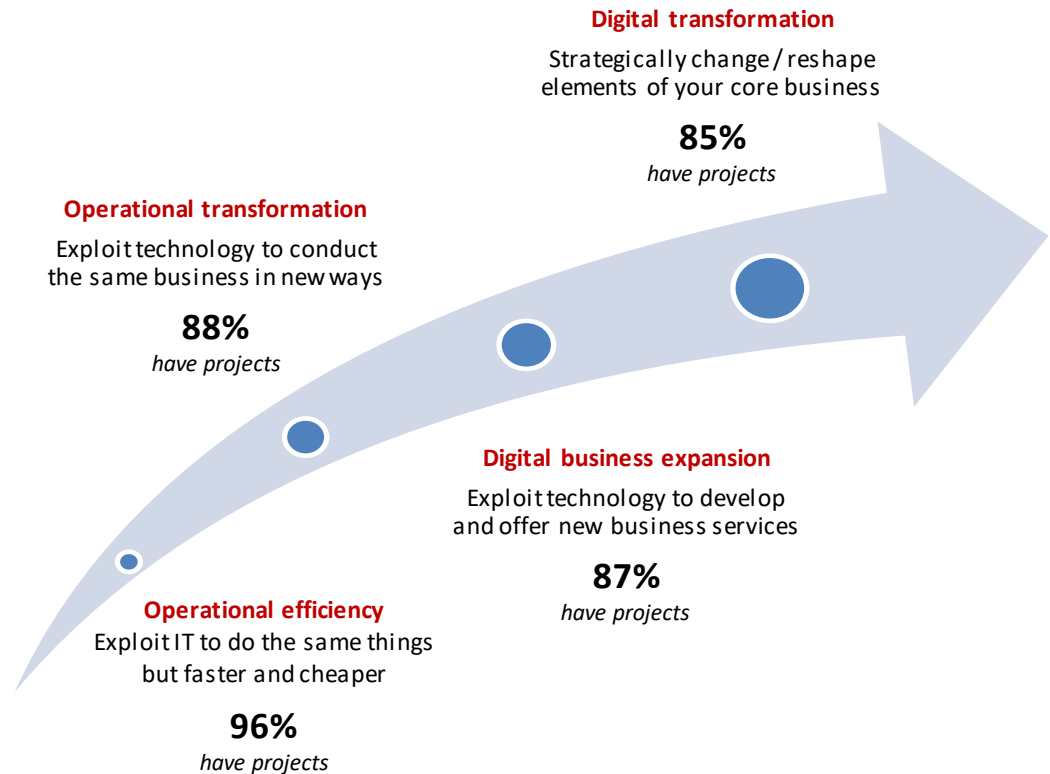
Many people might assume that these threats are common and widespread, and indeed several of our 929 respondents reported high threat levels in every category we offered.

This threat perception also turns out to correlate well with other key questions we asked, most notably what active initiatives the organization has in the areas of operational efficiency and transformation, business expansion and digital transformation. Perhaps unsurprisingly, the answers told us that exploiting technology is critical now, both strategically and tactically, and that digital projects are now the norm (Figure 2).

More threatened organizations exhibit more transformational activity.

Figure 2

How extensively does your company have active initiatives in the following areas?



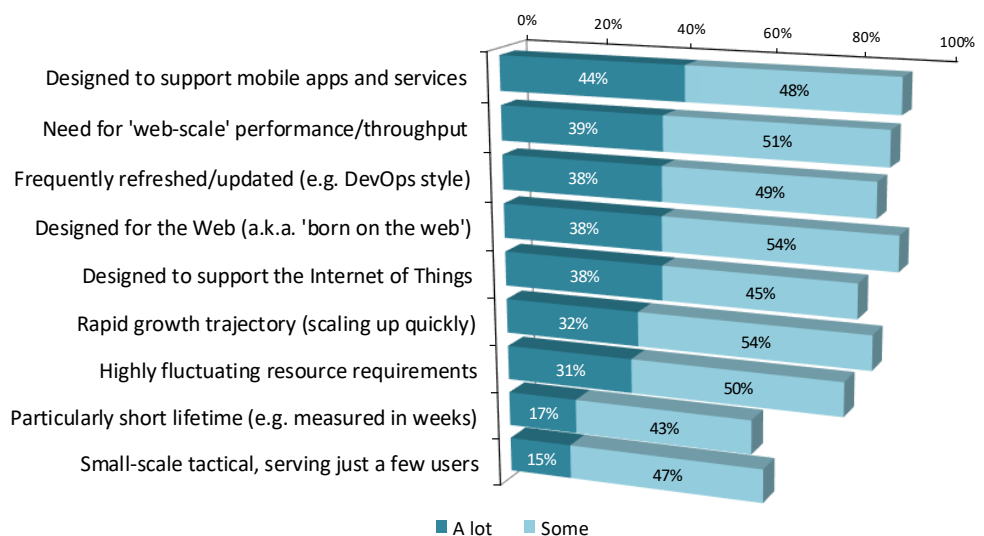
One way to interpret these two results is as a feedback loop: a perception of threat demands response, and the response is transformational activity. Indeed, we believe that an advanced organization could integrate this loop into a continual process, meeting threats with appropriate activity, and then using that activity to gain a greater awareness of and insight into risks and threats, whether specific or non-specific.

Organizations' software demands are now more diverse and fast-moving.

Intertwined with the competitive threats is a much greater reliance on software by the business, and a considerable evolution in software demands, which have become more diverse and fast-moving. For example, the majority of our survey respondents said their organization has apps that must scale up rapidly, be refreshed frequently, support mobile or IoT devices, deliver web-scale performance, or some combination thereof (Figure 3).

Figure 3

How many of your organization's applications and workloads have the following characteristics?



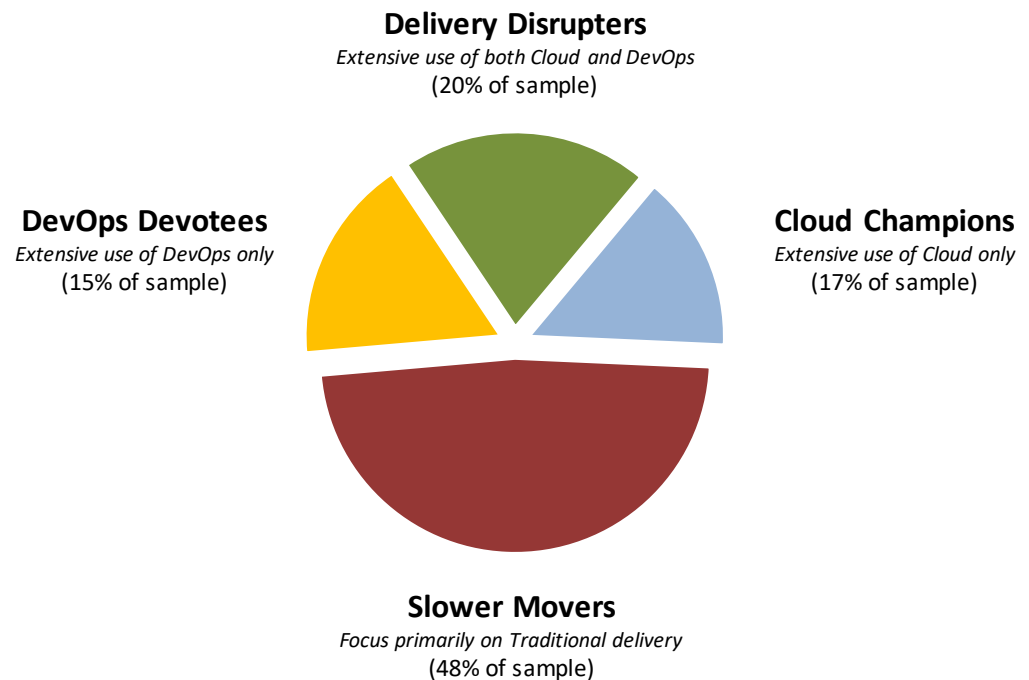
Modern methods, but adoption varies

There is a big difference in the results achieved between piecemeal and extensive adoption.

For some, a key step in dealing with these pressures and demands is to adopt DevOps practices, for others it is to use more Cloud-based services. In both cases, adoption varies – for some it is piecemeal, for others it is extensive. Among our survey respondents, we could identify around one-third who we regard as being extensively committed to each approach, with a considerable overlap between these two camps (20% of the total). Just under half the sample used Cloud and DevOps piecemeal or not at all (Figure 4).

Figure 4

How committed is the organization in its use of DevOps and/or Cloud?



Cloud plus DevOps for tangible benefits

Performance against key software delivery imperatives shows how much of a boost DevOps and Cloud can provide.

To analyse how the methods and commitment affected the software delivery outcomes we asked respondents how well they were performing against five software delivery imperatives, which we weighted and averaged (see Appendix B) for use as key performance indicators (KPIs):

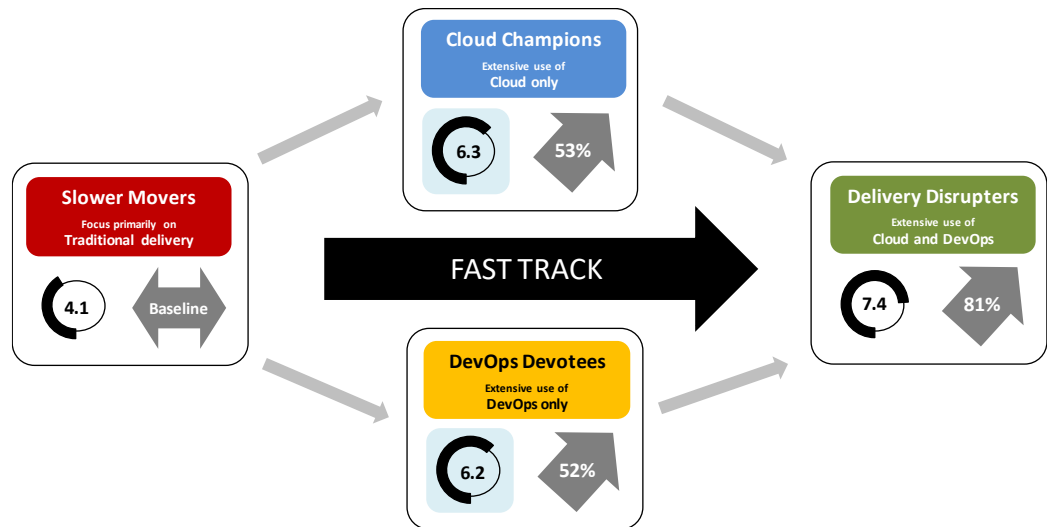
- Speed: more frequent delivery of software to production
- Predictability: making promised delivery dates more reliable and transparent
- Quality: improving the software quality and reducing the number of defects
- UX and CX: improving user and customer experience with the delivered software
- Cost control: reducing the cost of software projects

The results were clear: extensive use of either DevOps or Cloud can bring significant advantage. DevOps Devotees and Cloud Champions were 52% and 53% respectively more likely to report better performance than the baseline Slower Movers. But those advantages are synergistic, hence using both together is noticeably better still, with the

Delivery Disrupters reporting an 81% uplift over the Slower Movers. Integrated adoption of DevOps and Cloud is therefore the fast track to software success (Figure 5).

Figure 5

The software delivery KPI uplift resulting from an extensive commitment to DevOps and/or Cloud



Why is this, and what are the benefits?

DevOps and Cloud are different yet synergistic ways of reducing friction in the software delivery process.

DevOps is part of a wider shift across the software industry towards more fluid teams, bringing together processes that have become more scattered and diverse, to create value from new forms of collaboration and teamwork. Cloud-based resources and services can help here partly because of their versatility and elasticity, and because rapid and constant change and information sharing are central tenets of their design.

Cloud is also extremely important for DevOps because of all the relevant tools and services which are now available in Cloud form. It means that they are readily available to developers, who will in turn always be working on the latest versions of the tool within their project.

When we drilled deeper into our KPIs, we could see the areas where first committing to DevOps and then adding Cloud brought the most advantage: speed of delivery, and cost control (Figure 6).

Figure 6

Adding Cloud to DevOps to drive incremental benefit

	Slower Movers (Baseline)	DevOps Devotees	DevOps Advantage	Delivery Disrupters	DevOps + Cloud advantage
Speed	4.2	6.9	65%	7.9	90%
Predictability	4.2	5.8	37%	7.5	77%
Quality	4.7	6.8	46%	7.8	66%
UX & CX	4.7	6.8	47%	7.9	69%
Cost control	2.7	4.8	75%	5.9	117%

Either is good, both is better

An important note is that when we repeated this analysis looking at an initial commitment to Cloud and then adding DevOps we got very similar results to Figure 6. This is because

both Cloud and DevOps are ways to reduce friction in the delivery process, and the KPIs where friction has the greatest effect are speed and cost control.

Another key factor through all of this is that Cloud minimizes the need for people to ask others to take action. So if a developer needs a new test machine or a specific software tool, say, they can get it without having to involve system administrators or the ops team.

Cloud tooling is vital too

We also asked specifically about the usage of Cloud-based tools in areas such as project planning, software development, testing, version control and so on. When we compared the effect on software delivery performance of commitment to Cloud tools with the effect of commitment to Cloud computing, we observed a similar pattern.

This tells us two things. First, that a commitment to Cloud resources for hosting one's own applications and services tends to parallel or mirror the use of other Cloud tools and services. Organizations that are Cloud-committed tend to be broadly Cloud-committed.

And second, that the use of Cloud-based tools is as vital to building a successful DevOps practice as the use of other Cloud resources such as hosting and storage. Indeed, our research suggests that for many Delivery Disrupters, Cloud tooling is more important than DevOps, although of course using both together is best of all.

Acting on the insights

While you have been reading this report, you have probably been trying to work out where your organization would fit in our analysis of threat perception and transformational activity. You might also have been thinking about how widely you currently implement DevOps and the other related software development disciplines, and how much (or how little!) use you make of Cloud tools and resources.

Most readers with some planning or management expertise will be familiar with concepts and techniques such as SWOT (strengths, weaknesses, opportunities, threats) analysis. Of course, such techniques have their limitations, but an understanding of where you are now, where you want to get to, and what threats might be waiting along the way is essential if you want to boost your operational efficiency.

The potential synergy between Cloud and DevOps sits squarely in the opportunity box. If you are only making significant use of one of the two, or if your Cloud adoption covers only a slice of the DevOps spectrum, it may be time to revisit and re-evaluate your options. For example, ask yourself if you are doing enough in key areas such as release automation, becoming target-agnostic for your applications, and in mixing and matching public and private Cloud.

Final thoughts

The results are clear: if your IT team's level of achievement is mixed or you are falling short in terms of broader service delivery, the chances are that you are not committed to both DevOps and Cloud, or are not combining the two effectively.

That's because Cloud, whether public, private or hybrid, changes the game in terms of expectations and mindsets from a software delivery and operations perspective. Of

Cloud-committed organizations tend to be broadly committed.

Where would you come in our indexes of threat perception, activity, openness, and commitment to DevOps and Cloud?

If your software delivery is falling short, chances are you are not properly combining Cloud and DevOps.

course there are pitfalls and distractions that need to be avoided, but done right, Cloud can remove a lot of the barriers and friction.

When you need the rapid and continuous delivery of value as part of any digital transformation initiative, Cloud is clearly a primary enabler – this comes through strongly in many previous studies we have done. But you also need rapid and iterative software development and delivery processes, most notably DevOps supported by a commitment to Cloud-based tools and services, in order to take full advantage of the benefits of Cloud.

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 929 respondents via an online survey completed in Spring 2017.

The sample distribution for the online survey was as follows:

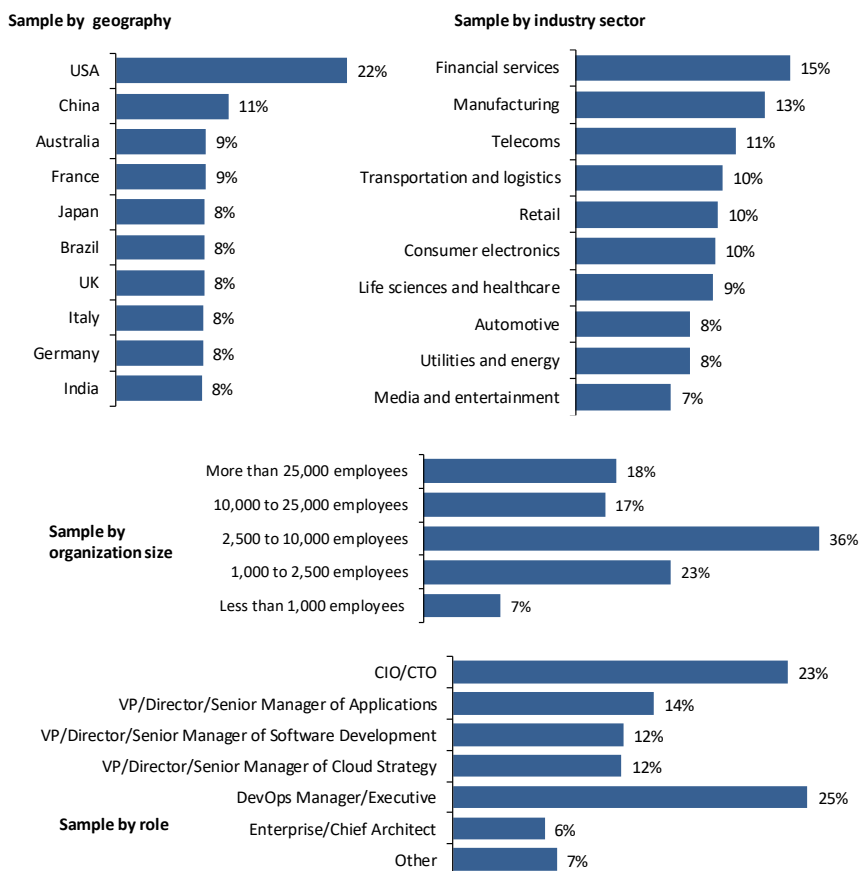


Figure 7

Composition of research study sample

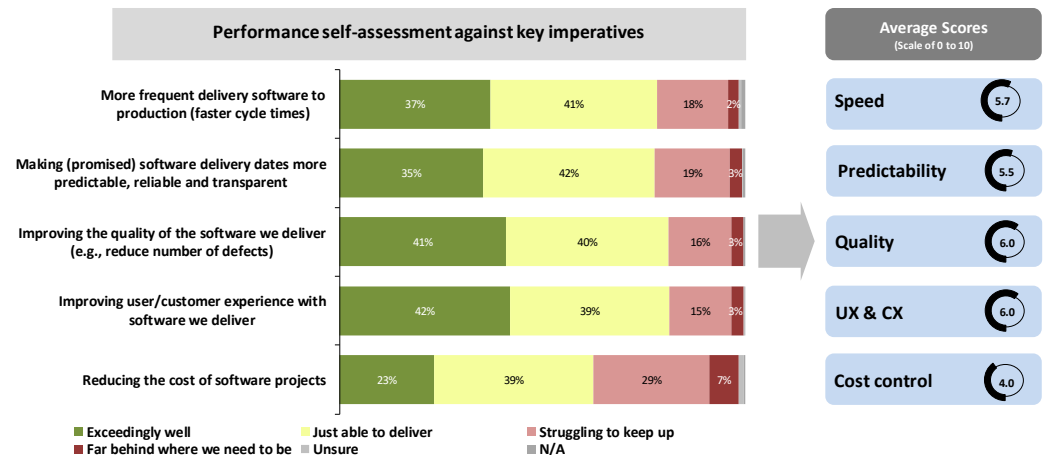
Note on methodology

The survey was conducted online and respondents 'self-selected' into the study. We must therefore be aware of possible sample bias towards more advanced respondents who are generally more enthusiastic and more likely to respond to a research call to action. This does not affect the commentary or conclusions contained in this report, but should be borne in mind when considering the data in another context.

Appendix B: Calculating KPIs

To generate our software delivery KPIs, we asked our respondents how well they were meeting key objectives in five areas (see Figure 8), then numerically weighted the answers given. Averaging these numbers for our four commitment groups allowed us to compare their relative performance, both on individual KPIs and as an overall performance total.

Figure 8
How well are you meeting your objectives for the following aspects of software delivery?



Note that the individual answers and overall averages are not absolute measures of software delivery performance. Rather, they measure how well our respondents believe they are performing in relative terms.

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