DIGITAL TRANSFORMATION: HAVE ARCHITECTS RISEN TO THE COVID-19 CHALLENGE?

2020 Report

Couchbase
NoEQUAL

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DIGITAL TRANSFORMATION: HAVE ARCHITECTS RISEN TO THE COVID-19 CHALLENGE?

A Couchbase research report: investigating the pressure COVID-19 has placed on digital architects, and whether this disruption can actually lead to long-term improvements

Executive summary

With digital transformation near the top of CIOs' agendas for some years, many digital architects have struggled to satisfy their organizations' needs for digital change. When Couchbase launched its 2019 report, "Digital transformation: can architects meet the demands of the digital age?" it found 68 percent of architects found getting the right technologies in place for digital transformation an insurmountable task.

As Part One of our 2020 report into digital transformation shows, the COVID-19 pandemic has had a profound effect on digital transformation. Organizations' long-term digital plans were disrupted as they focused on increasing the agility of their online services and adapting to remote working almost overnight. And the pressure this puts on architects cannot be underestimated. Almost half (48 percent) are under high or extremely high pressure to deliver digital projects, compared to less than a fifth 12 months ago.

Successful digital transformation also requires the right technology to support digital architecture, yet many architects are still struggling to adopt the technology they need. There are concerns around cloud infrastructure that deter many from adoption, while dependence on legacy databases is still hindering organizations' ambitions: 91 percent still rely on legacy databases to some extent.

Yet despite these challenges and increased pressure, many enterprises have still pushed ahead with digital transformation during 2020. Almost half (46 percent) say they're on time with their digital plans. COVID-19 has undoubtedly propelled organizations' adoption of new technologies and services forward – underpinned by architects' expertise.

It's clear that, by learning from past technology decisions – both those that have hindered digital transformation, and those that have boosted it – enterprises can build a blueprint for success. And with their expertise and proven ability to adapt quickly to change, architects can lead the charge towards a truly digital future.

Part 1: The COVID-19 challenge

In 2019, organizations were well on the way towards executing digital transformation – with 78 percent no longer in the planning phase, but actively working to deliver digital projects. However, continuing this progress during the pandemic has been a serious challenge. From arranging remote working logistics, to dealing with huge spikes in demand for online services, the pandemic has caused many enterprises to urgently revisit their digital transformation plans. As a result, 38 percent of organizations said their move from digital transformation planning to delivery has been disrupted.

Yet despite the challenges they face, almost half (48 percent) of organizations are currently in delivery mode. Indeed, there are fewer organizations still in the planning phase of digitalization (13 percent) this year than in 2019 (22 percent) *(figure 1)*.

Legend:
- Still planning digital transformation
- Aimed to be delivering digital projects by now, but have had to delay due to Covid-19
- Moved from digital transformation planning to delivering digital projects in the last 12 months
- Delivering digital projects for more than 12 months
- Were delivering digital projects, but had to change strategy and plan new projects in reaction to Covid-19
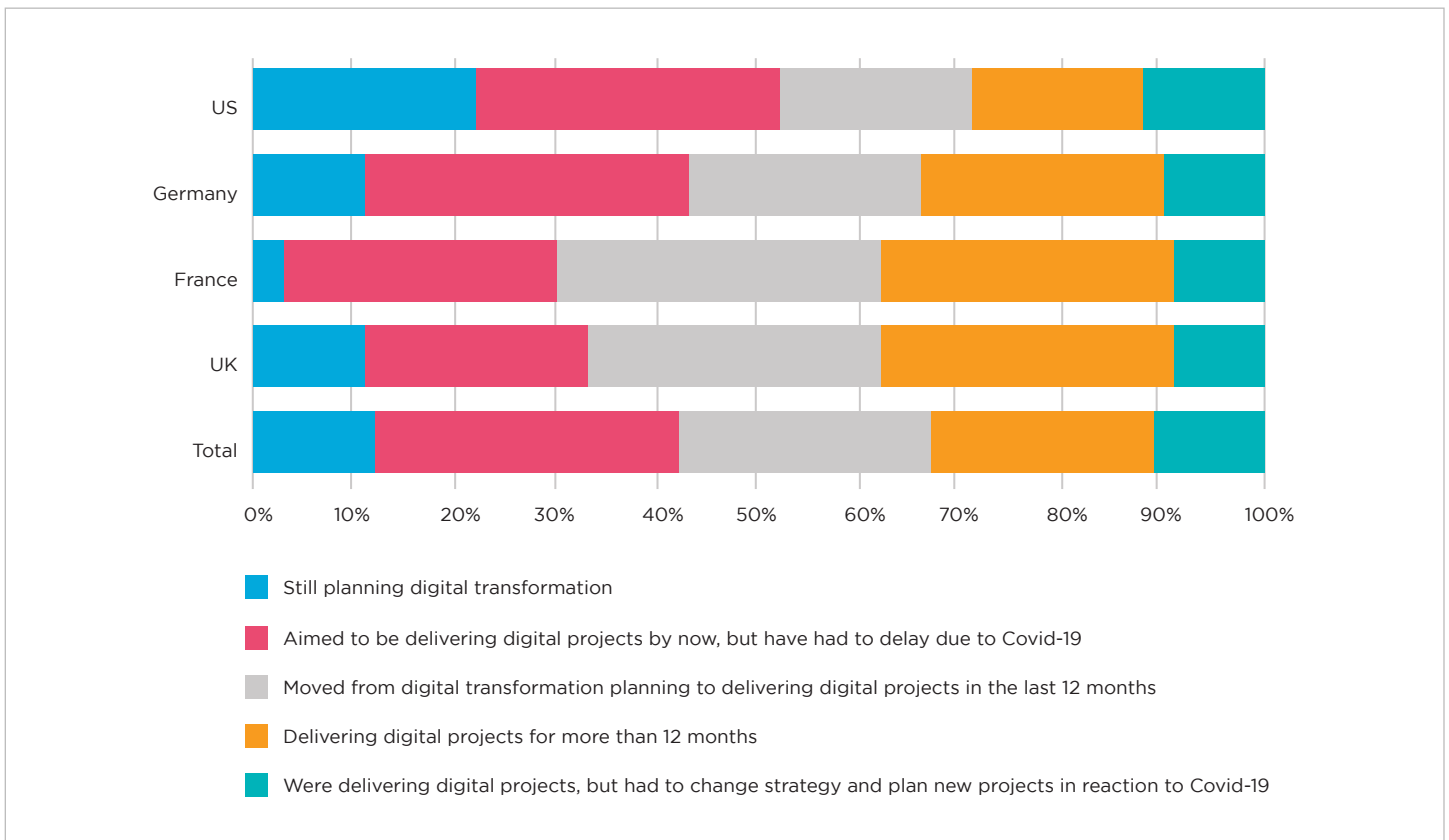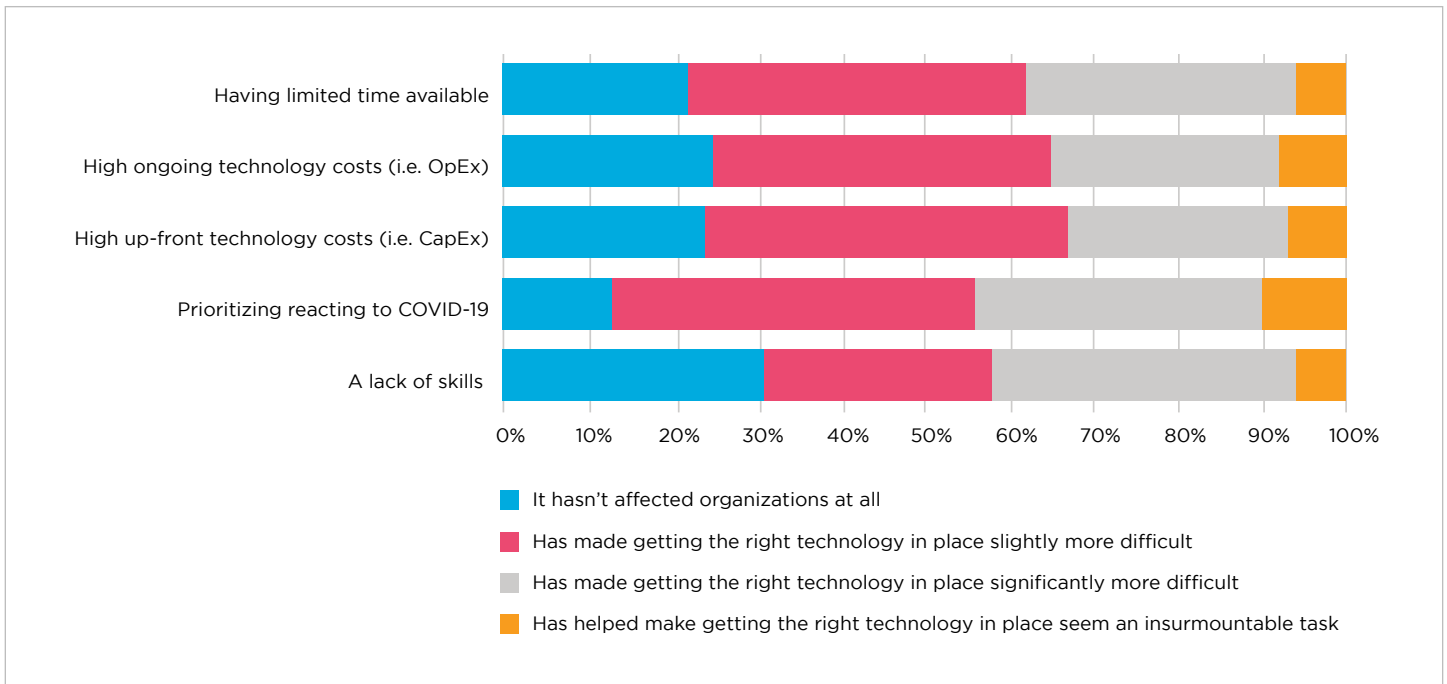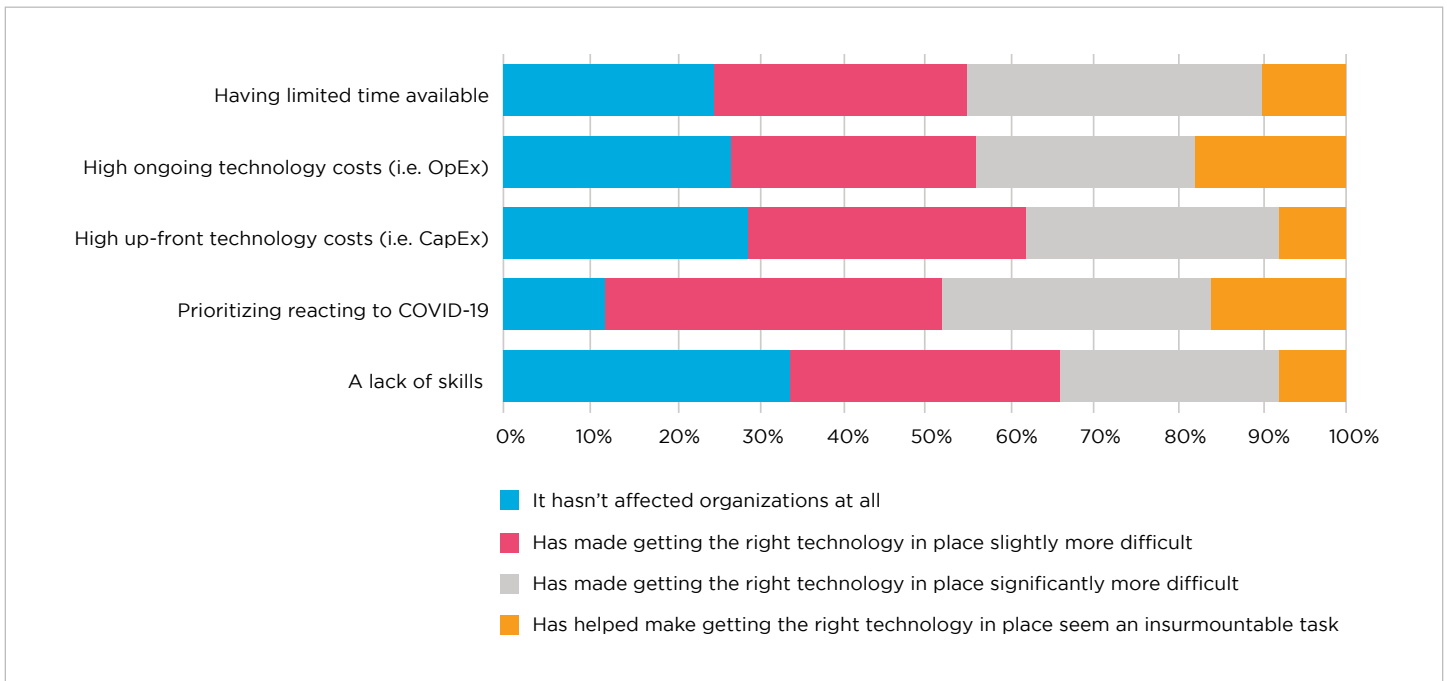
Figure 1: Extent of organizations' progression from digital transformation planning to delivering digital projects

COVID-19 hasn't just required a reassessment of existing plans, but caused problems implementing the technologies behind them. The vast majority (86 percent) say COVID-19 has affected their attempts to get the right technology in place for digital transformation, and 43 percent say it has made it "significantly more difficult" or even "insurmountable" *(figure 2)*.
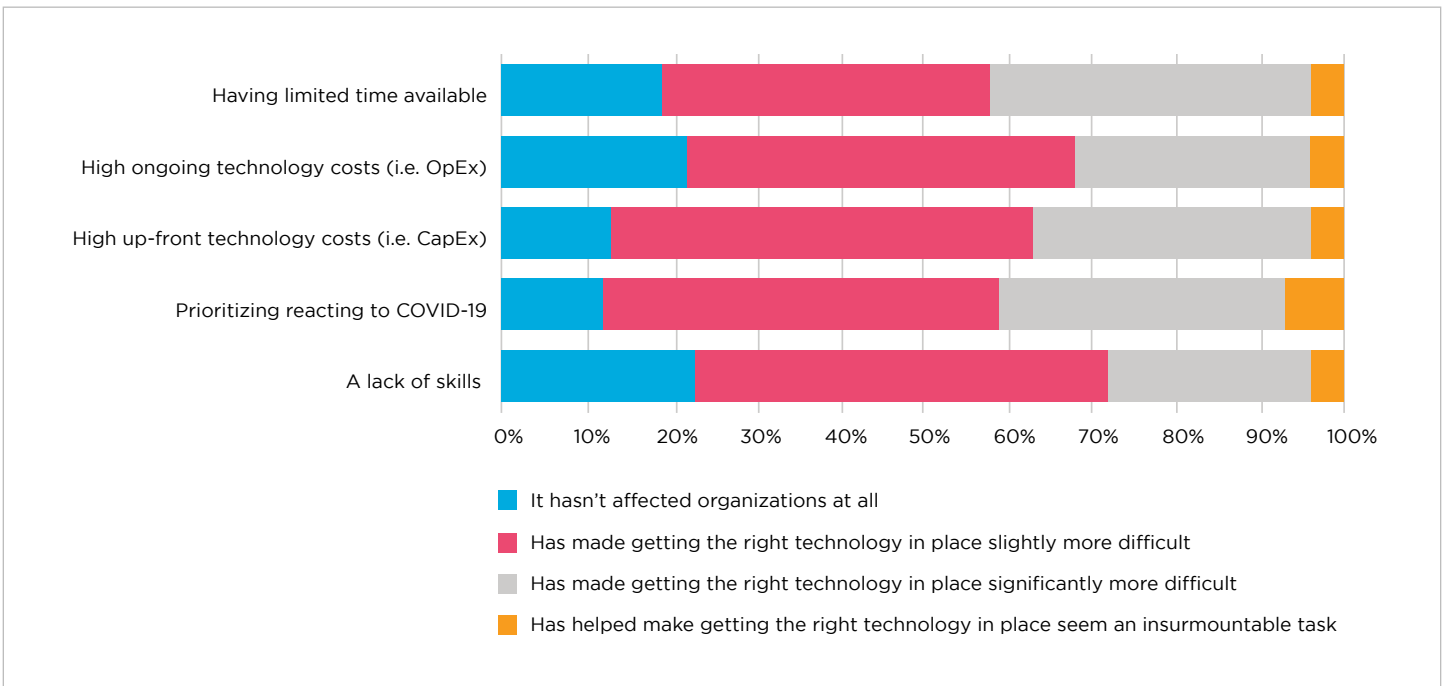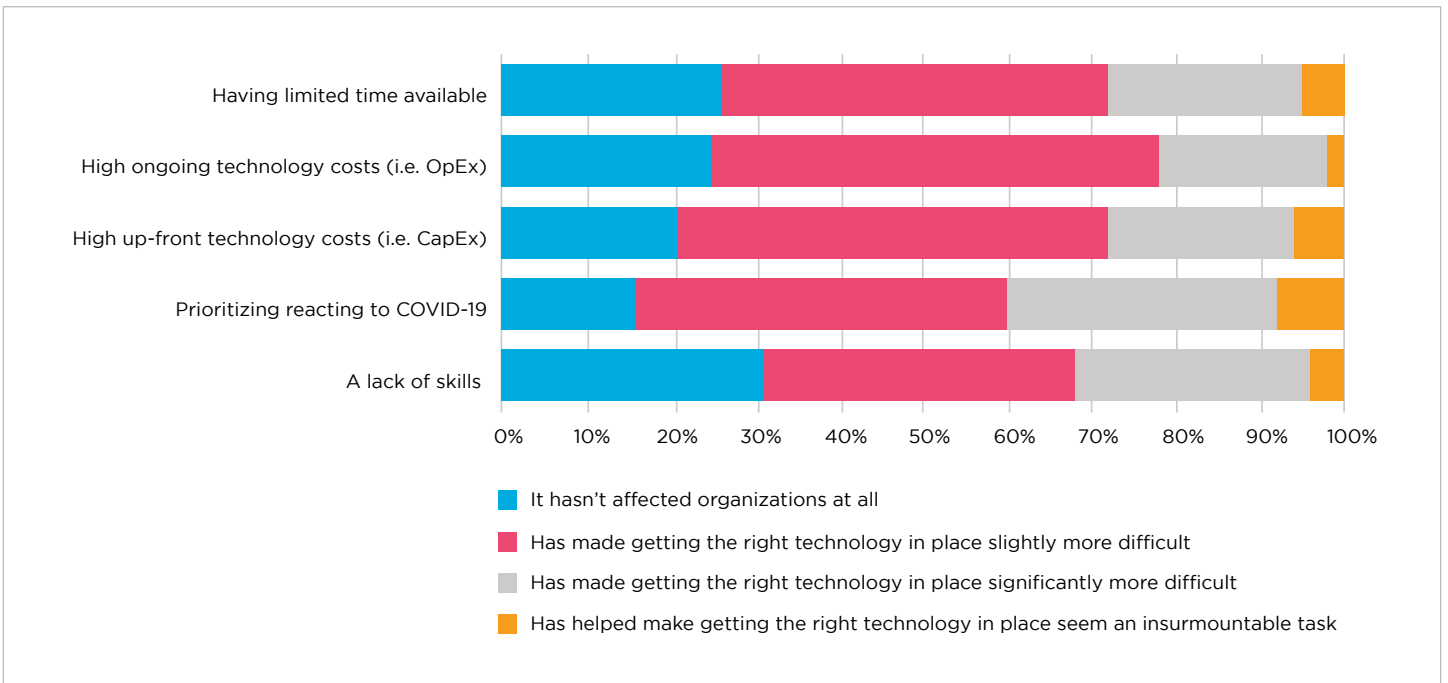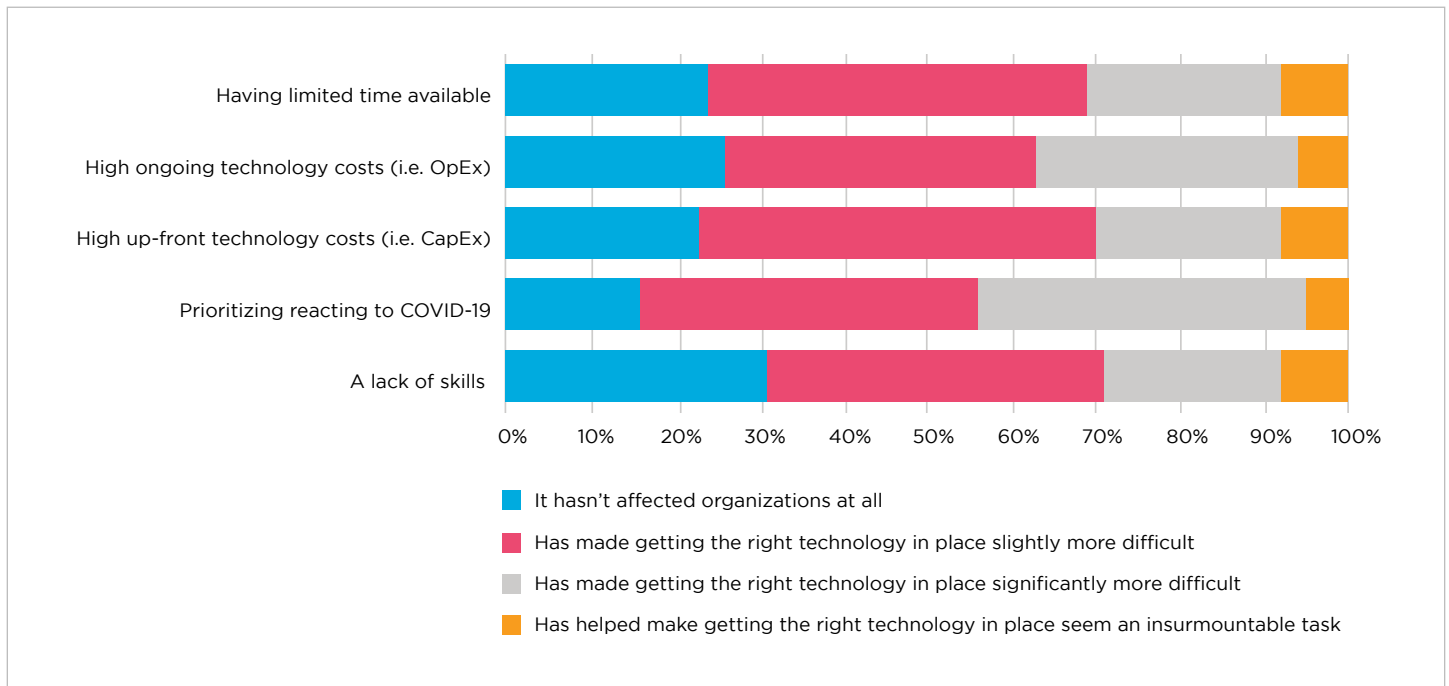
Total:

Having limited time available
High ongoing technology costs (i.e. OpEx)
High up-front technology costs (i.e. CapEx)
Prioritizing reacting to COVID-19
A lack of skills

- It hasn't affected organizations at all
- Has made getting the right technology in place slightly more difficult
- Has made getting the right technology in place significantly more difficult
- Has helped make getting the right technology in place seem an insurmountable task

US:

Having limited time available
High ongoing technology costs (i.e. OpEx)
High up-front technology costs (i.e. CapEx)
Prioritizing reacting to COVID-19
A lack of skills

- It hasn't affected organizations at all
- Has made getting the right technology in place slightly more difficult
- Has made getting the right technology in place significantly more difficult
- Has helped make getting the right technology in place seem an insurmountable task

UK:

Having limited time available
High ongoing technology costs (i.e. OpEx)
High up-front technology costs (i.e. CapEx)
Prioritizing reacting to COVID-19
A lack of skills

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- ▮ It hasn't affected organizations at all
- ▮ Has made getting the right technology in place slightly more difficult
- ▮ Has made getting the right technology in place significantly more difficult
- ▮ Has helped make getting the right technology in place seem an insurmountable task

France:

Having limited time available
High ongoing technology costs (i.e. OpEx)
High up-front technology costs (i.e. CapEx)
Prioritizing reacting to COVID-19
A lack of skills

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- ▮ It hasn't affected organizations at all
- ▮ Has made getting the right technology in place slightly more difficult
- ▮ Has made getting the right technology in place significantly more difficult
- ▮ Has helped make getting the right technology in place seem an insurmountable task

Germany:

Figure 2: Factors making getting the right technologies in place for digital transformation more difficult in the last 12 months: By country

Perhaps unsurprisingly, these difficulties have had a direct impact on architects themselves. During a year of unpredictable demand and change, it's architects' responsibility to ensure IT has the technology and guidance to not only "keep the lights on," but keep wider digital progress running smoothly. 48 percent of architects are currently under high or extremely high pressure to deliver digital projects, presumably at least partly in reaction to COVID-19. 12 months ago, however, only 19 percent felt this pressure. Looking ahead, things may get easier, but not by much: 40 percent are under high or extremely high pressure to deliver projects in 12 months' time *(figure 3)*.

1-12 months ago
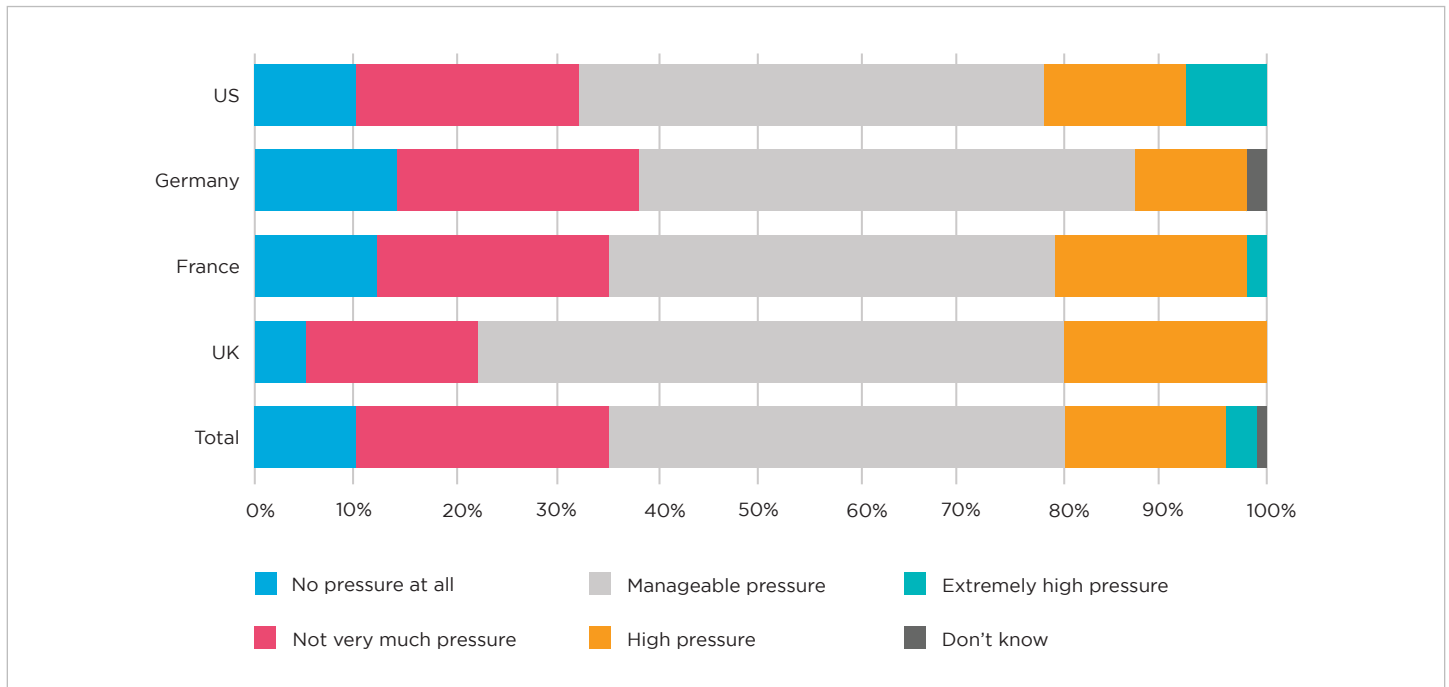
Currently
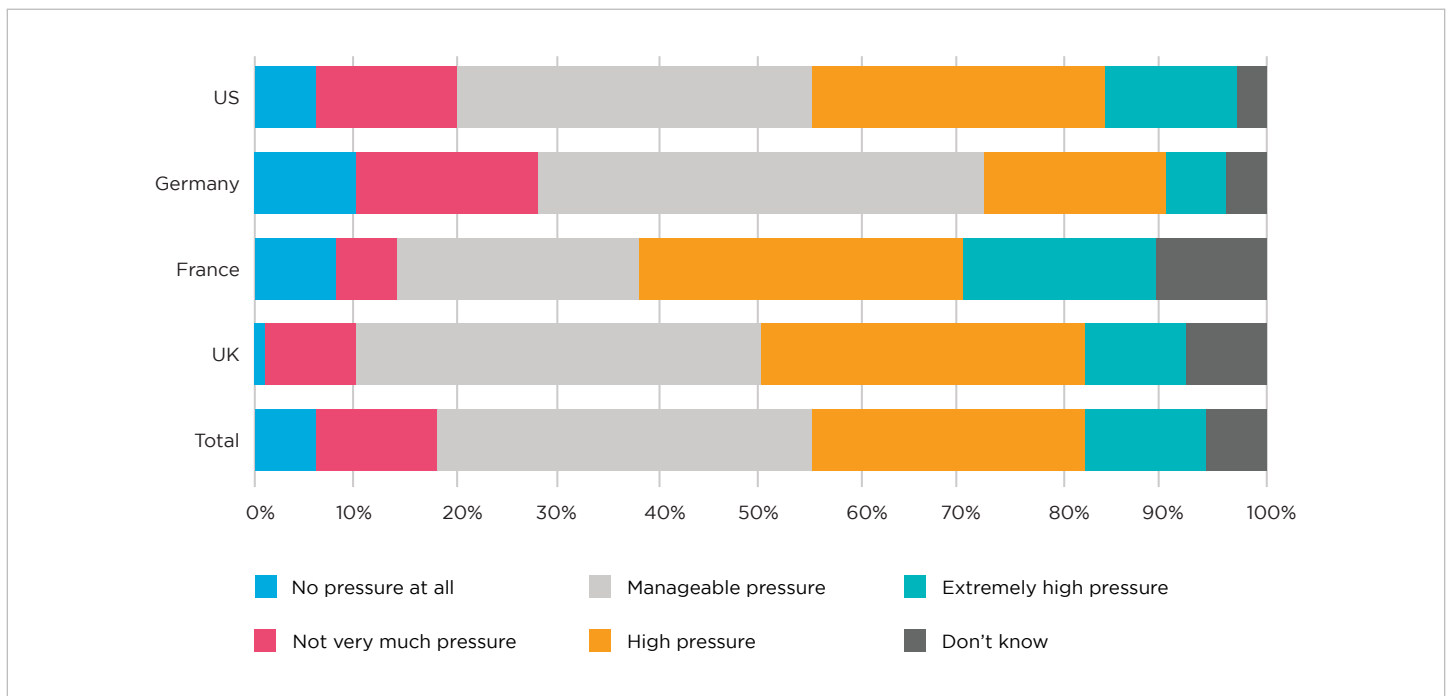
In 12 months' time
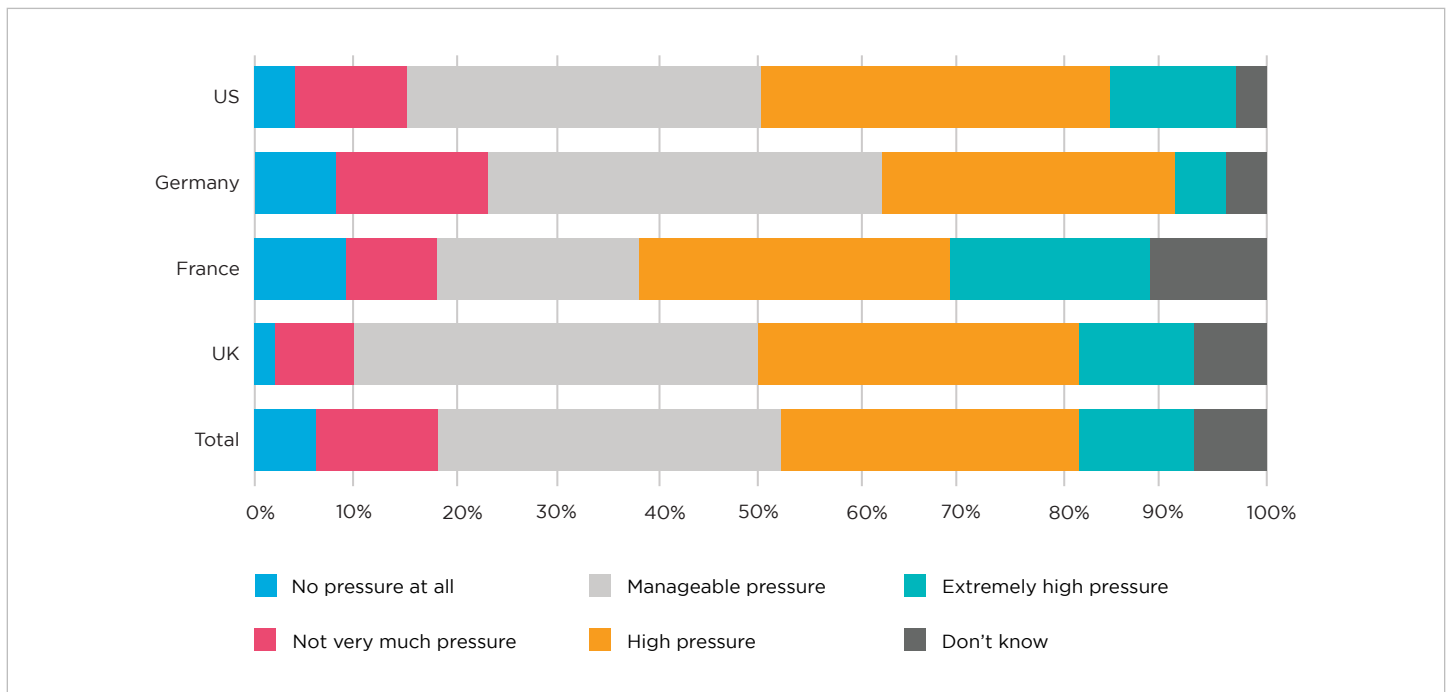
Figure 3: Pressure put on the IT team by the rest of the organization to deliver digital projects in certain timeframes

Taken as a whole, these figures suggest that, despite the considerable pressure and obstacles, architects' performance in 2020 has been remarkable. Yet, the weight on their shoulders must not be underestimated, and if they're to overcome the challenge of getting the right technologies in place to support transformation, a strong foundation for implementing them is a must. This means organizations must ensure a modern, scalable and agile architecture underpins the entire stack from the start.

Part 2: Supporting new technologies

Technology is of course a huge part of any successful digital transformation project, but there are numerous strategies and individual technologies that must be used in the right way. To meet their potential to radicalize digital transformation, new technologies must also be implemented with the right architecture behind them to truly make a difference, and it's here that architects are met with increasing challenges.

To establish where the biggest pain points lay, we must understand how enterprises rank different technologies against their importance to digitization. At present, respondents believe the cloud (identified by 68 percent of organizations) and Big Data (59 percent) are the most likely to have "major potential" to revolutionize digital transformation – perhaps because both help enterprises adapt to an increasingly online world **(figure 4)**.
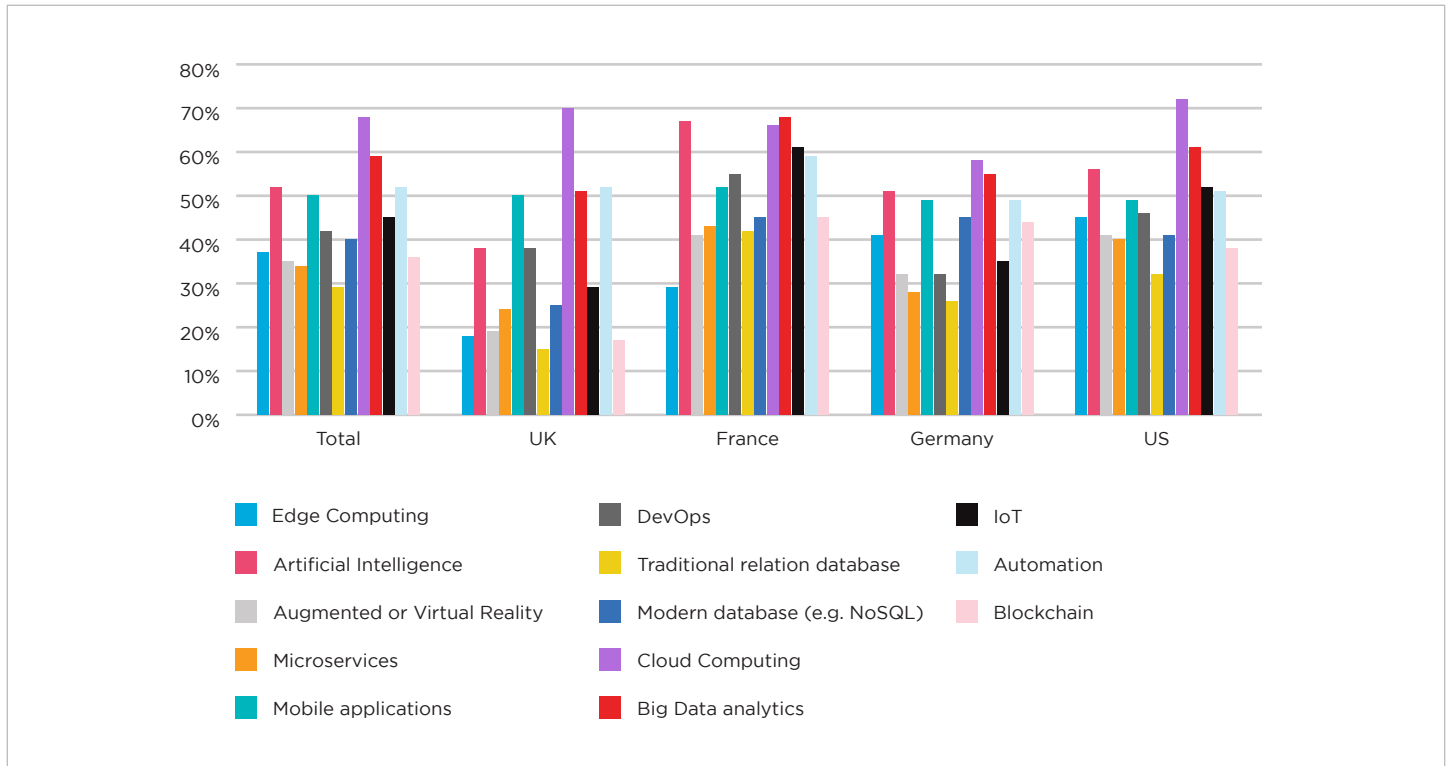
Figure 4: Which technologies have major potential to have a revolutionary impact on organizations' digital transformation efforts in the future?

Conversely, traditional relational databases are the least likely to have an impact, with just 29 percent believing they have "major potential" to radicalize digital transformation. Relational databases ticked all the boxes when there were no other alternatives, but now times have changed, and organizations realize they must invest in something more practical.

However, despite most organizations believing relational databases have little impact on digital transformation, 91 percent still rely on them – 31 percent heavily. Nevertheless, this is slightly lower than 2019 when 38 percent relied heavily on relational databases, suggesting there is an ongoing transition, however small **(figure 5)**.
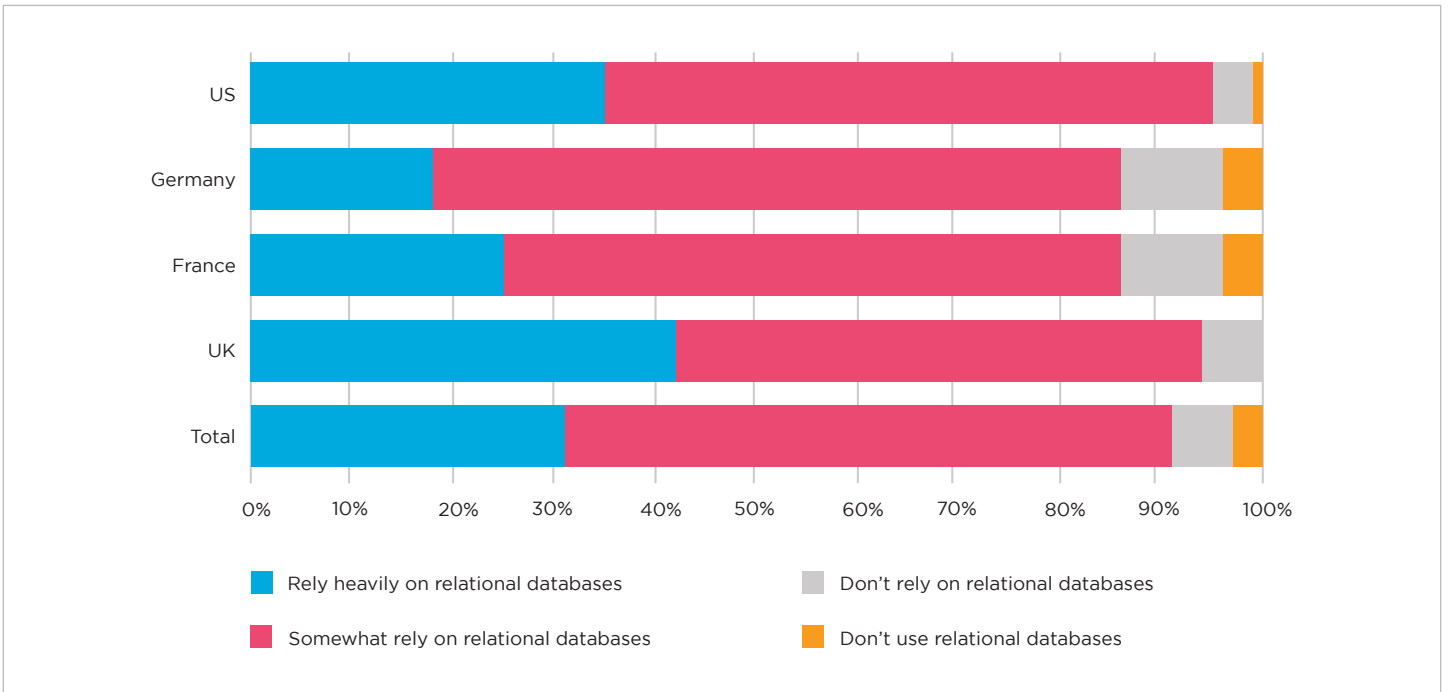
Figure 5: Organizations' reliance on traditional relational databases

This reliance on relational databases creates its own challenges. 61 percent of organizations that still rely on legacy databases say that reliance is holding back their ability to easily implement new digital transformation projects. This might partly explain why 60 percent of organizations have been reducing their use of legacy databases over the past 12 months, and 64 percent plan to reduce their use over the next 12 *(figure 6)*.
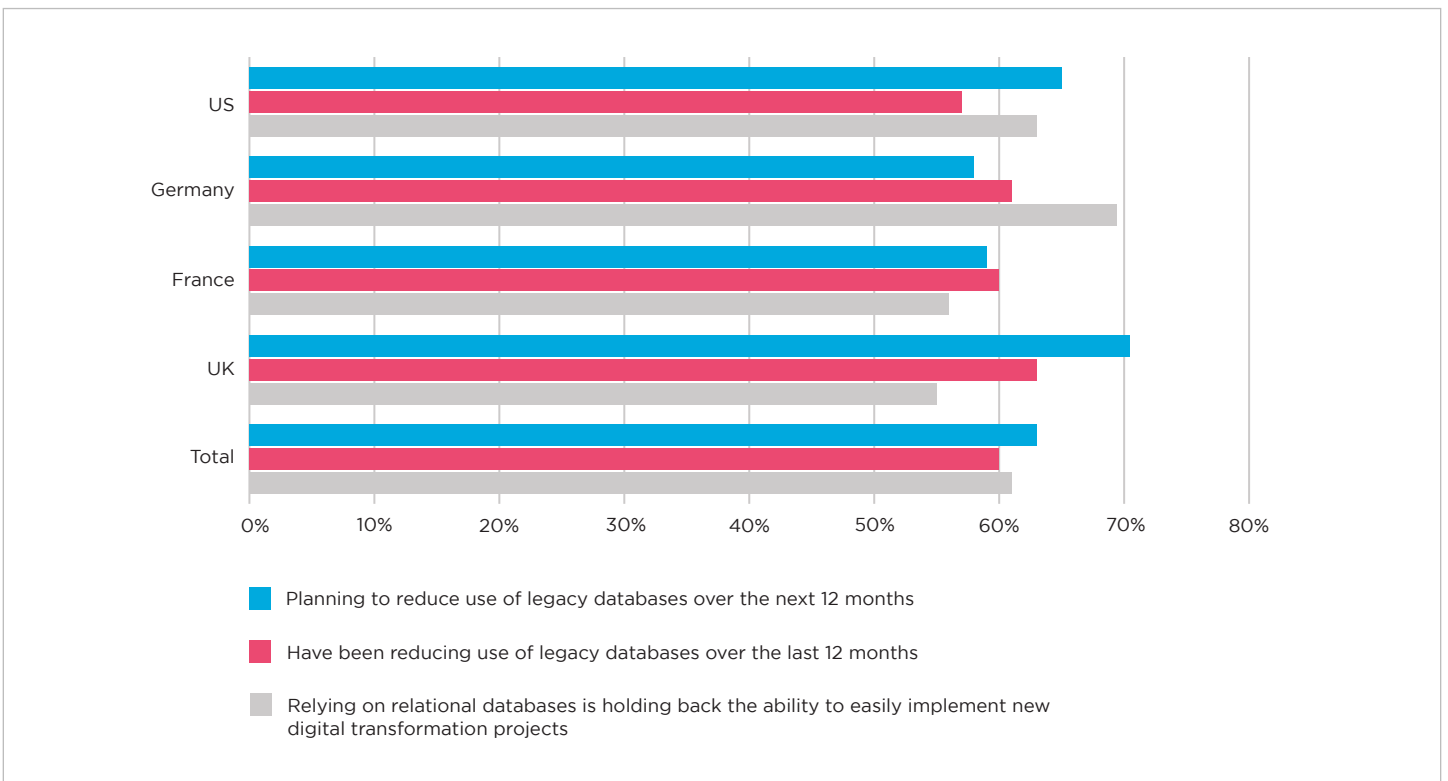

Figure 6: Organizations' attitudes towards relational databases

So why do organizations continue to use legacy databases, despite them potentially stunting digitalization? There are several reasons: 64 percent say they are locked into using them because they have invested heavily in the relevant skills, while the same percentage said legacy databases hold their systems of record. For 55 percent of organizations, relational databases are so integrated into their IT architecture that it would be too complex or expensive to replace them *(figure 7)*.
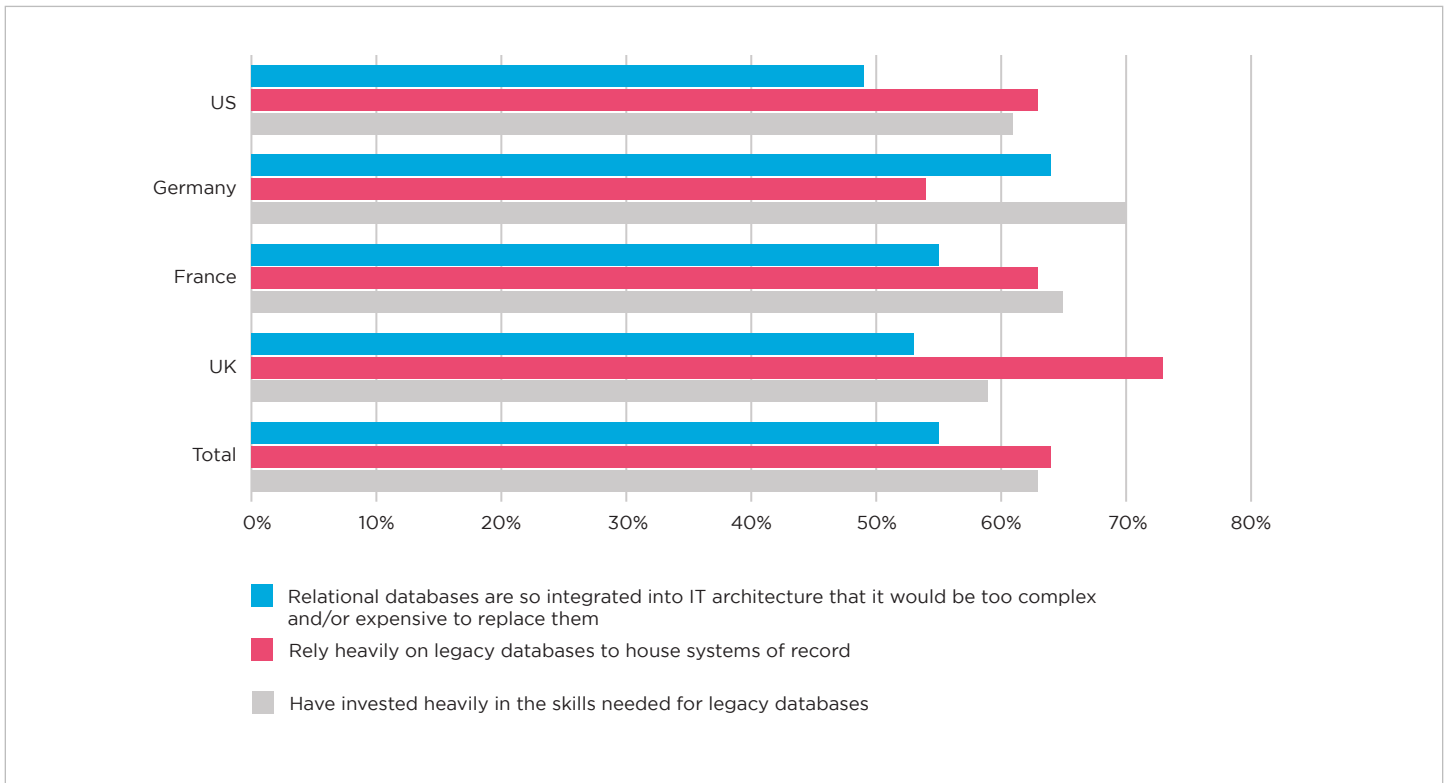

Figure 7: Reasons for continuing to rely on relational databases

Interestingly, the reaction to COVID-19 has pulled organizations almost equally in opposite directions. For 34 percent, it has accelerated their move away from legacy databases, perhaps as the drive to digitally transform during the pandemic made clear the need to move on from legacy technology. Meanwhile for 33 percent, the pandemic has put their move away from legacy databases on hold: potentially because immediate, short-term projects had to take priority *(figure 8)*.
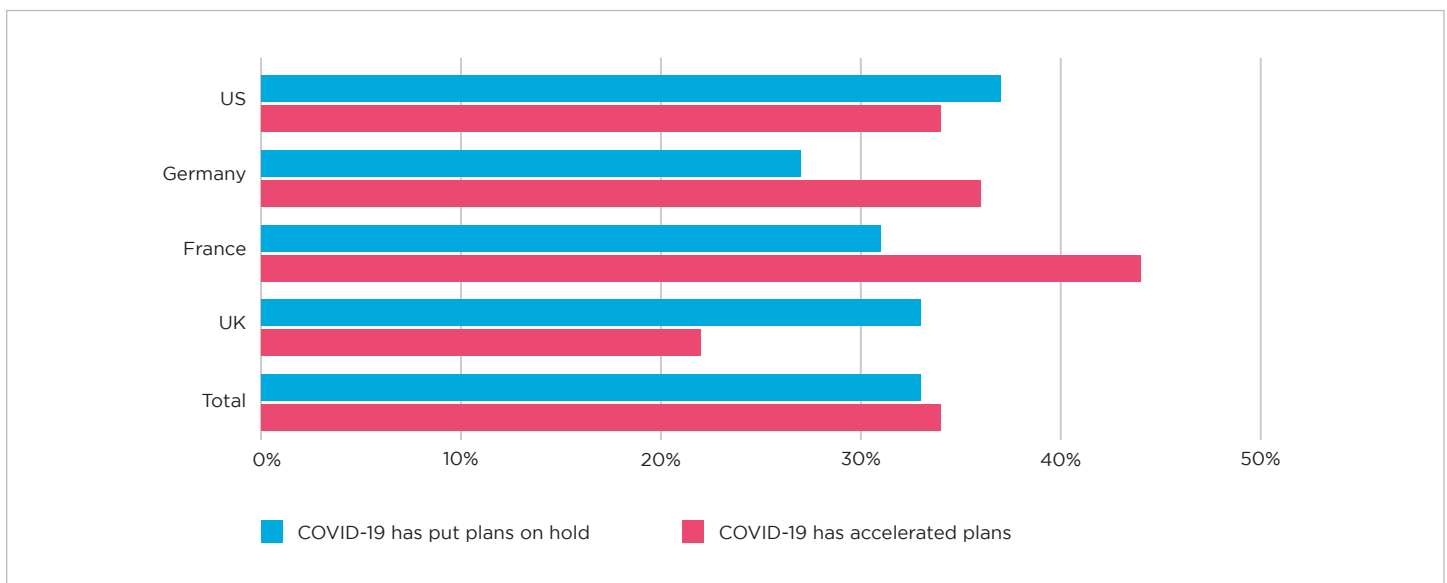

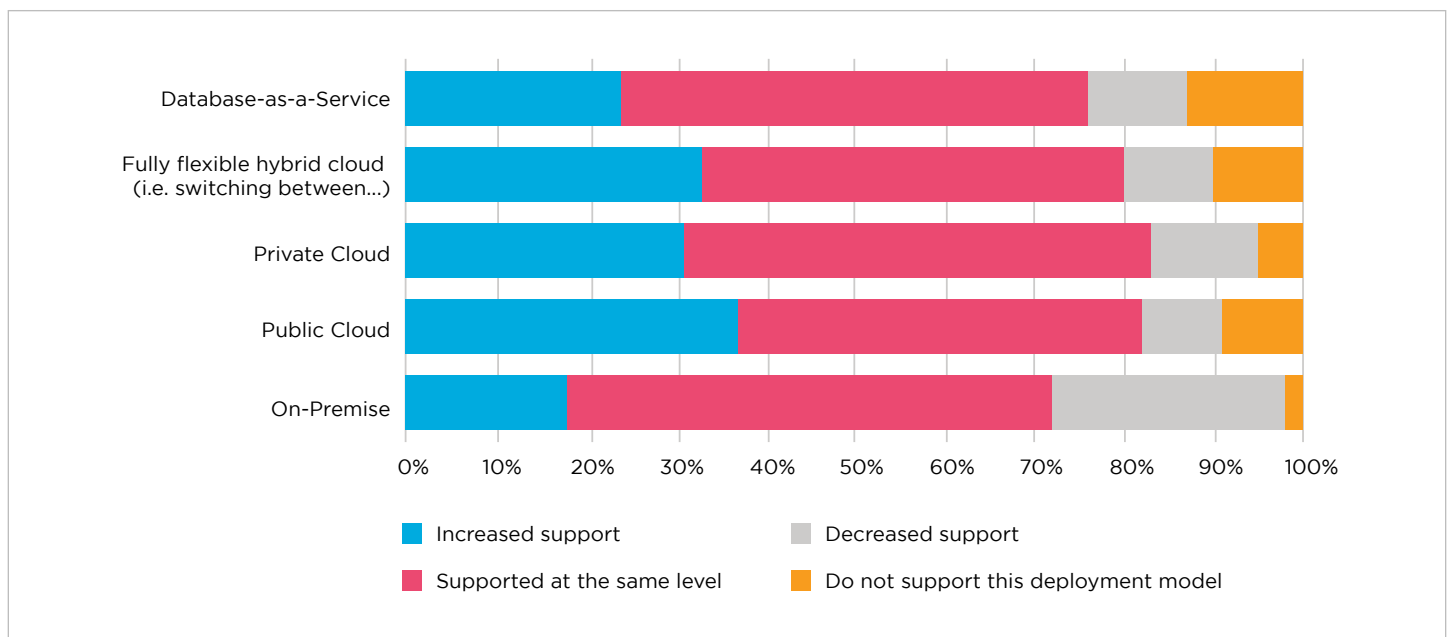*Figure 8: Impact of COVID-19 on plans to reduce use of legacy databases*

Considering transformative technologies need the right architecture to reach their full potential, modernizing database infrastructure is clearly key for organizations. And for all the pain points around moving to a modern, NoSQL database, there are always solutions. If skills are the issue, you can use technology that works on the same principles as your relational database, so it's easy for developers to transfer skills. If legacy databases hold systems of record, they can be combined with more modern databases that offer greater agility, with the organization transitioning its systems of record to newer databases when it is confident in their reliability and security. And organizations that don't want to rip and replace architecture can make slow, incremental changes whilst making use of both relational and NoSQL databases. The key to making these steps work is ensuring architects have the support and investment from the C-suite to drive real change.
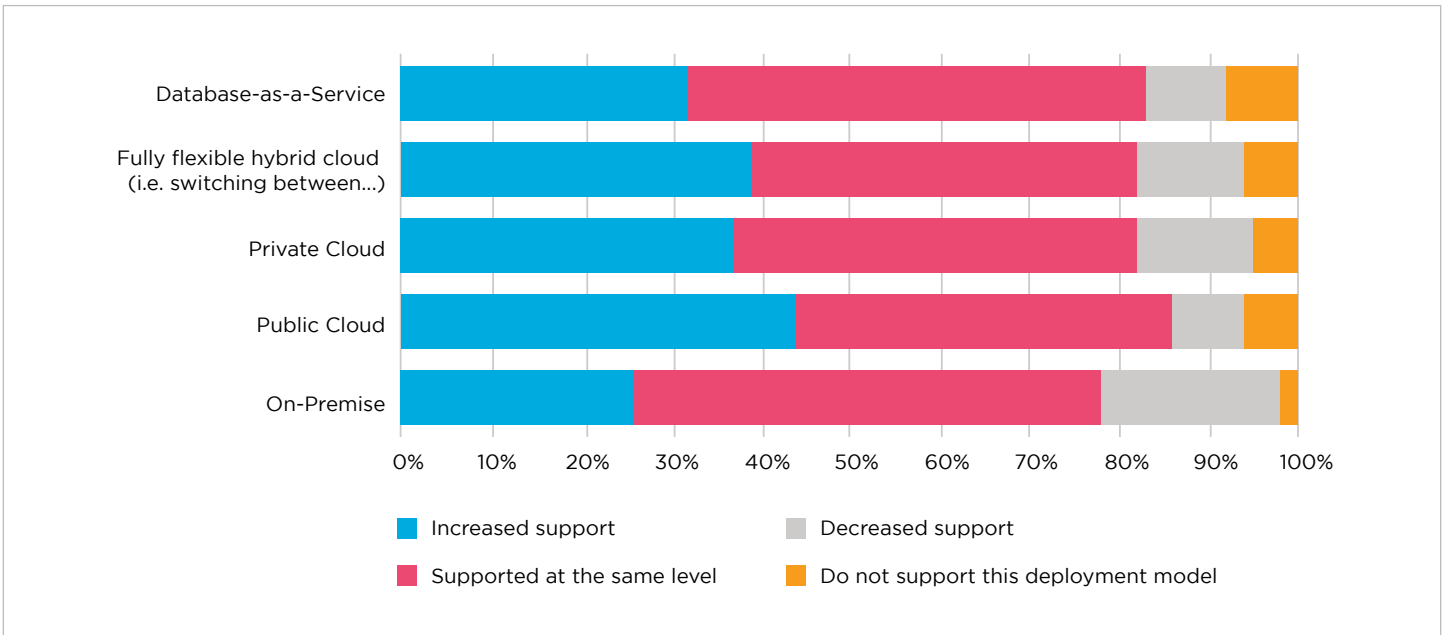
Part 3: Moving to the cloud

It's not just the shift from relational databases to NoSQL offerings that is underpinning the modernization of enterprise architecture, but how databases are deployed. Given its potential to revolutionize digital transformation, organizations that can take full advantage of the cloud – including in deploying databases – will be at a considerable advantage.

In general, there's still continued support for cloud deployment models. 38 percent of organizations have increased their use of public cloud in the last 12 months, while 27 percent have increased their use of Database as a Service (DBaaS). Greater adoption of DBaaS particularly highlights the advantages to be gained from moving to the cloud, as it supports different deployment models and cloud providers, and removes the need for extensive database management *(figure 9)*.
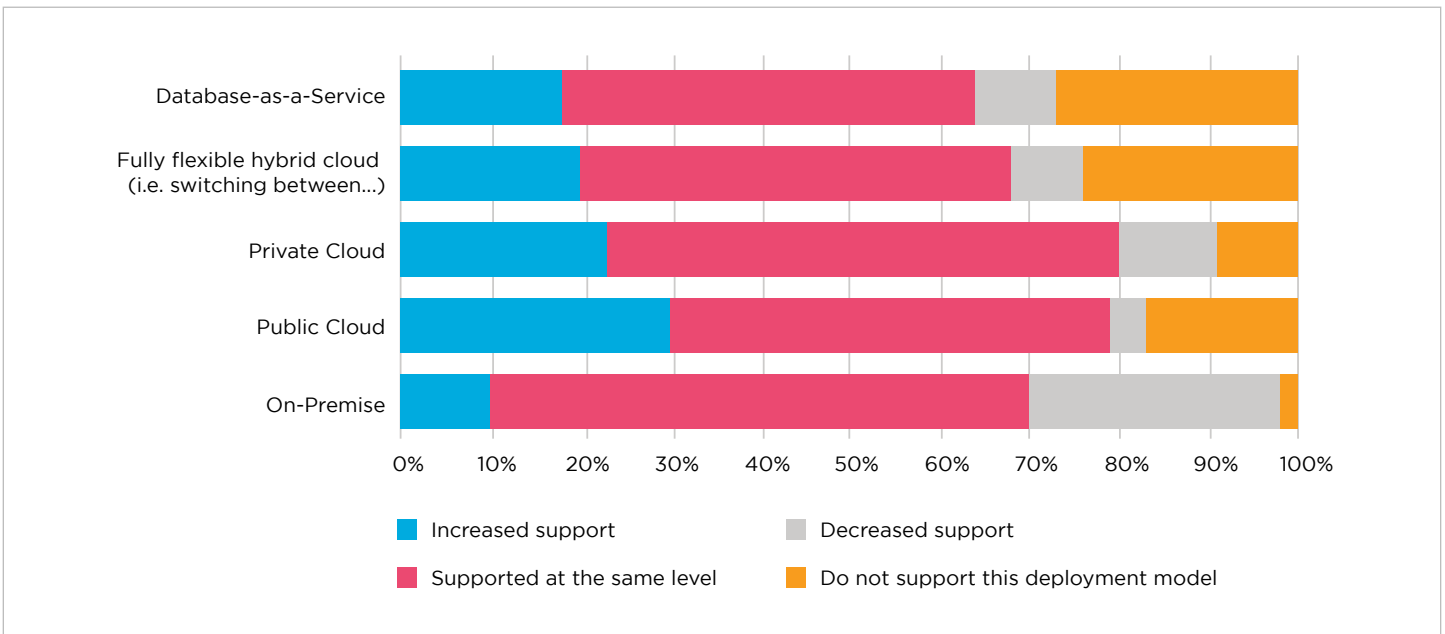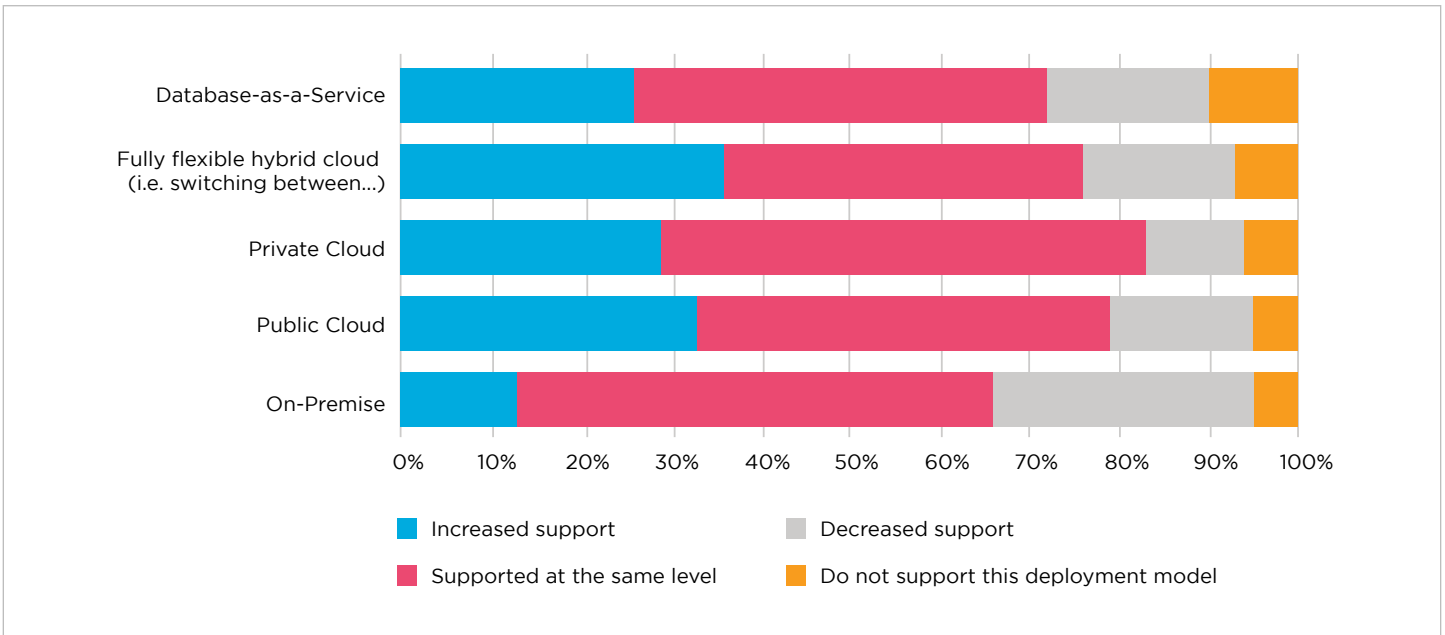
Total:

US:

Database-as-a-Service

Fully flexible hybrid cloud
(i.e. switching between...)

Private Cloud

Public Cloud

On-Premise

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Increased support
- Supported at the same level
- Decreased support
- Do not support this deployment model

UK:

Database-as-a-Service

Fully flexible hybrid cloud
(i.e. switching between...)

Private Cloud

Public Cloud

On-Premise

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Increased support
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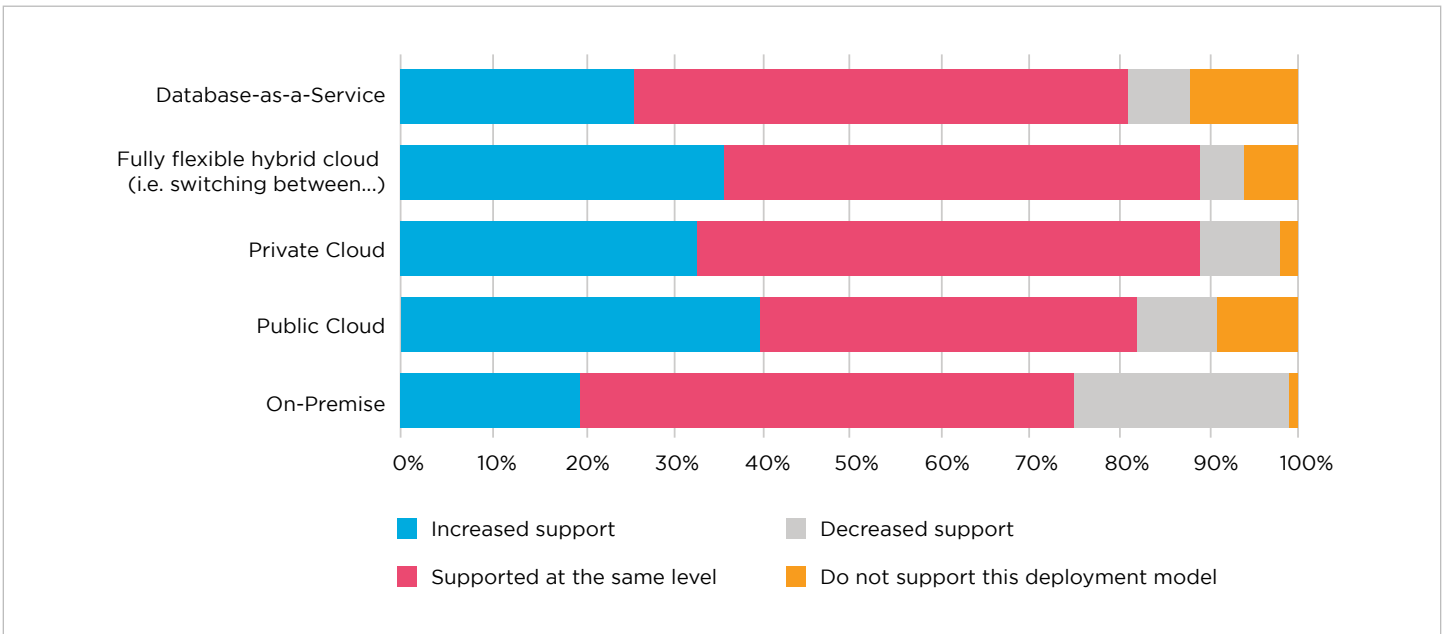
France:

Germany:

Figure 9: Organizations' changing support for cloud deployment models

Also of note is that enterprises are confident in the value that the cloud brings to their organizations. 80 percent said moving to cloud deployment models had helped them meet their digital transformation goals, and 41 percent said it had been "significant" or "indispensable." It's clear the cloud is seen as an essential transformative technology with versatile capabilities.

This said, organizations still have concerns about cloud infrastructure. 62 percent cite security as a top three concern; 40 percent keeping costs under control; and 39 percent the ability to meet future needs. Being able to scale to meet demand was also a concern, identified by 38 percent of enterprises, while clarity around pricing and avoiding vendor lock-in were named as top three challenges by 30 percent and 26 percent respectively. Secure cloud services that allow organizations to set the costs and performance they need is therefore crucial for the confidence enterprises have placed in the cloud to be rewarded *(figure 10)*.
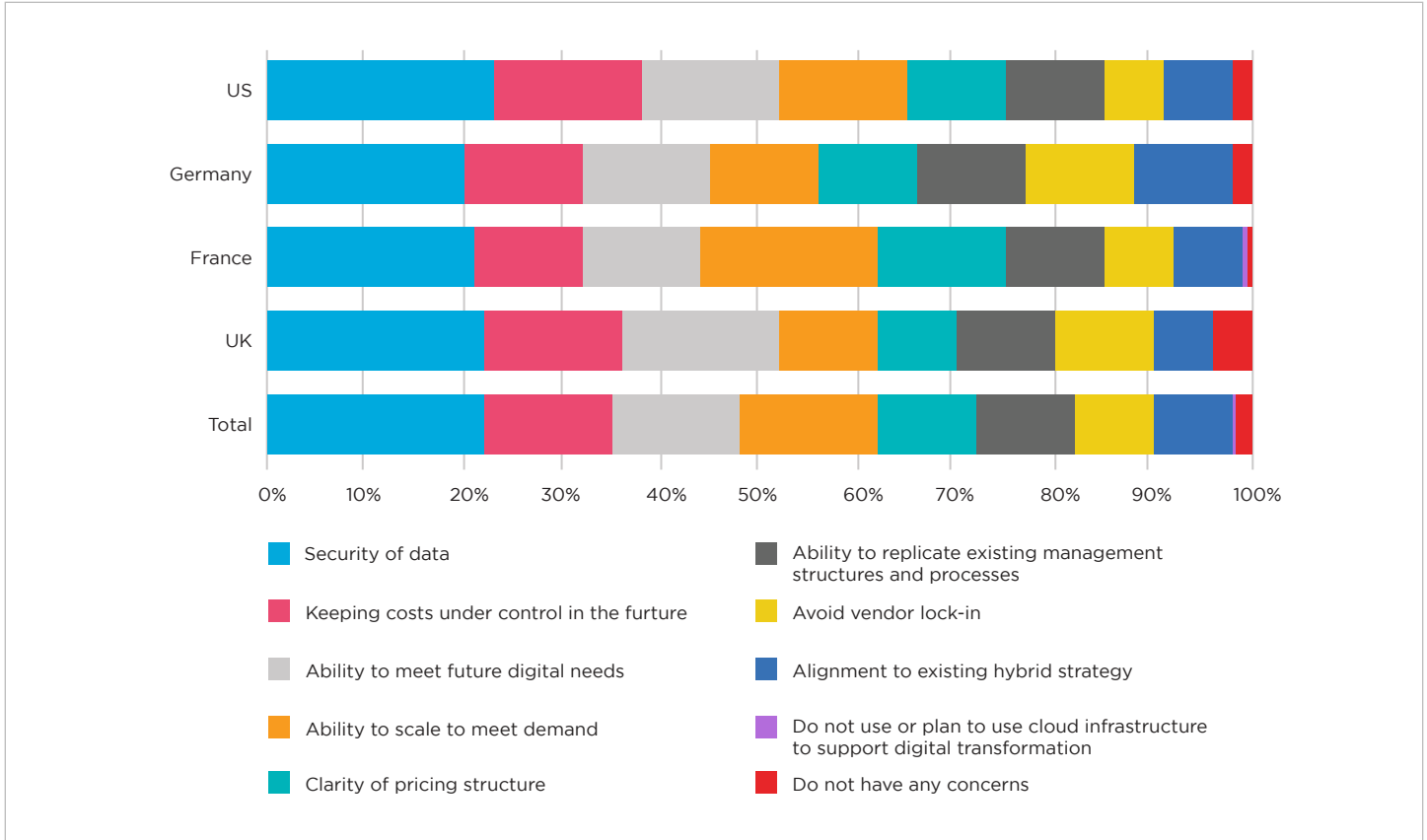

Figure 10: Organizations' concerns when assessing new cloud infrastructure

Part 4: The blueprint for the future

From cloud deployment methods to choosing between relational and NoSQL databases, evidently technology decisions can significantly impact digital transformation projects. By learning from decisions that have resulted in success, or even failure, organizations can adapt and build a blueprint for future digitalization efforts.

Interestingly, 61 percent of respondents said that past technology decisions had made digital transformation projects more difficult in 2019-2020, and a further 24 percent only avoided issues with thorough preparation *(figure 11)*.
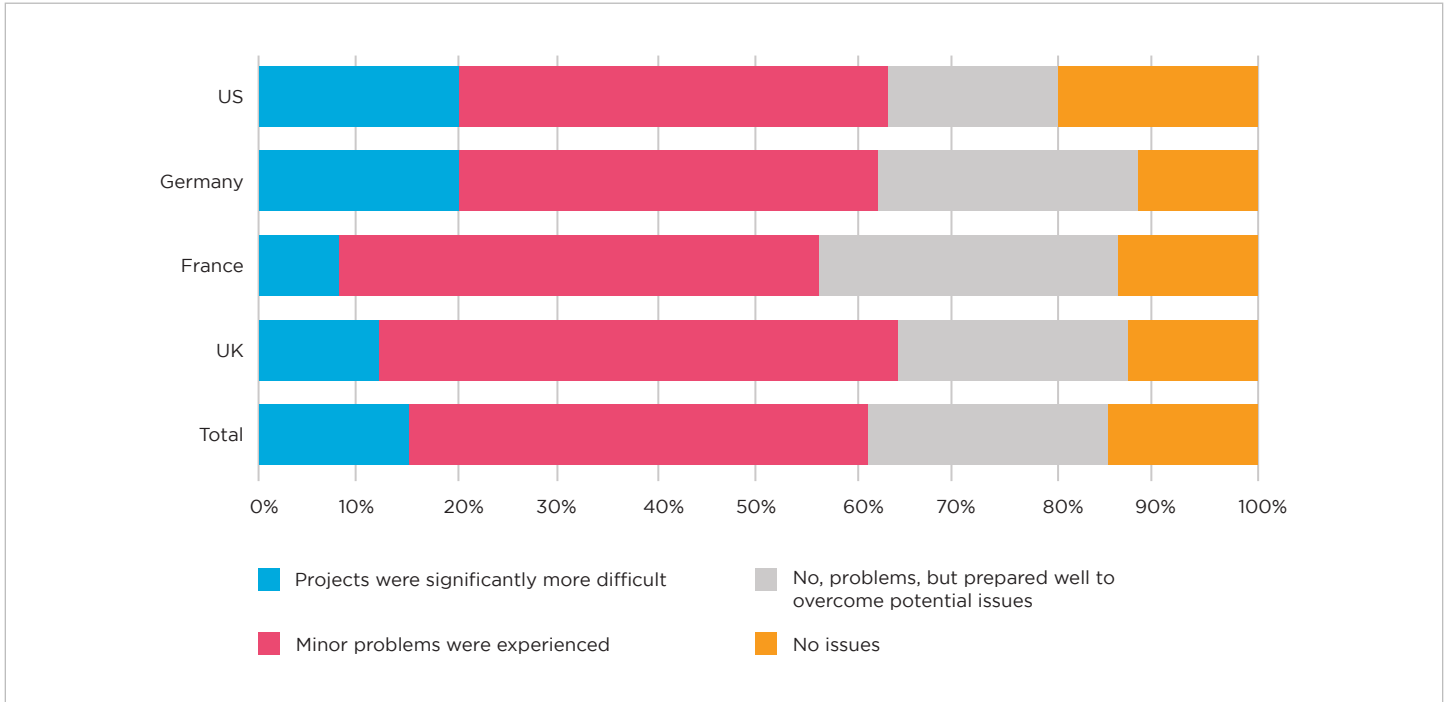

Figure 11: Whether technology purchasing decisions made in the past five years made it more difficult to complete digital transformation projects in the last 12 months

These issues have likely been exacerbated by the COVID-19 disruption to digital services. When looking at individual pain points, poor cloud infrastructure – identified by 48 percent of enterprises – and database choices (43 percent) caused the most issues, with endpoint devices causing the fewest (24 percent). Clearly, careful consideration of architecture can make all the difference to digital transformation *(figure 12)*.
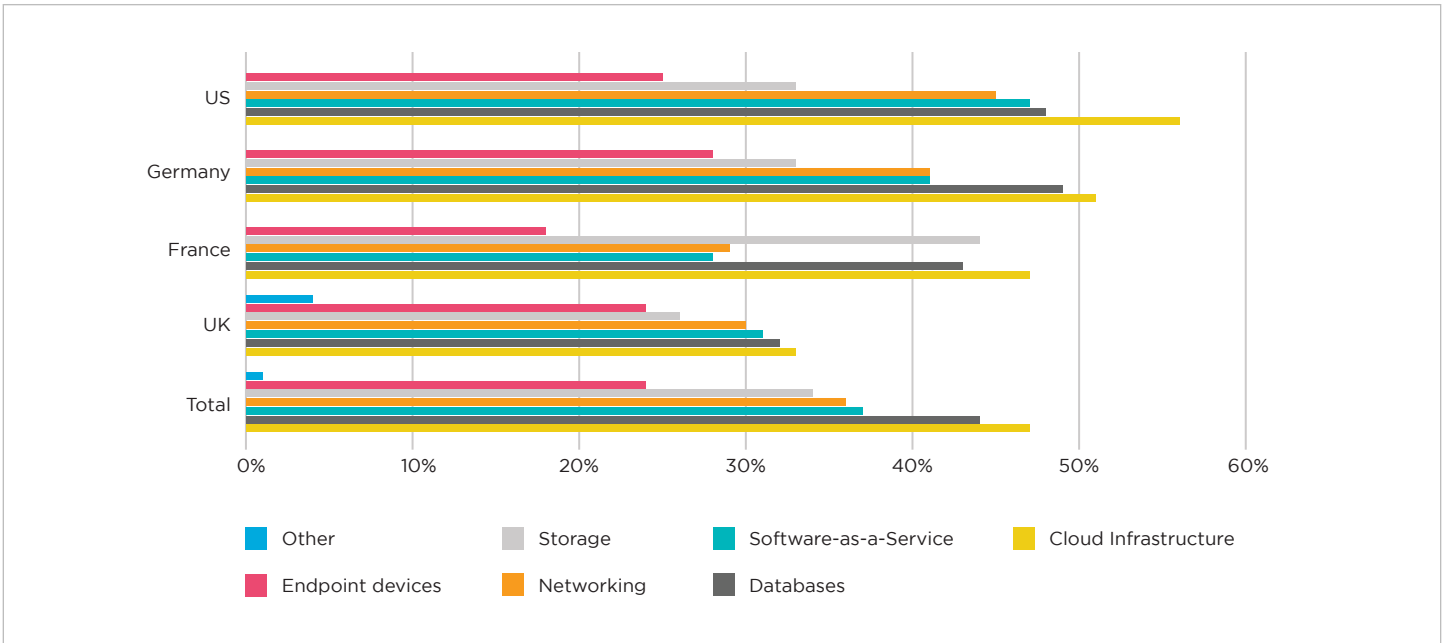
Figure 12: Technologies purchased in the past five years that have caused issues, or caused organizations to prepare to overcome potential issues, with digital transformation in the last 12 months

In addition, respondents were clear what approaches had been of significant help, or even indispensable, in meeting their goals. These included moving from on-premises databases to the cloud (identified by 65 percent); having flexibility to quickly change goals when needed (63 percent); adopting technology that didn't require investing time and money in skills (60 percent); ensuring the C-suite is involved in all aspects of IT strategy (58 percent); and moving from legacy to NoSQL databases (49 percent) *(figure 13)*.
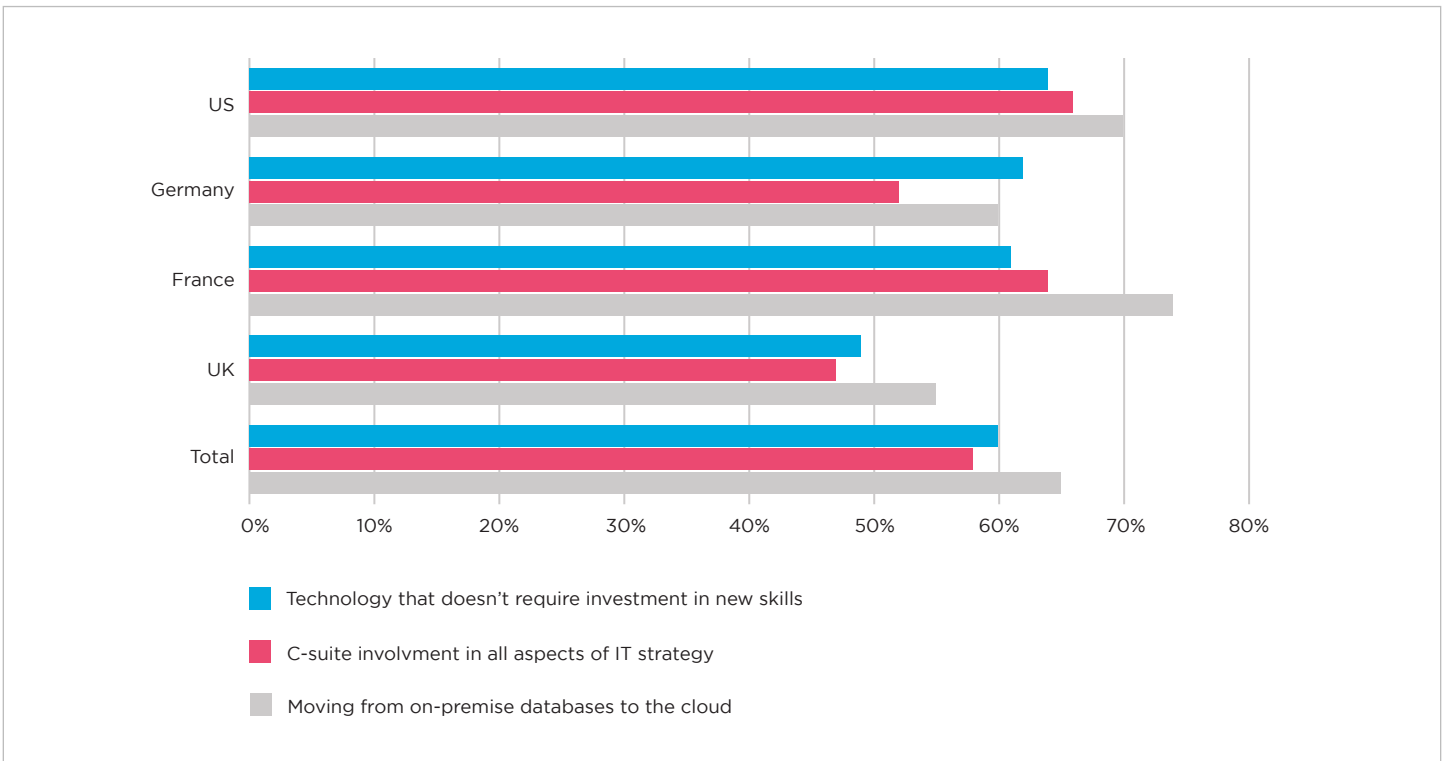

Figure 13: Technologies that have been significantly helpful or indispensable in enabling organizations to meet their digital transformation goals

When looking ahead, only by studying what has worked and which decisions have caused issues can we build a blueprint that will, if not guarantee, then increase the likelihood of digital transformation success. Architects that proactively analyze the decisions taken this year will be best placed to guide their development teams towards a more fruitful 2021.

Conclusion

Architects have been under growing pressure for some years now due to organizations' increasing digital demands. Coupled with the difficult year 2020 has proved for businesses, it's no surprise architects are under never-seen-before levels of strain.

Yet, despite (or perhaps because of) these challenges, architects have gained an extraordinary amount of experience and expertise in 2020 – and as the results of this survey show, will continue doing so in 2021. Enterprises are increasingly willing to adopt transformative technologies like the cloud and Big Data analytics, while many organizations look set to adopt modern NoSQL databases to underpin their digitization initiatives.

However, no technology can be 'plugged and played' and deliver returns without teething problems, and it's architects' navigation of such problems that will be crucial as we head into 2021. As an unpredictable and frankly, tumultuous year for enterprises gets put behind us, emerging stronger from COVID-19 will require careful consideration of what went wrong, what went right, and what architects truly need to continue driving digital transformation success.

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About Couchbase

Unlike other NoSQL databases, Couchbase provides an enterprise-class, multicloud to edge database that offers the robust capabilities required for business-critical applications on a highly scalable and available platform. As a distributed cloud-native database, Couchbase runs in modern dynamic environments and on any cloud, either customer-managed or fully managed as-a-service. Couchbase is built on open standards, combining the best of NoSQL with the power and familiarity of SQL, to simplify the transition from mainframe and relational databases.

Couchbase has become pervasive in our everyday lives; our customers include industry leaders Amadeus, American Express, Carrefour, Cisco, Comcast/Sky, Disney, eBay, LinkedIn, Marriott, Tesco, Tommy Hilfiger, United, Verizon, as well as hundreds of other household names. For more information, visit www.couchbase.com.