IS THE DATA DILEMMA HOLDING BACK DIGITAL INNOVATION?

A Couchbase research report: Putting the microscope on whether data strategies can support customer engagement and experience

Executive summary

Technology holds the potential to transform every industry, from retail to healthcare to transportation. At the heart of this transformation is the ability to engage with customers through new and improved customer experiences. Yet to create these experiences, organizations need to use data in an agile, responsive, and scalable manner. This Couchbase research report investigates enterprises' reactions to digital disruption, including whether their industry is currently facing disruption; what they believe the aims of digital transformation should be, and whether they are meeting those objectives; how and why their ability to use data is holding them back; and what the consequences are for organizations that cannot keep up.

In particular, the report shows the vast majority of industries face digital disruption – 89 percent of digital decision-makers say that their industry is either already being disrupted by digital technology, or that it's only a matter of time before disruption hits. Respondents also agreed on the ultimate aim of digital innovation, with 95 percent saying it should be to give customers and end-users a truly unique experience. Yet in practice, the vast majority of respondents admit that innovation projects aren't living up to these objectives, instead typically only delivering incremental improvements to the status quo.

This failure to meet organizations' customer engagement and experience ambitions is being blamed on challenges around using data. 84 percent of respondents reported projects being cancelled, delayed, or reduced in scope because of the limitations of their legacy database. It's clear that in many cases organizations are hostages to their legacy databases, but it's equally clear this situation cannot continue. Ultimately, if organizations do not provide the exceptional experience customers increasingly expect, they will pay the price. The clock is ticking; respondents said that those organizations who don't keep up with digital transformation will go out of business or be absorbed by a competitor in less than five years. Worse, 80 percent say their own organizations are already at risk of being left behind by the competition.

Overcoming their data dilemma and using a modern, engagement database will be key in enabling digital decision-makers to deliver projects that not only provide an exceptional, one-off customer experience, but that engage customers and keep them coming back for more. By revolutionizing their customer relationships in this way, they can either keep pace with or even overtake digital disruption in their industry.

Part 1: The current state of digital innovation

Regardless of its scale, there is no doubt that digital technology has the potential to disrupt industries from retail to healthcare to transportation and beyond – as has been demonstrated by organizations such as Amazon, Netflix, and Tesla. Indeed, 73 percent of digital leaders believe that their industry is being disrupted by digital technology, while a further 16 percent say that it's only a matter of time *(figure 1)*.
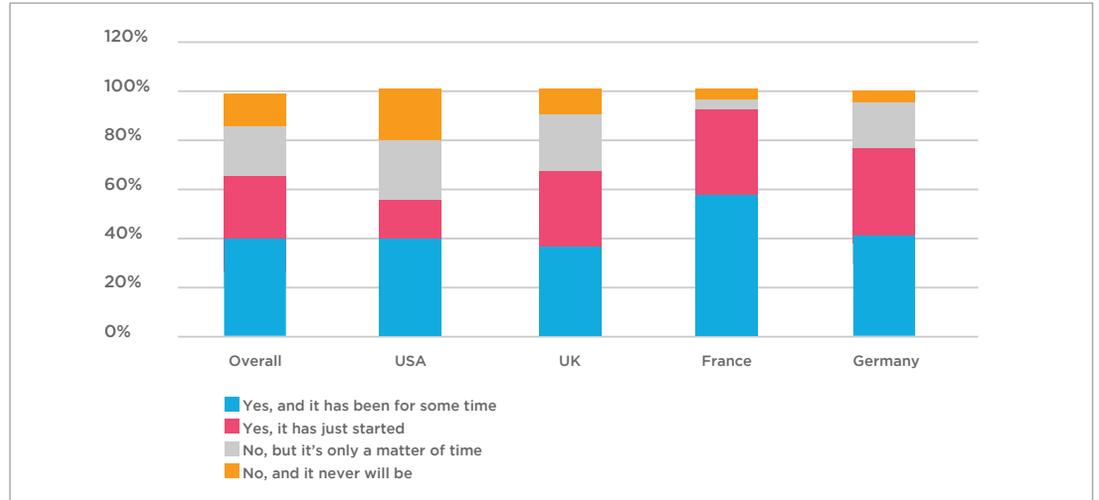

Figure 1: Do respondents believe that their industry is being disrupted by digital technology?

This disruption is reflected in spending. On average, organizations spent $5.67 million on digital innovation and transformation projects in the last 12 months, with 15 percent spending over $10 million *(figure 2 and figure 2(a))*. As the scale of investment continues to increase within organizations, the microscope will clearly be put on whether objectives are being met and benefits realized.
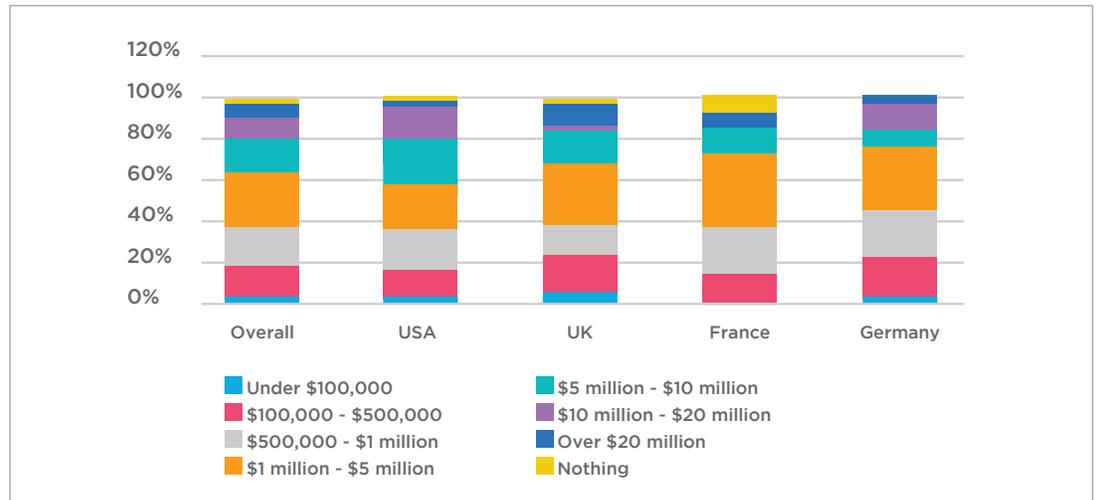

Figure 2: How much did businesses spend on digital transformation / innovation projects in the last 12 months?
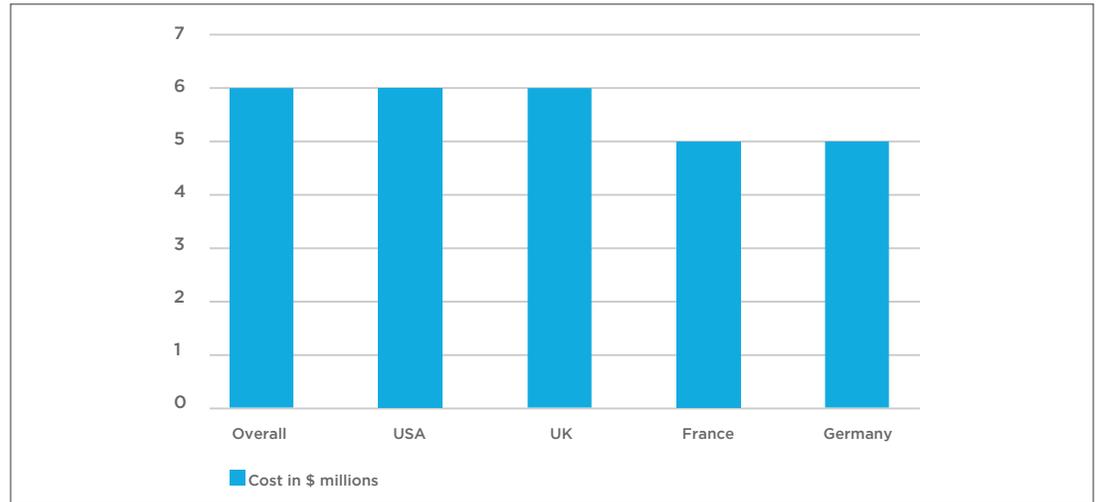
Figure 2(a): Average spend on digital innovation / transformation projects in the last 12 months

Part 2: The importance of customer experience

No matter its scale, digital transformation needs clear goals in order to avoid descending into chaos. The most important benefit of digital transformation projects respondents identified was improving customer experience, with 94 percent claiming it as "very" or "somewhat" important. Other significant benefits identified included improving the experience of end-users in the business, making internal processes such as HR, the supply chain, and finance more efficient, and creating services and experiences that stand out from the competition *(figure 3)*.
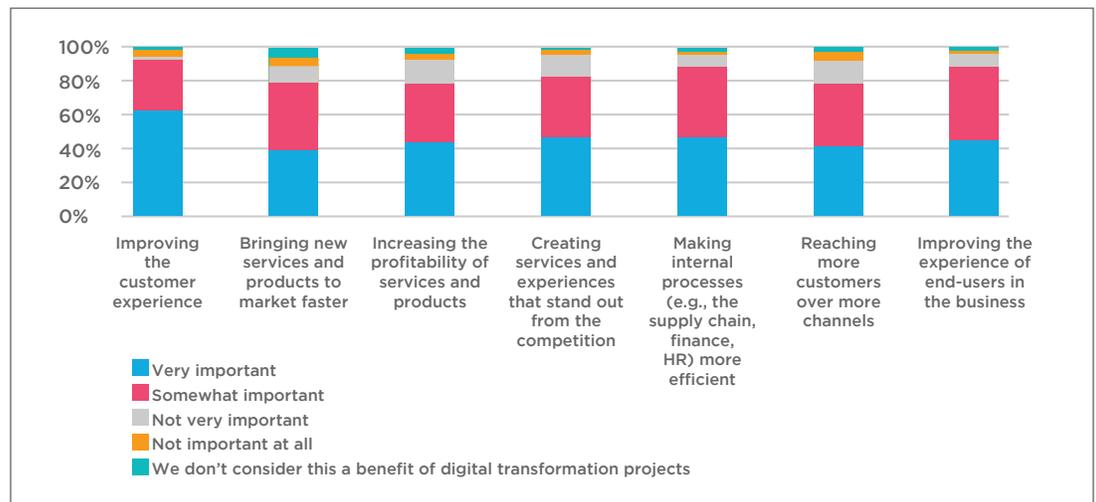

Figure 3: Importance of benefits of digital innovation / transformation projects to the organization (U.S.)

It is clear that digital transformation, at any scale, is focused on finding new and improved ways to engage with customers. Indeed, 95 percent of respondents said the ultimate aim of digital innovation should be to give customers and end-users a truly unique experience *(figure 4)*. However, there is a difference between having goals and being able to put them into practice.
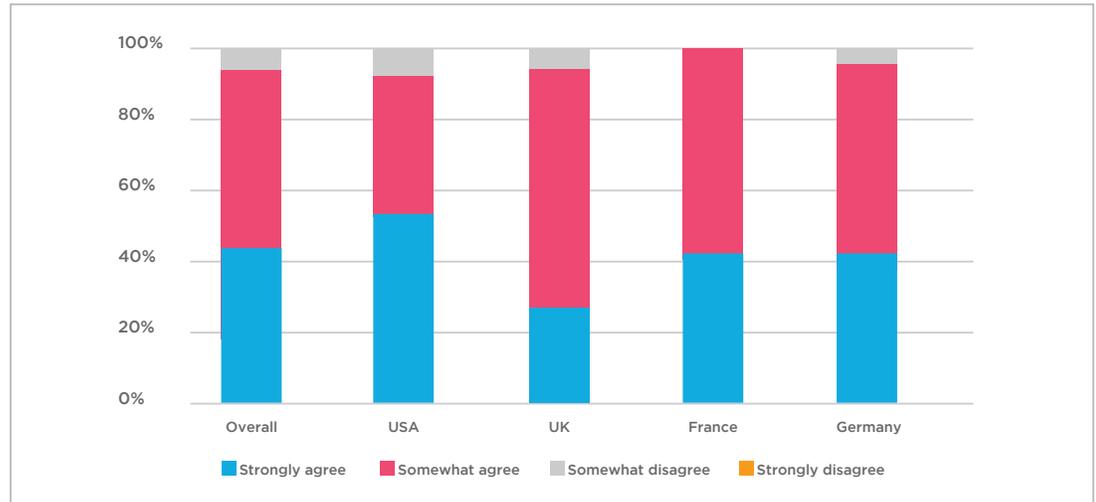
Figure 4: Do respondents agree that the ultimate aim of digital innovation should be to give customers and end-users a truly unique experience?

Part 3: The journey towards customer experience revolution

With such a sizeable investment in digital transformation, the expectations placed on any innovation project are high. The great danger for transformation teams is that this investment creates results that, while welcome, are still only incremental improvements rather than any revolutionary transformation that justifies their expense. Indeed, 90 percent of digital decision-makers agree that the revolutionary potential of digital projects is often talked about, yet most of the time they are used to only deliver incremental improvements *(figure 5)*.
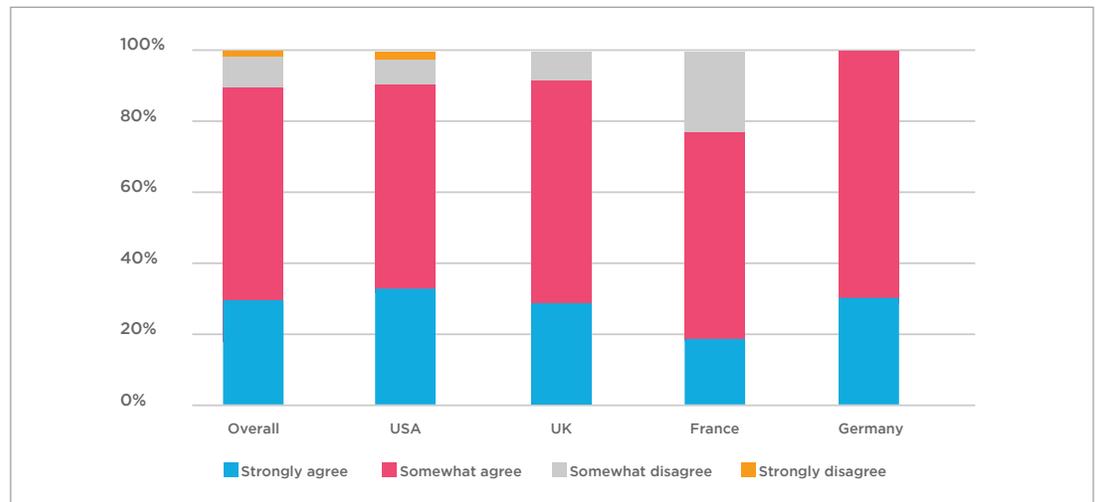

Figure 5: Do respondents agree that the revolutionary potential of digital projects is often talked about, yet most of the time they are used to deliver incremental improvements?

This research shows that in the past almost half of organizations (48 percent) have only been able to make, at best, incremental improvements in customer experience through digital projects. At the other end of the scale, 4 percent claim to have revolutionized the experience to the extent that it's unique in their industry *(figure 6)*.
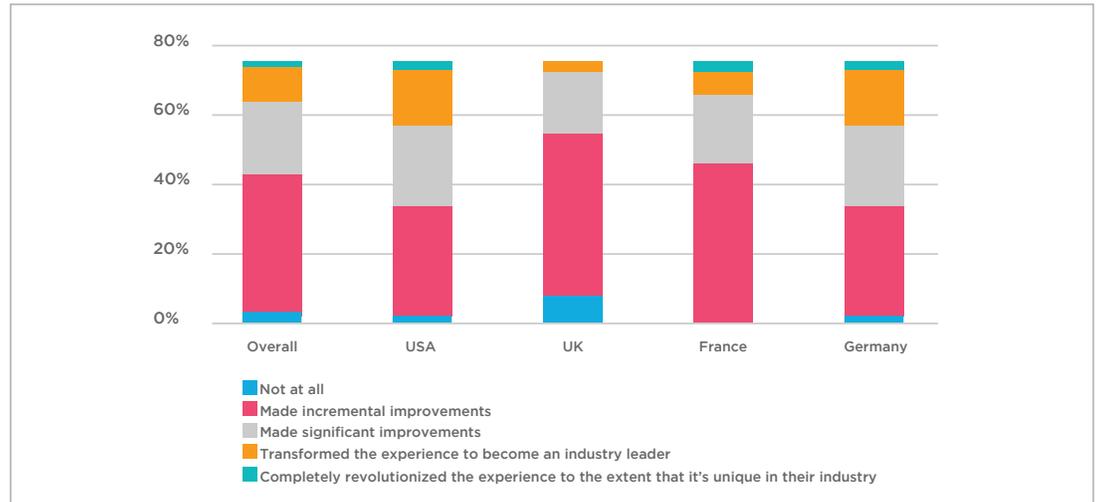
Figure 6: To what extent have organizations been able to transform customer experience through digital innovation projects in the past year?

Customer experience isn't even the most common improvement organizations have reported from digital innovation projects. 62 percent have seen more efficient working processes, while other common benefits realized include increased worker productivity (44 percent), improved compliance, and reaching more customers over more channels (both 36 percent) *(figure 7)*.
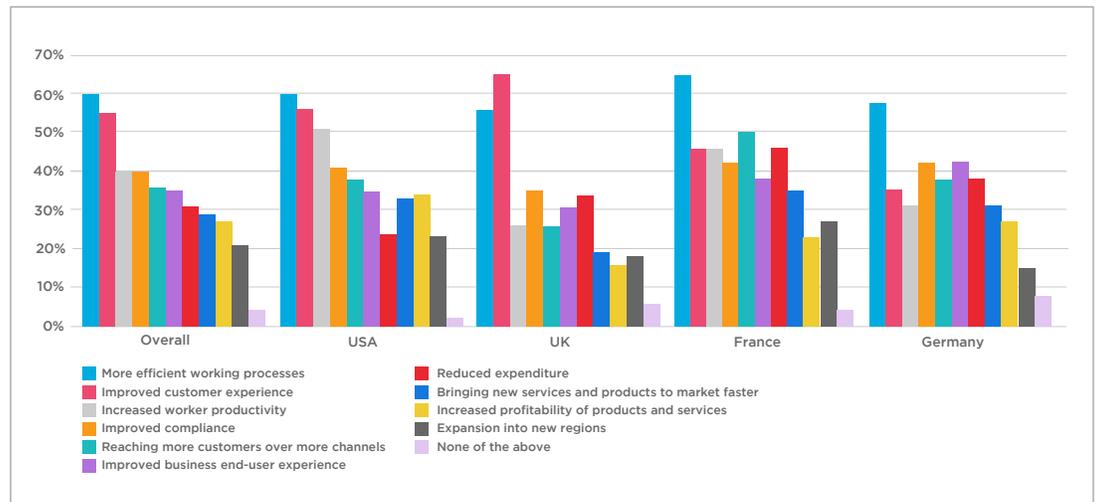

Figure 7 – Benefits that organization has tangibly realized from digital projects in the last 12 months

However, pressure is building on digital teams to provide more improvements to customer experience. 80 percent of decision-makers feel under pressure to be constantly improving their organization's customer experience through digital innovation projects *(figure 8)*.
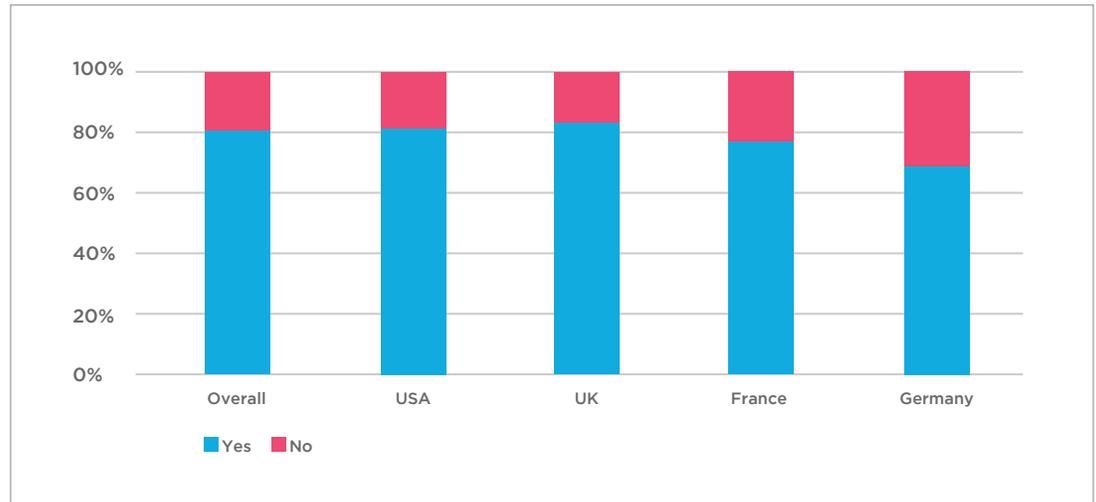
Figure 8: Do respondents feel under pressure to be constantly improving their organization's customer experience through digital innovation projects?

Against this backdrop, digital teams need to use every resource at their disposal, in particular data, to ensure they can provide truly revolutionary improvements to the business, rather than at best incremental advancement.

Part 4: The data dilemma

Holding back ambition

The use of data is critical to new digital services – how would success stories such as Amazon or Airbnb have prospered without not only the right data on products, customers, and services, but also the ability to use that data in the right way at the right time? Yet despite its importance, 90 percent of digital decision-makers are having their ambitions to use data for new digital services held back due to a lack of resources, the complexity of using multiple technologies, or reliance on legacy database technology *(figure 9)*.
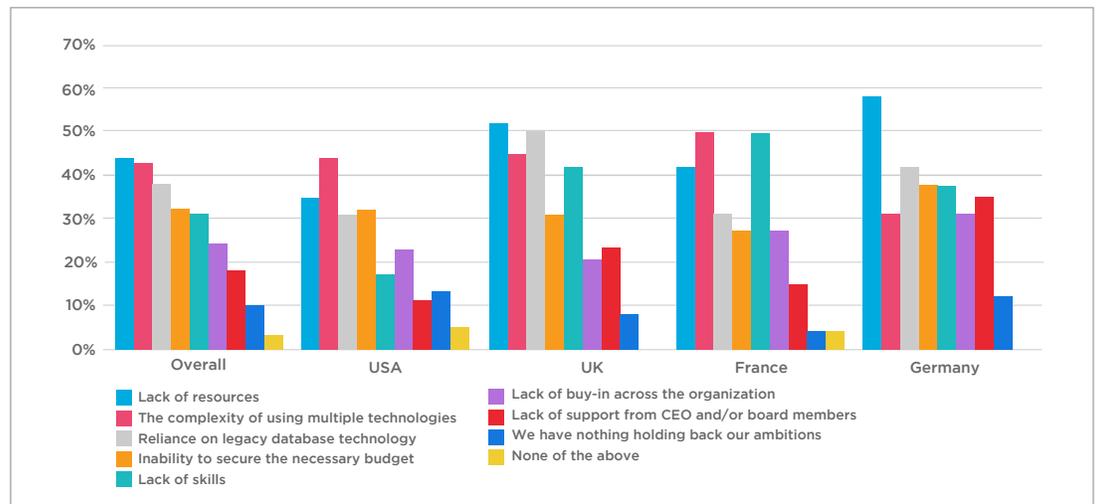

Figure 9: Factors holding back digital decision-makers' ambitions to use data for new digital services in their organizations

Indeed, despite the fact that 94 percent of organizations are still using legacy relational databases such as Oracle or Microsoft SQL Server *(figure 10)*, these databases are failing them when implementing digital projects. 41 percent of respondents have had digital projects fail outright in their organization because the legacy database couldn't support it, and 15 percent after significant time and resources were invested. At the same time, 29 percent have had to reduce the scope of a project due to the cost of making changes to legacy technology, while 14 percent have had to delay projects significantly. Only 16 percent have never reported any issues *(figure 11)*.

Figure 10: Do organizations have one or more legacy databases, e.g., Oracle, Microsoft SQL Server, IBM DB2, MySQL, etc.?
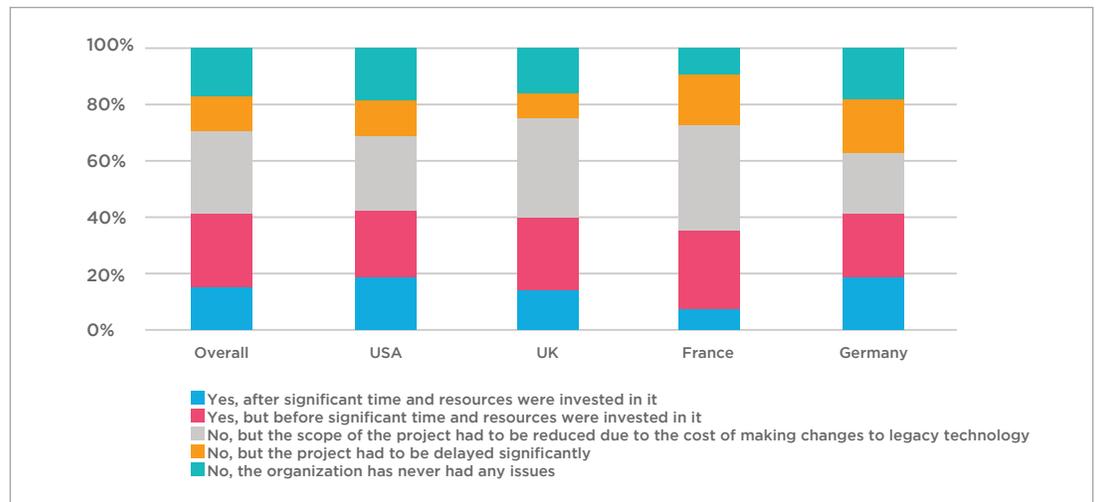
Figure 11: Have organizations experienced a digital project failing because the legacy database technology couldn't support it?

Legacy databases: rigid, unreliable, inflexible, and underperforming?

Respondents have clear frustrations with legacy databases, all of which could lead to project failure, including:

- **Agility:** 86 percent say their organization's legacy database has impacted their ability to develop new applications and improve their business's operations and/or agility – significantly so, in 39 percent of cases *(figure 12)*
- **Reliability:** 87 percent say that maintenance or modifications to the legacy database cause application downtime *(figure 13)*, making it harder to guarantee customer experience
- **Scalability:** 61 percent claim that their legacy database infrastructure hinders their ability to easily scale applications up or down *(figure 14)* – meaning if customer numbers surge, it becomes progressively harder to engage with them
- **Performance:** 74 percent of respondents found that, as they used their legacy database to support applications that engage with end-users using increasingly complex, interconnected, and varied data, the performance of these applications has suffered *(figure 15)*
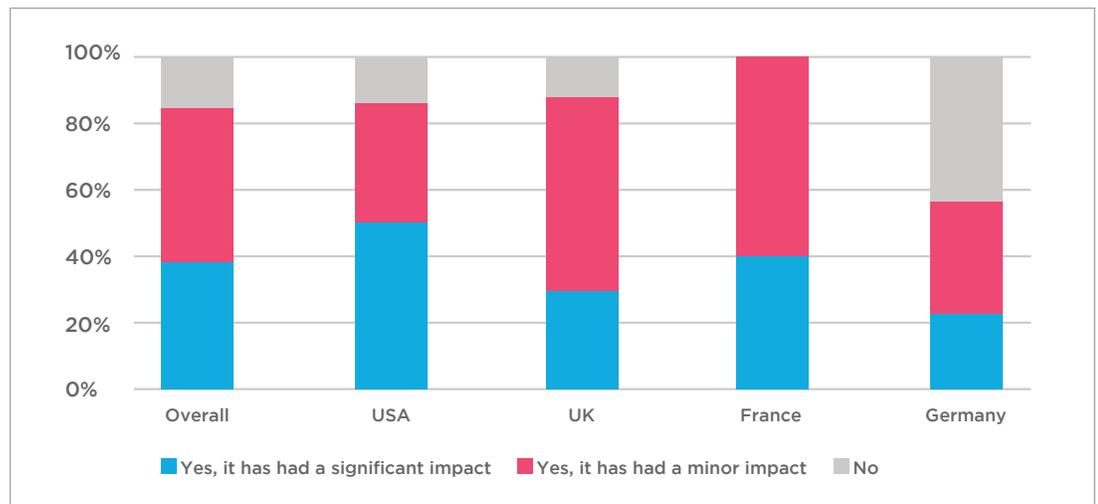

Figure 12: Has their legacy database impacted organizations' ability to develop new applications and improve the business's operations or its agility?
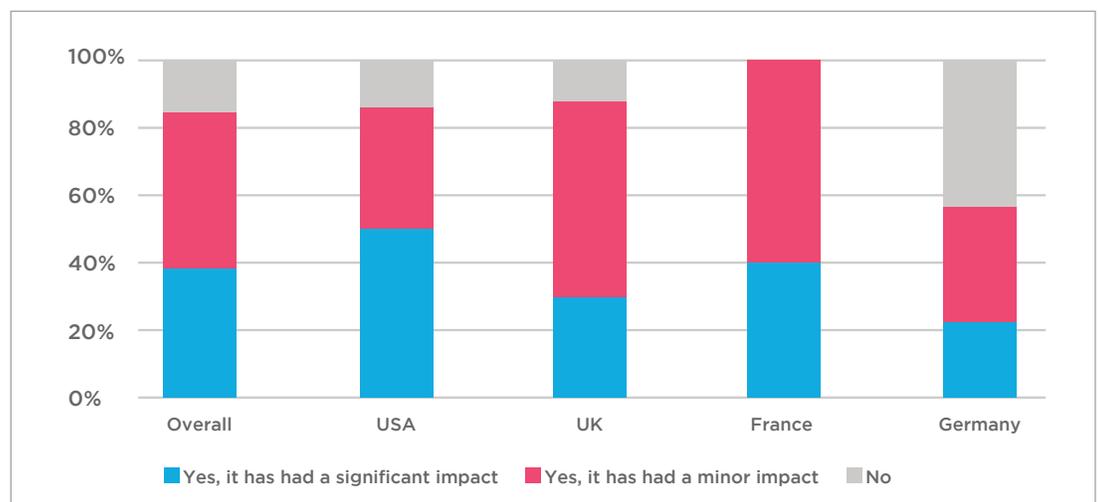

Figure 13: Do maintenance or modifications to organizations' legacy database infrastructure cause application downtime?

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On average the most recent customer data that organizations' databases can use is over one day old, meaning that a truly engaging, real time customer experience is still a long way away for many.
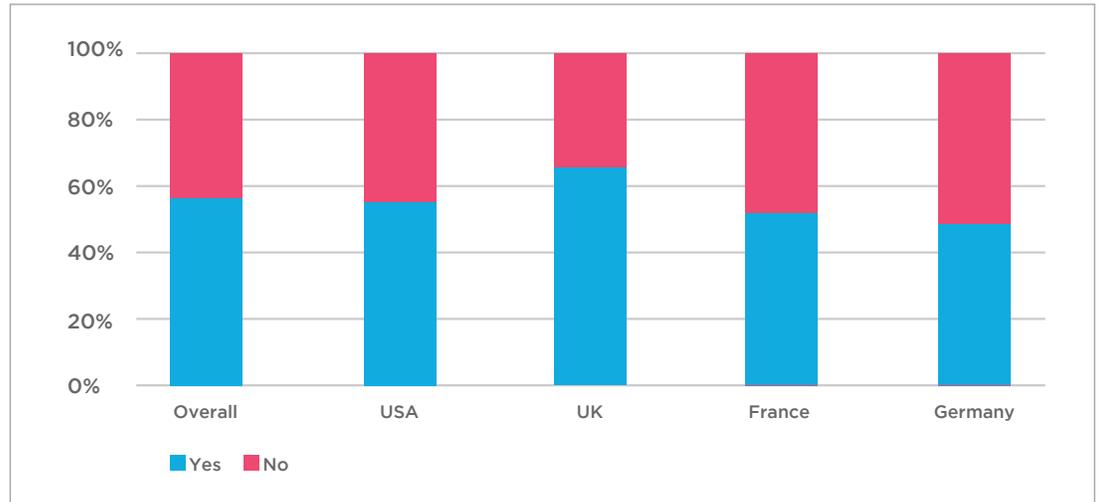

Figure 14: Does legacy database infrastructure hinder the ability to easily scale applications up and down based on demand?
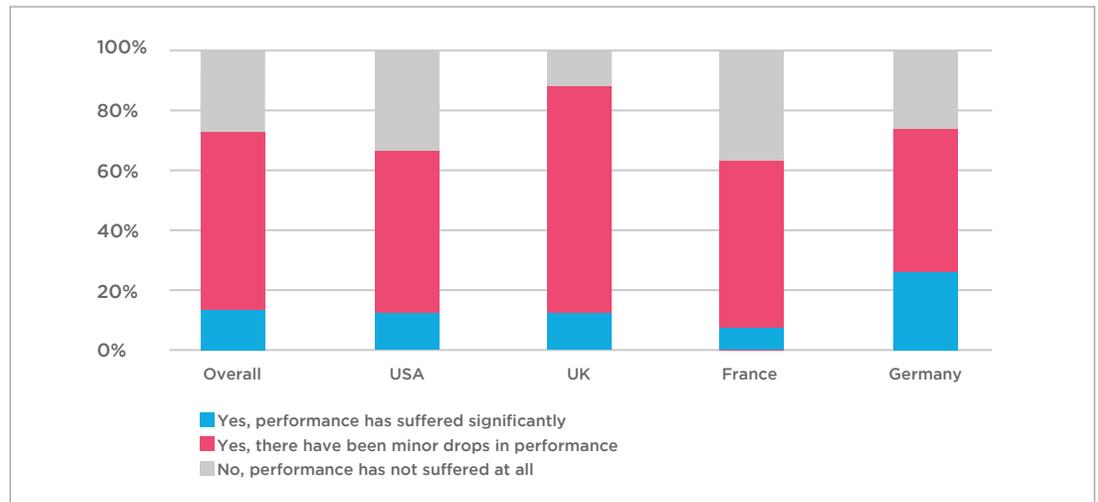

Figure 15: Have organizations found that, as they use the legacy database to support applications that engage with end-users using increasingly complex, interconnected, and varied data, the performance of these applications has suffered?

Taken together, this exposes that while legacy relational databases work perfectly for some operations, they simply aren't suited to support applications that need to foster customer engagement and experience.

Unprepared for future customer engagement and experiences

The limitations of legacy databases are likely to become even more exposed. Increasingly, successful customer experience occurs in real time. Organizations rarely have the luxury to spend hours or days responding to customer requests: the online experience has to be immediate. However, only 41 percent of organizations say they can use data in real time – i.e., as soon as it is recorded. On average, the most recent customer data that organizations' databases can use is over one day old *(figure 16 and figure 16(a))*, meaning that a truly engaging, real-time customer experience is still a long way away for many.
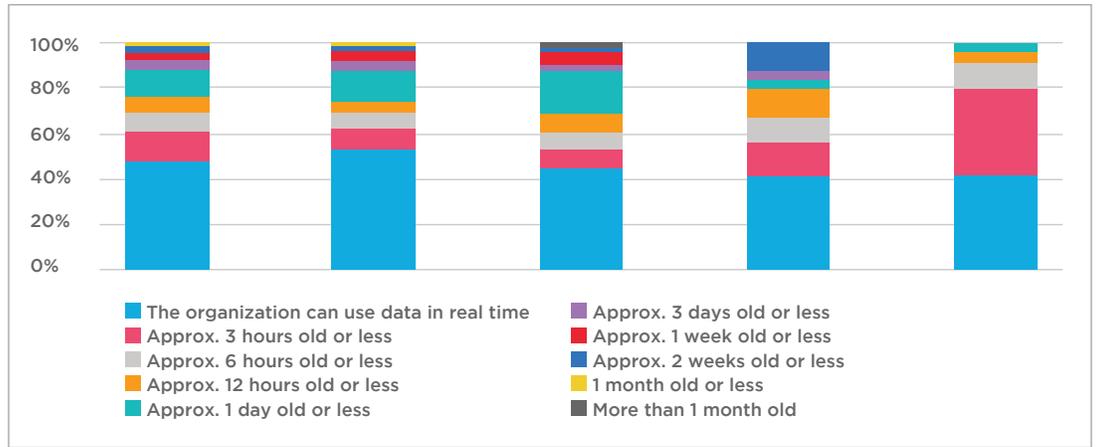
Figure 16: What is the most recent customer data that the organization's database can use?
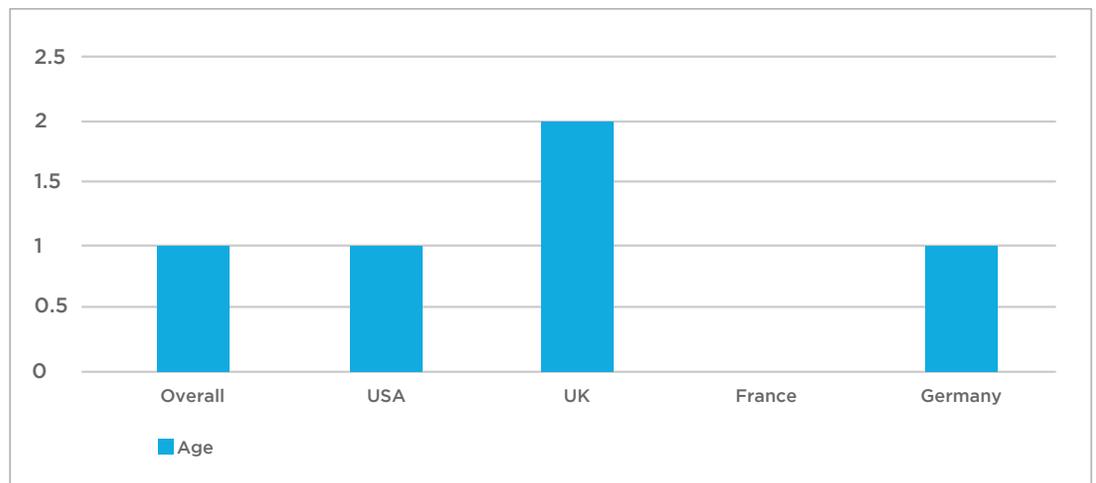

Figure 16(a): Average minimum age of customer data that can be used (days)

As well as the speed of customer experience, there is also the question of how businesses take advantage of new technology, such as artificial intelligence, virtual and augmented reality, and the Internet of Things. Only 19 percent of decision-makers believe that their database would be up to the task of completely supporting such technology if their organization began using it tomorrow. 59 percent can only support the technology to some extent and 22 percent not at all *(figure 17)*, meaning investment is still necessary in many organizations.
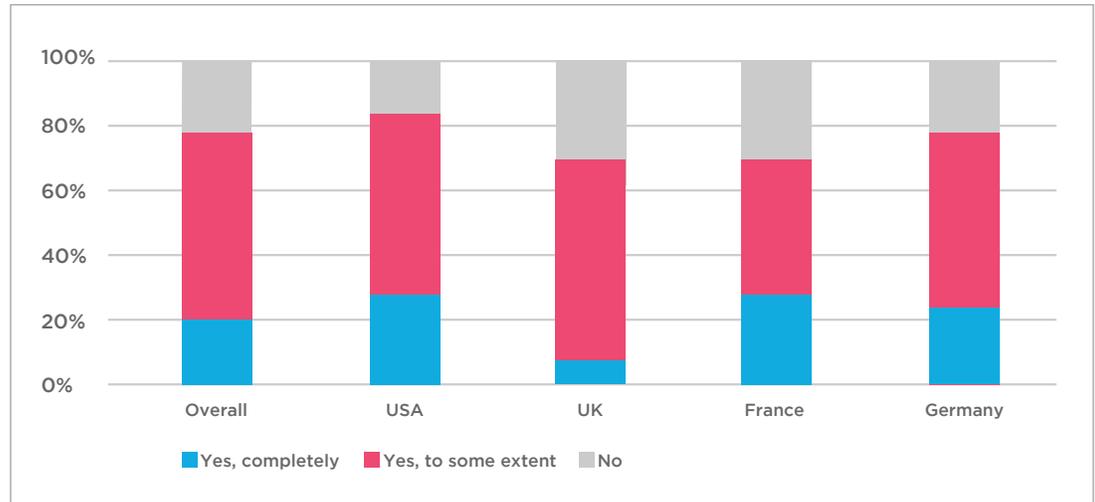
Figure 17: If organizations began using technologies such as AI, VR, AR and IoT tomorrow, would their database be up to the task of supporting them?

The right database for the job

The fact is that different databases are best suited for different functions: whether processing transactions quickly and accurately or engaging with customers and users in real time. 87 percent of decision-makers say that a single database cannot meet all of their needs; however, 62 percent have either accepted the compromises inherent in using a single database, or find it too costly and complex to adopt multiple databases *(figure 18)*.
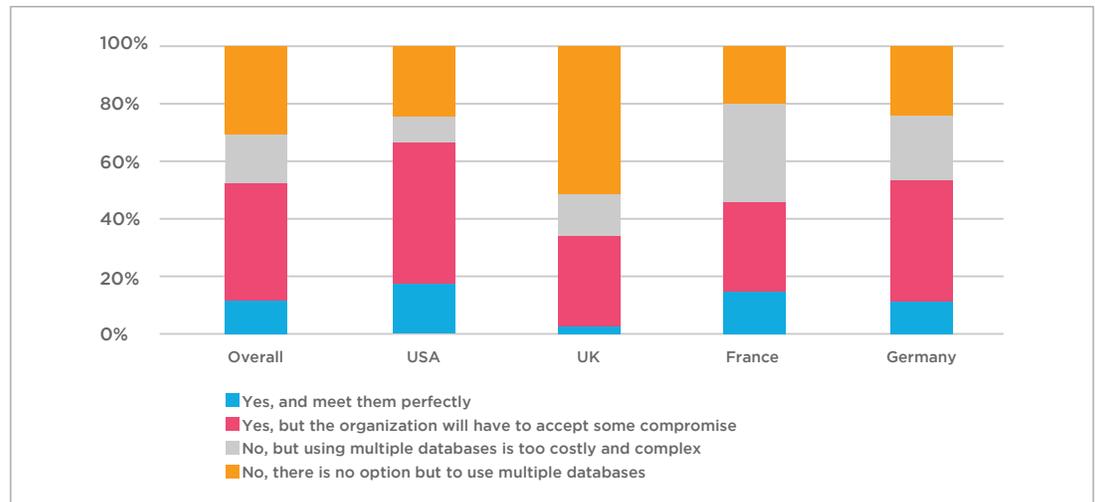

Figure 18: Do digital decision-makers believe that a single database can meet all of their organizations' needs?

Part 5: Facing the consequences

Failing to use data and provide the customer experience that 21st century consumers increasingly expect can be costly. Digital decision-makers are well aware of this — 87 percent are concerned that challenges with digital innovation will impact customer experience and ultimately customer satisfaction within their organization *(figure 19)*. A failure to improve customer experience will, in turn, impact revenues, according to 87 percent of decision-makers *(figure 20)*. After all, if customers aren't satisfied with their experience, why wouldn't they move to a competitor?

A business that can't keep up with digital innovations in its industry will survive for less than five years before going out of business or being absorbed by a competitor.
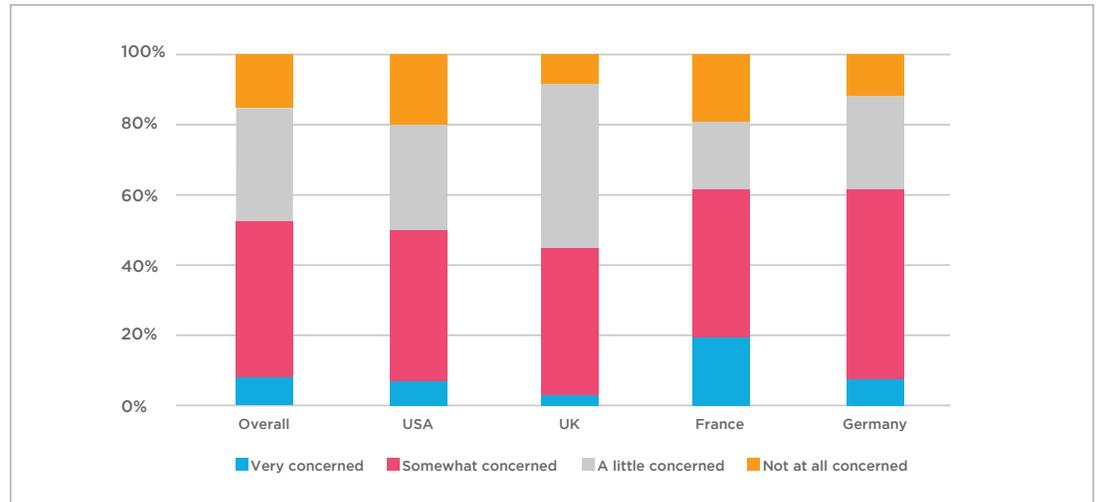

Figure 19: How concerned are digital decision-makers that challenges with digital innovation will impact customer experience and ultimately customer satisfaction within their organization?
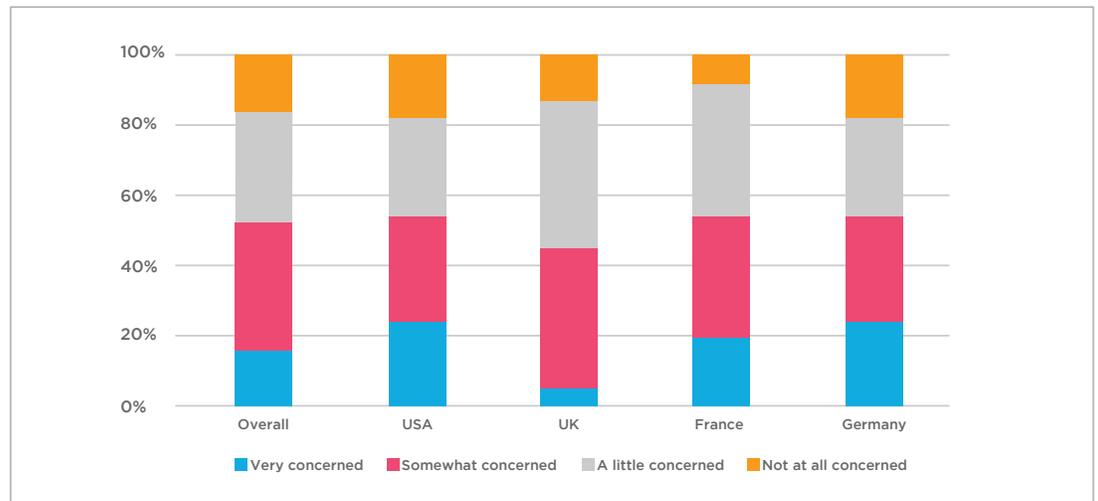

Figure 20: How concerned are digital decision-makers that their organizations' revenues will be impacted if they can't use digital innovation to improve customer experience?

There is a real possibility that an inability to take control of digital innovation will create a downward spiral: poorer customer experience leading to lost customers, lower revenues, and fewer resources to invest in digital innovation. Decision-makers say that, on average, a business that can't keep up with digital innovations in its industry will survive for less than five years before going out of business or being absorbed by a competitor *(figure 21 and figure 21(a))*. 80 percent of respondents were already concerned that their own business could be at risk of being left behind by its competitors *(figure 22)*.
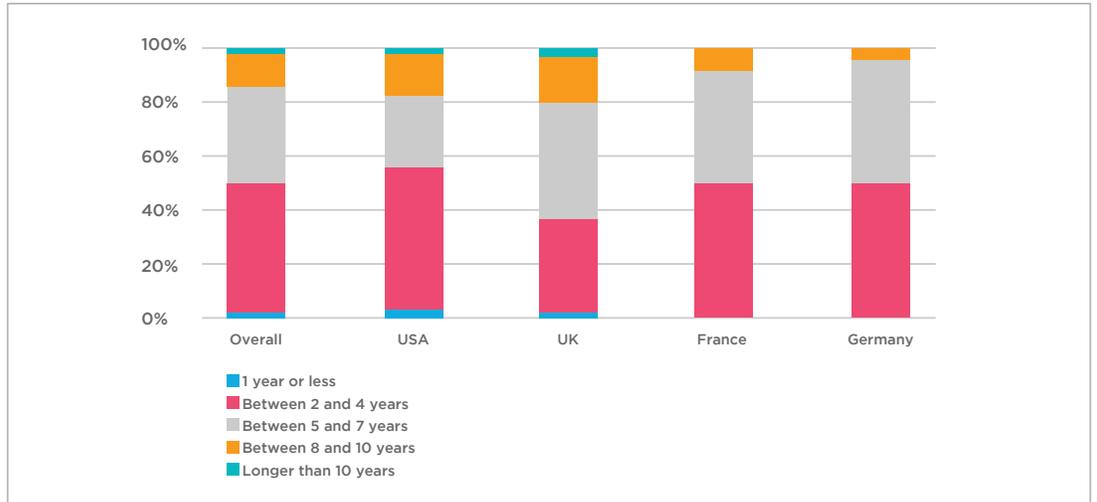
Figure 21: If a business can't keep up with digital innovations in its industry, how long do digital decision-makers believe it can survive before it goes out of business or is absorbed by a competitor?
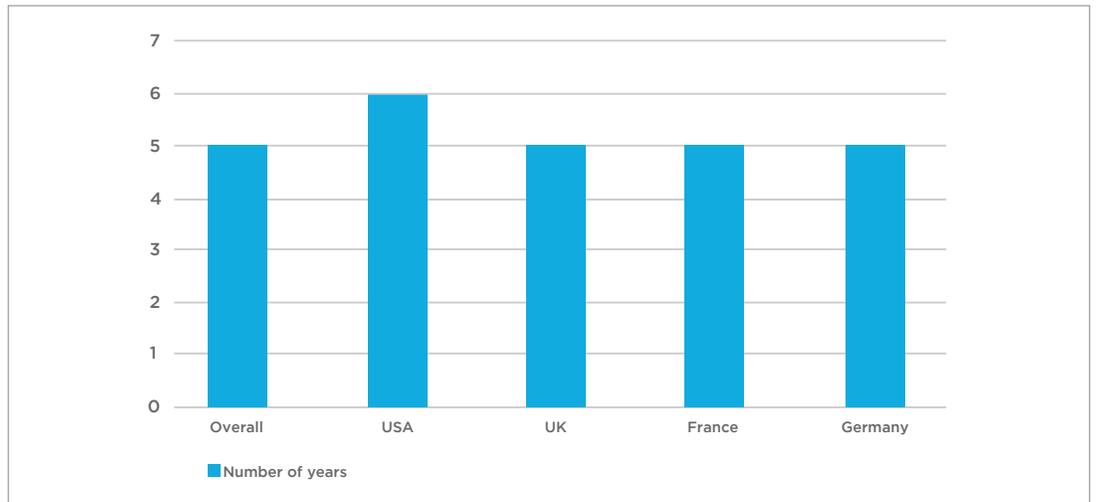

Figure 21(a): Average number of years digital decision-makers believe a business can survive before going out of business or being absorbed by a competitor
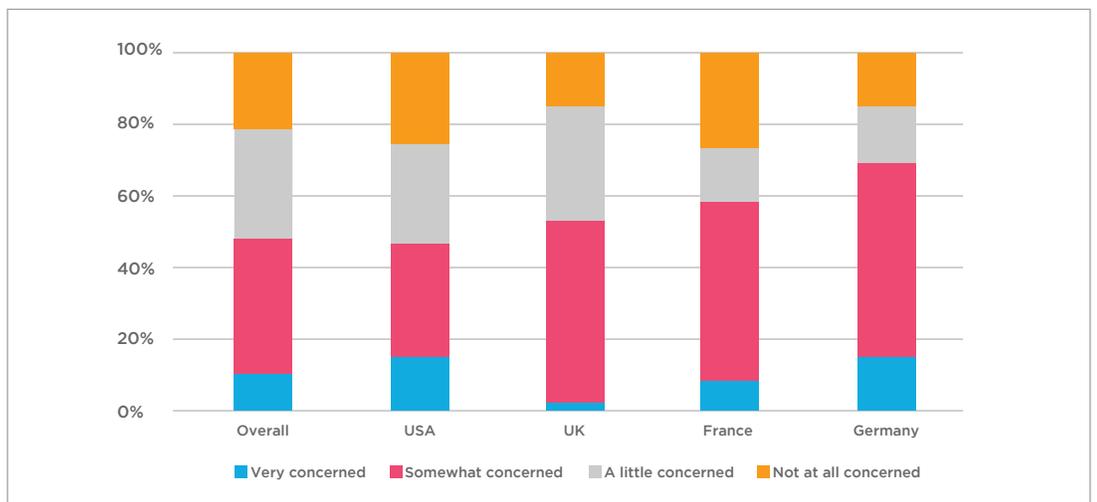

Figure 22: How concerned are digital decision-makers that their business could be at risk of being left behind by competitors who can innovate and create new digital tools and services?

There are also consequences for individuals as well as the business as a whole. 73 percent of respondents identified various "fireable" offenses when implementing a digital project, including investing in technology that leads to a security breach, allowing a project to go drastically over time and/or over budget, and investing in technology that cannot meet regulatory standards *(figure 23)*.
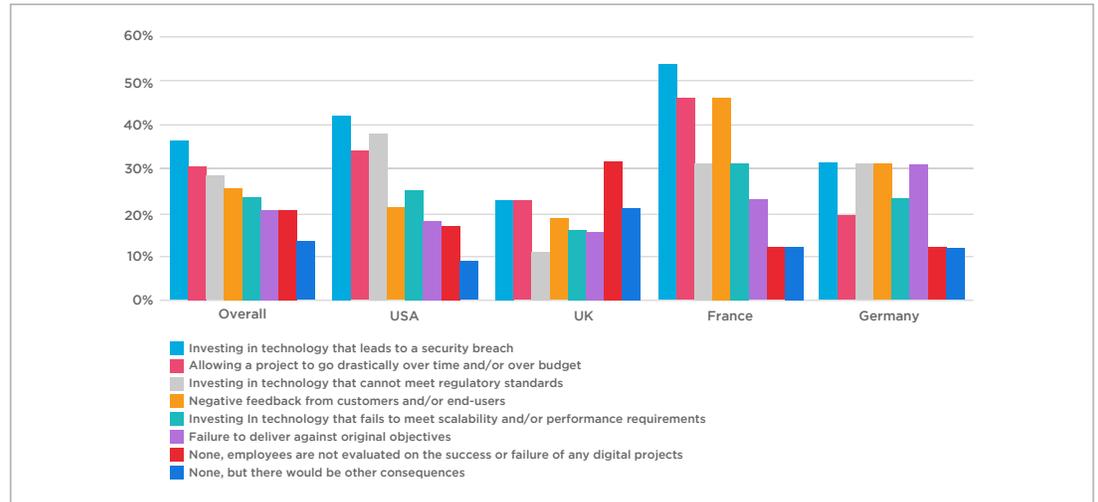

Figure 23: When implementing a digital project, which of the following would constitute a "fireable" offense by a digital decision-maker or a member of their team?

When we consider the number of organizations that have reported digital projects failing, going over budget, or being delayed due to legacy technology, there may well be a number of careers already in jeopardy.

Conclusion

Enterprises face a stark choice. In order to avoid falling into a spiral of dissatisfied customers, falling revenues, and ultimately failure, they need to ensure they are using data to truly engage with their customers and provide a truly modern experience. Legacy databases will still have their place – for instance, in processing transactions that have to be done consistently each time. However, organizations must ensure that they are using the right database for the right task, meaning they also need technology that can use data in real time to engage with customers reliably, agilely, and at any scale.

When they have overcome the data dilemma, digital decision-makers will be able to deliver projects that truly revolutionize the customer experience and, in turn, either keep pace with or even overtake digital disruption in their industry.

About Couchbase

Couchbase provides a data platform to fuel digital innovation for today's business.

Customers' attention spans are getting shorter and shorter. And in 90% of cases, just one bad experience will turn away a customer. So every customer interaction is important – not just because it'll hopefully lead to a transaction, but also to more meaningful engagement over time.

Couchbase's mission is to be the data platform that revolutionizes digital innovation. To make this possible, Couchbase created the world's first Engagement Database. Built on the most powerful NoSQL technology, the open source Couchbase Data Platform includes Couchbase Server and Couchbase Mobile. The platform provides unmatched agility and manageability – as well as unparalleled performance at any scale – to deliver ever-richer and ever more personalized customer experiences.