WUNDERMAN
THOMPSON

HEADLESS, MICROSERVICES & THE FUTURE OF COMMERCE PLATFORMS

Contents

Introduction: Why did we do this research and who did it cover?

Headless, Microservices, API-first, and Cloud-native are widely recognised as the modern approach to platform architecture and commerce. Indeed, these technologies are the basis upon which some of the world's most effective eCommerce organisations are built. And yet, whilst everyone in tech and eCommerce seems to be talking about them, their adoption - to date - has not been as widespread as one might have imagined.

Factor into that the COVID-19 pandemic and how it is accelerating purchasing through online channels, and organisations wishing to take advantage of this migration should be doing everything in their power to ensure that their commerce engine and architecture is fit for purpose. Headless, Microservices and related technologies appear to be the answer, with many businesses recognising this and already deploying them, or planning them in, as we highlight later. So, why are some businesses seemingly passively watching on, and is this set to change?

Clearly there is an imperative to change; 57% of the surveyed IT and eCommerce leaders told us that their current eCommerce platform would last no more than 12 months!

In this research, we wanted to gain an insight into the understanding, take-up, and perceived issues associated with these technologies - and to present the overwhelming benefits, approaches and solutions to overcome these challenges.

By asking 400 respondents across the UK and the US who occupied roles including Head of eCommerce, Head of Digital and Head of IT, we also wanted to get an understanding on the level of alignment across these two vital functions in their understanding of, and approach to, these technologies.

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METHODOLOGY

This survey was carried out by Censuswide, an independent and respected research company in March 2020. Heads of Ecommerce / Digital (and above) and Heads of IT / CIOs were surveyed online across B2C and B2B organisations in UK (204 total) and US (201 total). **This is the UK focused report.**

Part 1:
The History And
Background
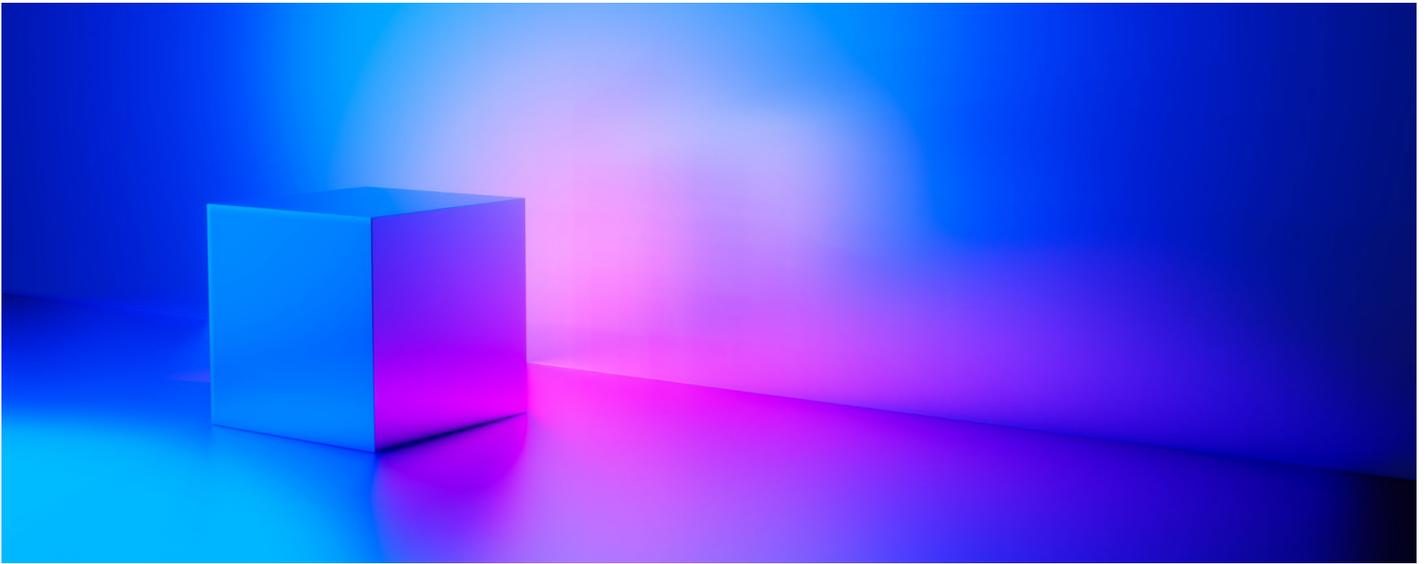
WHAT DOES THE PHRASE 'ECOMMERCE PLATFORM ARCHITECTURE' MEAN TO YOU?

If you're drawing a blank, don't worry. You're not alone. Outside tech circles, it is a topic that has only really come to prominence in the last five years.

Platform architecture is a term used to describe the system design of software. If you look at an eCommerce platform, you will see that it is made up of many different component parts - product landing pages, product databases, checkout, order and fulfillment management, inventory, marketing, customer service and so on. Platform architecture describes the mechanics of how all of these things fit together.

If you go back much further than five years, and certainly back into the Noughties, there wasn't much need to discuss how eCommerce platforms were pieced together. The majority followed more or less the same pattern.

Yet fast forward to 2020 and, for reasons we shall explore in this report, platform architecture now goes right to the very heart of how digital commerce is evolving. Central to this are some concepts you may well be familiar with - Headless and Microservices, API-first, Cloud-native and SaaS services.

All of these relate to software design and platform build methodologies which, in their own way, aim to make the development and deployment of complex products faster, more efficient and more scalable. They achieve this by re-thinking the way the many different component parts in a system like an eCommerce platform fit together and interact with each other.

As brands and retailers the world over continue to deal with the fallout from the COVID-19 pandemic, the severe disruption caused to offline commerce is creating new incentives to expand digital capacity and pivot to new channels. As a result, the need to make eCommerce more agile and responsive, and therefore adaptable to the winds of change, has never been greater.

The hype surrounding Headless, Microservices and the rest suggests that at least part of the answer to these challenges lies in the way our eCommerce platforms are pieced together. But what we want to know - and what we have set out to learn in this report - is just how aware brands and retailers are of these emerging developments in eCommerce technology, how well prepared they are for them - and whether they even see them as that important to their businesses anyway?
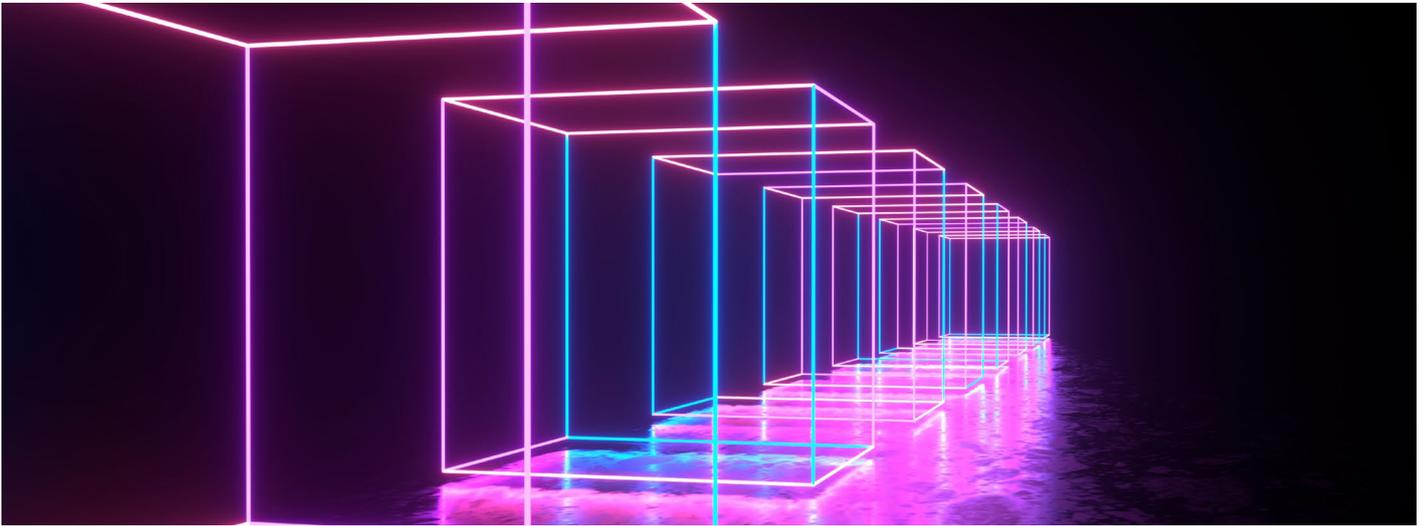
FROM MONOLITHS TO MICROSERVICES

Let's start with a quick overview of how eCommerce platform architecture has evolved, and why it matters.

The earliest eCommerce platforms were structured in a way that is now referred to variously as 'monolithic' or 'commerce-led'. Monolithic describes a complete, self-contained software product that has all the required functionality within a single piece of programming. Commerce-led refers to the fact that the focus of the first online shopping software was very much on core commerce functionalities - shopping carts, payment processing, fulfillment options, product listings, product search and so on. Everything else, including the frontend web interface that customers used when they shopped online, was built directly on top of this commerce core, as part of the same code.

This approach dominated eCommerce development for a long time because, while web browsers were the only channel available for digital shopping sites, and functionality was relatively straightforward, it worked. But, as more and more channels started to emerge, and as retailers and brands wanted to be able to run multiple storefronts, including on mobile, marketplaces, social media etc, but still maintain a single point of control, the drawbacks of monolithic architecture started to become evident. These include:

→ **Limited scope for customisation:** Monolithic platforms are designed to be out-of-the-box, get-what-you-see solutions. Making even minor changes to a completely self-contained piece of programming can have a considerable and unwanted impact on the functionality of the whole, meaning you have to retest the whole application. This can make customisation costly, long-winded and complex.

→ **Lack of agility in responding to new trends:** Because of the difficulties involved in customising monolithic commerce platforms, businesses find it very hard to adapt to and adopt new technologies fast enough to keep up with changing consumer trends and to gain any kind of competitive advantage from them.

→ **Difficulties in scaling for large traffic volumes:** When website traffic demands begin to exceed the limitations of the original platform, the only real option for scaling up with monolithic architecture is to stage a copy of the original in its entirety, which, again, is time-consuming and costly, and distracts from further innovation. Furthermore, monoliths don't generally play well with cloud technology, therefore they don't fit the trend of cloud migration.

ARCHITECTURE TRENDS	
API-FIRST	→ MULTICHANNEL → EASIER INTEGRATION → DISCOVERABILITY → FUTURE-PROOFING → GATEWAYS
HEADLESS	→ SEPARATION OF UI FROM LOGIC → SPA/PWA - FASTER → CUSTOMER EXPERIENCE → INCREASE CADENCE
CLOUD-NATIVE	→ REDUCED BURDEN OF HOSTING → MASSIVE SCALING → ON DEMAND
MICRO-SERVICES	→ SELF-CONTAINED → INCREASED AGILITY → INDEPENDENT APPS/TECH/PATH TO LIVE → FLEXIBLE SCALING
DECOUPLED INTEGRATONS	→ BEST-IN-BREED WITH LOW OVERHEAD → RAPID ADOPTION → EASIER TO CHANGE
SAAS SERVICES	→ AVOID SYSTEM DEPENDENCIES → PRESENT A SINGLE ENDPOINT TO CLIENTS → ABILITY TO CHANGE COMPONENTS
DEVOPS	→ INCREASED AGILITY → INCREASED SPEED → IMPROVED QUALITY → ESSENTIAL FOR CLOUD / SERVICE-BASED ARCHITECTURE

Software developers already knew that the way to overcome the cumbersome programming demands of monolithic platforms was to decouple features and functions from one another, running them as separate pieces of software connected by APIs. (APIs – that's Application Programme Interfaces - govern the way that different software assets interact with one another. In eCommerce architecture design, they are the key to achieving real platform flexibility and play a vital role in development approaches like Headless commerce and Microservices).

In eCommerce, this approach first emerged in the late Noughties with cloud-based solutions. By inserting an API layer that separated front-end tools from a remotely hosted commerce backend, a new generation of Cloud-native, SaaS-based commerce products slashed development timescales for UI and UX features, giving brands and retailers space to innovate with new channels and experiences.

The trend over the past decade has therefore increasingly been to replace monolithic eCommerce platform design with composite architectures - or in other words, piecing together multiple parts to create a functional whole. Enabled by APIs and taking advantage of the rapid proliferation of cloud-based services and applications, this approach has given businesses the freedom to build agile, scalable platforms using best-in-breed technologies to deliver customised shopping experiences across multiple channels.

Headless is one particular example of an API-driven approach to platform architecture. Headless describes an arrangement whereby backend business and data functions are built into a core platform, but individual frontend services are decoupled via an API layer. The resulting platform is said to be 'headless' in the sense that it doesn't have its own UI - web pages, apps, checkout functions and so on all rely on external tools, which can be added as, when and where required, using whatever available solutions the retailer chooses.

Microservices is a more radical example of the same principle. In this case, rather than just separating front and backend, individual functions in a piece of software are decoupled from one another as isolated tools or 'services' and then plugged back together in the required arrangement via APIs. It is this approach which laid the foundations for the breakneck pace of technological innovation that has been one of the hallmarks of global tech leaders such as Amazon, Netflix and Uber.

The key benefits of Headless, Microservices and other API-based architectures as compared to monolithic platforms are:

→ **Fast, simple customisation:** Decoupling software functions from one another makes it much easier to alter one without risking unwanted knock-on effects across the whole system, reducing development and testing times from months to weeks.

→ **Promotes more agile operations:** The speeding up of development and programming cycles means retailers can respond to emerging trends and new technology much more quickly, keeping up with customer demand and keeping pace with competitors.

→ **Frees retailers to innovate with CX:** Greater agility in frontend development allows retailers to focus on delivering powerful experiences for their customers, rather than battling with what their platform is capable of.

→ **Supports omnichannel and multi-regional operations:** In a typical headless arrangement, a CMS could be deployed as part of the core commerce platform, which could then be used to publish content to different channels as required.

→ **Opens the door to rapid scaling:** Just as Headless and Microservices enable digital retailers to add new channels and features rapidly and efficiently, they also allow them to scale existing assets in line with demand without having to worry about the heavy lifting involved in upgrading backend systems, with the ability to choose different technologies.

Part 2:
The Survey

SECTION 1: WHAT ORGANISATIONS HAVE TO SAY ABOUT THESE TECHNOLOGIES

A key factor in the uptake of any new technology is how far hype filters down into awareness and understanding amongst the people who matter most - those who actually have to use it on the frontline.

One of the things we wanted to learn from our survey is exactly what organisations are thinking and saying about post-monolithic approaches to platform architecture - namely, Microservices, Headless, API-first and Cloud-native - in the context of their eCommerce strategies.

With eCommerce bridging both IT and business functions, workers with very different skill sets

4 in 5 respondents rated their understanding of the 4 technologies as either **strong** (28%) or **solid** (53%).

and backgrounds must work together to find solutions and plan strategically. This adds an extra layer of complexity to the adoption of new tech, since what the IT arm views as clear and obvious benefits can easily be lost in translation when it comes to the business side. With this in mind, we wanted to get to the bottom of the level of understanding of Headless, Microservices and the rest, whether organisations felt ready to work with the respective technologies, and whether they believed they were the right fit for their company.

HOW DO YOU RATE YOUR ORGANISATION'S **UNDERSTANDING** OF THE FOLLOWING TECHNOLOGIES?
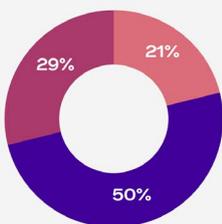
MICROSERVICES
- 29%
- 21%
- 50%

HEADLESS TECHNOLOGY
- 26.5%
- 20%
- 53.5%
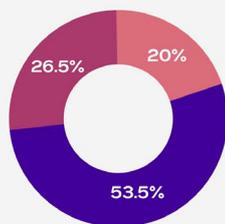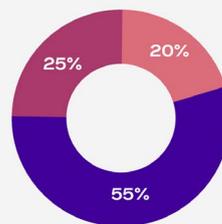
API-FIRST
- 25%
- 20%
- 55%
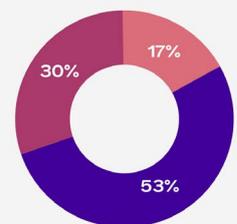
CLOUD-NATIVE / SERVERLESS
- 30%
- 17%
- 53%

● STRONG   ● SOLID   ● UNDER-STRENGTH

Overall, across the four different technologies we quizzed IT and eCommerce leaders about, our survey results suggest that understanding is consistently high. Taking an average across Microservices, Headless, API-first and Cloud-native / Serverless, we found that four out of five respondents (81%) rated their understanding as either strong (28%) or solid (53%). It is notable how consistent these results were across the four technologies, too. We can say with some certainty that, while understanding of these approaches is not yet 100%, those who feel their knowledge is under-strength are in a clear minority across all four types.

As one might expect, those of a more "technical" bias, the Heads of IT and the CIOs, have greater confidence in their understanding than their digital business colleagues - an average of 37% of respondents in technical roles claimed to have a strong understanding vs. 18% of Heads of Digital and eCommerce. We'll come back to this later when we consider whether this discrepancy in understanding could be a factor in the uptake of Headless and Microservices.

Our results also suggest there are significant differences in levels of understanding by size of organisation. Strong understanding amongst larger enterprises (5,000+ employees) averaged out at 43%, while it was just 15% amongst mid-sized businesses employing 500 to 999. Again, this gap is something we will return to when considering issues with adoption.

Interestingly, when we asked respondents to rate their organisation's current ability to work with these technologies to enhance or replace their current platform, the numbers came out remarkably similar to how they rated their understanding. Taking the four approaches as a whole, 30% said their organisation's ability to work with any of them was strong, 22% said it was under-strength, and 48% believed it was solid. So again, roughly four fifths sound a confident note on their abilities to work with these new technologies, with just over a fifth suggesting they are not yet ready.

HOW DO YOU RATE YOUR ORGANISATION'S **ABILITY TO WORK** WITH THESE TECHNOLOGIES?

MICROSERVICES: 26.5%, 27%, 46.5%
HEADLESS TECHNOLOGY: 30%, 24.5%, 45.5%
API-FIRST: 29%, 23%, 48%
CLOUD-NATIVE / SERVERLESS: 34%, 13%, 53%

● STRONG   ● SOLID   ● UNDER-STRENGTH
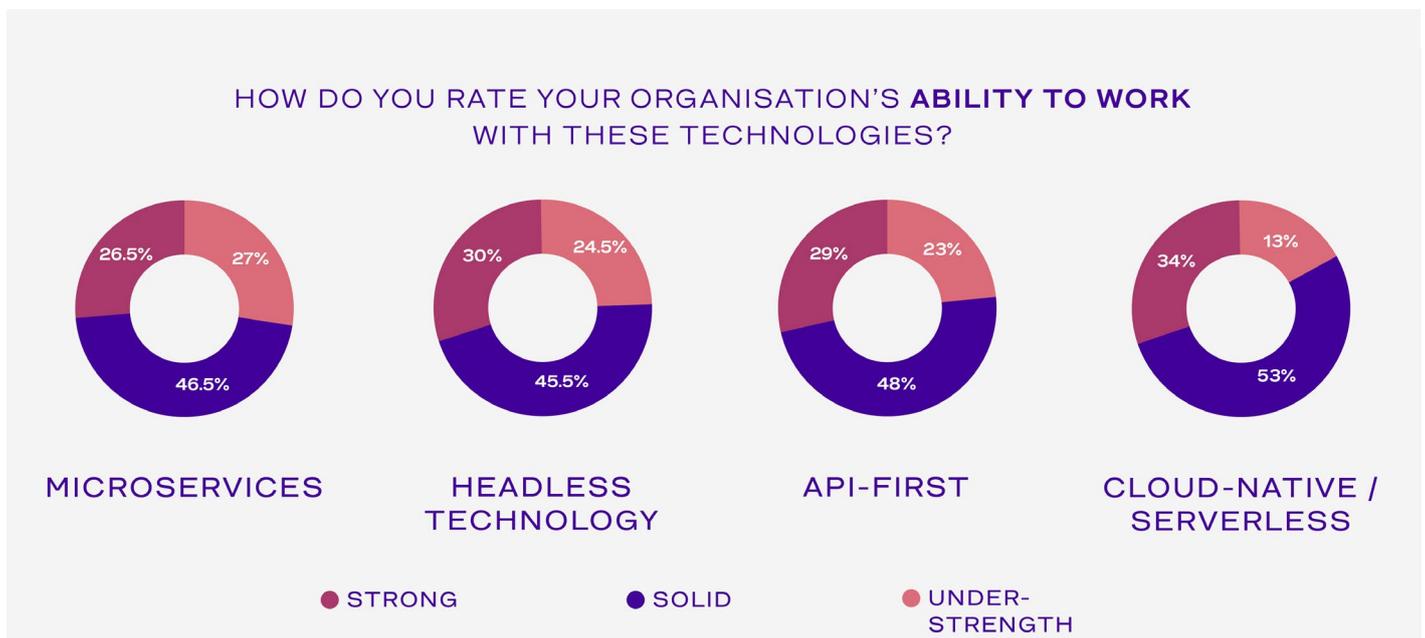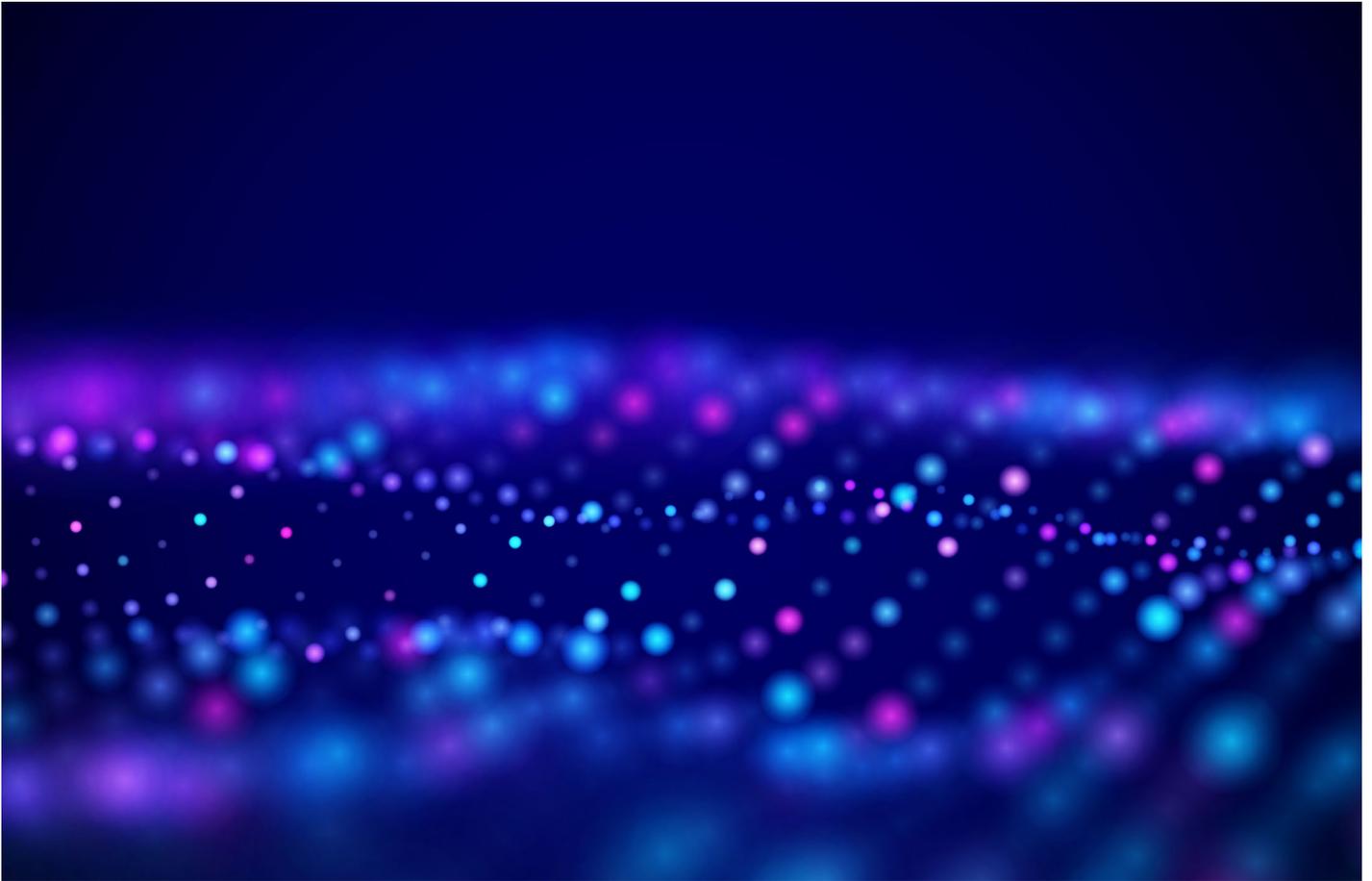
Results were again broadly consistent across the four technologies, although "Cloud-native / Serverless" stands out with 34% of respondents claiming their ability to work with it is "strong" and just 13% saying it is "under-strength". On the flipside, Microservices bucks the trend with slightly more respondents rating their capabilities with this technology as under-strength (27%) compared to those that view themselves in a strong position (26%).

As with understanding, we see more confidence in the ability to work with Headless and Microservices amongst those of a more technological persuasion, with 41% of Heads of IT and CIOs rating their abilities to use the four technologies as strong, compared to just 19% of Heads of Digital / eCommerce.

It is a similar story when we compare organisations by size. Across all four technologies, small companies were consistently less confident, with an average of 29% feeling their ability to work with these approaches was under-strength, while amongst large companies the average was just 7%. Large organisations were particularly bullish about working with Cloud-native / Serverless solutions, with almost three-quarters (73%) declaring their capabilities "strong", compared to just 20% of mid-sized companies.

One final but critical question regarding attitudes and opinions to Headless, Microservices and the rest is whether organisations feel these technologies are a good fit for their business. Again, the broad picture is overwhelmingly positive - 67% of respondents agreed that a Microservices approach would be a good fit for their business today, rising to 75% who said adopting Microservices would be the right move at some point in the future. There was, however, a relative divide in the strength of feeling on this point between the IT and business wings - 32% of CIOs and Heads of IT agreed strongly that they should be moving to Microservices now, versus 20% of Heads of Digital and eCommerce.
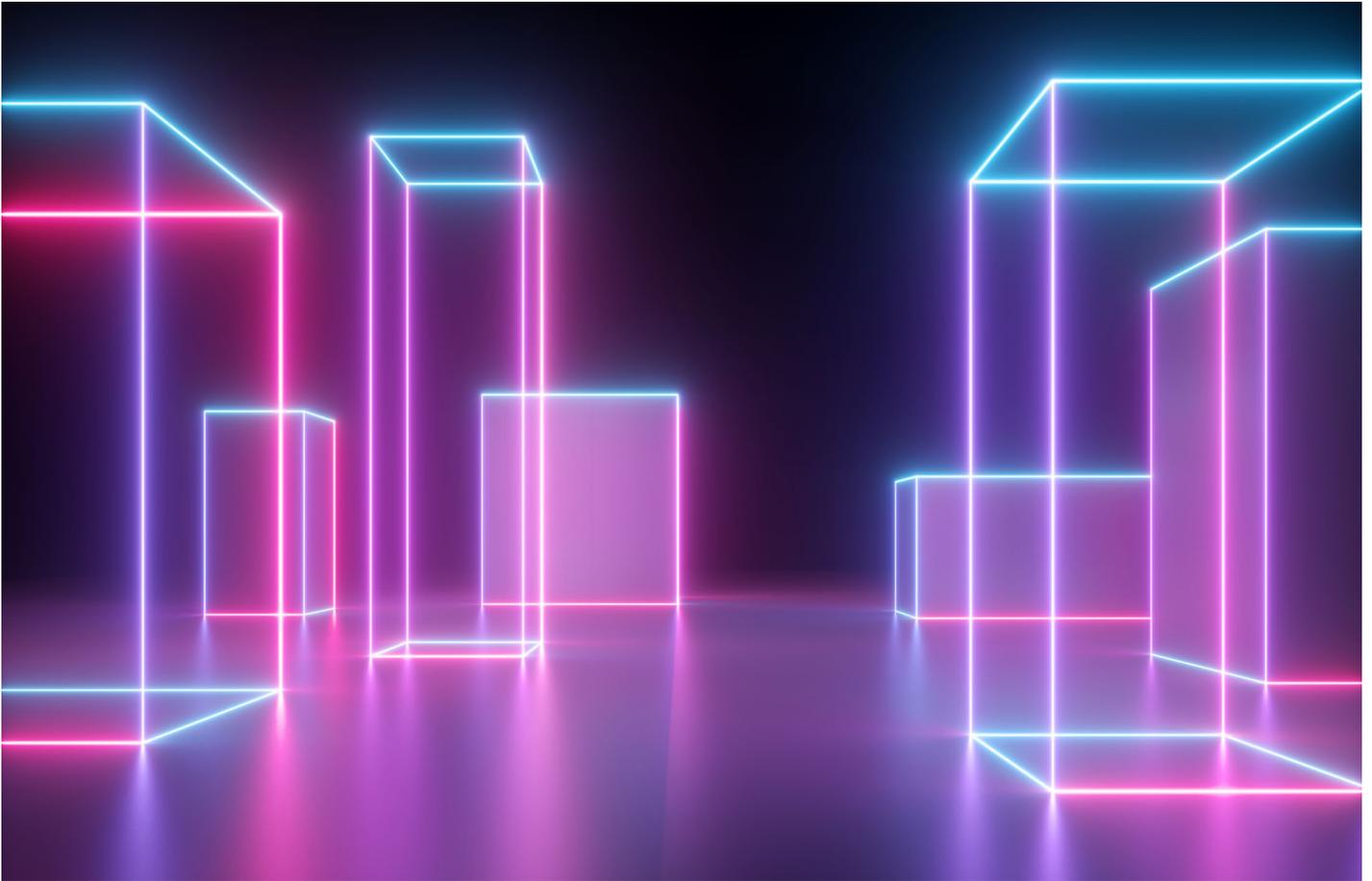
SECTION CONCLUSION

So, what do the findings tell us?

The data indicates that understanding of Headless, Microservices, API-first and Cloud-native / Serverless is high, and that confidence exists in businesses' ability to deliver and work with them. Moreover, there is widespread recognition that adopting these technologies has clear business benefits.

This is certainly encouraging as, here at Wunderman Thompson, we believe that embracing these technologies is key to long-term digital commercial success... and for reasons that have been brought into stark focus and reframed by the COVID-19 outbreak.

However, what we have also highlighted in this section is that discrepancies exist in both understanding and confidence between Heads of IT / CIOs on the one hand and Heads of Digital and eCommerce on the other. A similar pattern emerges when you compare results by organisation size.

As we shall now explore, this goes some way to explaining why take-up of these approaches to platform architecture in eCommerce does not match some of the positive attitudes shown - despite the drivers for change being very much apparent.

SECTION 2: THE CASE FOR CHANGE

Of course, having a good understanding of a new technology and even acknowledging its benefits does not necessarily translate directly into adoption. As we all know, sometimes organisations need a "burning platform" to embark on projects, waiting until there is practically no other choice but to make a change - especially those that cost time and money.

So just how urgently do organisations view the need to upgrade their eCommerce platform? The answer seems to be that, while not quite white-hot, awareness of the need to update is burning some feet; 57% of respondents said that their current platform would be capable of supporting their business for no more than 12 months. Given the time it takes to get approval, initiate and implement some of these technologies, that's a worrying statistic.

This lack of confidence in their current platform is felt more acutely by Heads of IT and CIOs, with 64% believing their eCommerce platform would need updating within 12 months compared to 49% of Heads of Digital and eCommerce. This shouldn't be a surprise given that it is the IT part of the business that is most frequently held responsible for the technology provision.

Clearly, for many organisations, it's time to upgrade the platform. We asked respondents to our survey to rate the factors they felt were most important when considering a platform upgrade, as well as what they felt were the biggest opportunities of upgrading. With both, it was clear just how many synergies there are with what organisations want from an eCommerce upgrade and what Headless and Microservices have to offer.

WHAT ARE THE MOST IMPORTANT FACTORS WHEN UPGRADING YOUR PLATFORM?

83.8% Future-proof capability

83.8% Easy to integrate (eg. with marketplaces)

82.8% Reliability and stability

80.9% Ease of customisation

80.4% Flexibility and modularity

79.9% Simple and low cost to operate

78.9% Availability of technical skills

78.4% Complete support offering

77.9% Simplicity to implement

77% Low risk

75% Cost

75% Ready-to-launch solution (eg. SaaS-based, fully featured solution)

The previous table shows the percentage of responses rating each factor either very or extremely important. Four of the top five answers - modular and flexible architecture, ease of customisation, ease of integration with other channels, and future-proof agility - are benefits you would directly associate with Headless and Microservices compared with standard 'monolithic' platform builds.

Nearly **two thirds** of Heads of IT / CIOs believe their eCommerce platforms need updating within **12 months**.

There were some interesting quirks in terms of the different viewpoints that emerged according to job role and size of organisation, some of which even went against the grain of expectation. For example, 91% of respondents in Head of Digital / eCommerce roles said "ease of customisation" was very or extremely important compared to 71% of people in technical roles. And whilst most of us would presume that reliability and stability would be key considerations across the board, there was a significant difference in perception dependent on size of organisation. 86% of organisations with workforces between 500-999 employees thought this was very or extremely important, while this percentage dropped to 64% for organisations with over 5,000 employees.

75% say moving to Microservices is **right** for their business in the future, yet **56%** feel it's **too risky.**

WHAT ARE THE BIGGEST OPPORTUNITIES IN ADVANCING YOUR ECOMMERCE PLANS?

34% Develop a more bespoke solution

31% Make better use of customer data

31% Release features more quickly

29% Create more and better customer experiences

29% Take back control for your organisation

27% Leverage social channels

27% International expansion

24% Leverage voice effectively

23% Trade through more channels

A resounding **64%** of large enterprises say developing a **more bespoke solution** will best advance their ecommerce plans.

Again, the key opportunities that our participants saw as arising from an eCommerce platform upgrade chime closely with the opportunities presented by an API-based architecture. At the top of this list, singled out by 34%, sits the ability to develop a more bespoke solution, something that approaches like Microservices and Headless were originally designed to deliver.

The top four results show just how important it is for IT and business operations to be working in tandem, as these cover both technical and customer-focused opportunities. The ability to release features more quickly is another benefit that API-based approaches have been developed explicitly to deliver. But the equivalence with making better use of customer data and, just below, creating more and better customer experiences show just how far the eCommerce industry has come. It demonstrates that there is now a real

understanding that the true value of technology in digital commerce comes from facilitating experiences that customers want, which in turn is what inspires transactions.

The differences in viewpoint by job role are, on the whole, in line with what you might expect. Unsurprisingly, Heads of Digital / eCommerce place higher stock in the use of customer data, with 40% of respondents identifying this as a key opportunity vs. just 23% for Heads of IT / CIOs.

When it comes to size of company, however, an overwhelming 64% of large organisations with 5,000+ employees believe that developing a more bespoke solution is the top opportunity – that's an astounding 30% more than the average across our surveyed audience. International expansion (55%) is also notably high on the list for the largest enterprises.

SECTION CONCLUSION

Our survey results show that most organisations understand that the clock is ticking on their current platform's ability to meet their needs. They show a high level of understanding of the characteristics that will future-proof their digital commerce assets, and we've seen that they understand the opportunities that are associated with these platform and technology upgrades.

It is also clear that most organisations understand that delivering what their customers need in the future will require a reassessment of their platform and infrastructure. This is an encouraging finding, and even greater given that COVID-19 is accelerating a major and sustained move to digital commerce.

The fact that so much of this reflects the known benefits of Headless, Microservices and other API-based architectures - approaches that create agile, scalable solutions that directly support rapid release cycles, bespoke customisation and multichannel integration - surely leads to the conclusion that most, if not all, organisations, must by now have some strategic plans in place to pivot away from monolithic eCommerce solutions.

But is this supported by what our respondents had to say about the adoption of these technologies?

3 in 10 organisations already use **Headless** tech in their digital commerce platforms.

Average timeframe to implement these new technologies? **7.4 months.**

SECTION 3: EMBRACING CHANGE

The results from our survey paint a mixed picture of how adoption of API-first and Cloud-native approaches to eCommerce architecture, including Headless and Microservices, is progressing. Overall, around a quarter of respondents said they were already using one or more of these four technologies in their digital commerce platforms, reaching a peak of 29% for Headless and dipping to 18.5% of companies using Microservices.

Amongst those who are yet to adopt, the average timeframe for businesses planning to implement any of the four technologies is 7.4 months, an urgency which echoes the sense that many organisations are faced with a "burning platform".

The proposed speed of adoption is influenced by size - the smallest companies consistently expect to take longest to implement the different technologies, averaging 10.1 months. Organisations with 3,000-4,999 employees plan to implement these technologies in 5.2 months on average, while the 5,000+ employee enterprises are not far behind with an average timescale of 5.9 months.

Certainly, our results show that a majority of organisations have either already adopted at least one of the four approaches, or plan to do so within 12 months - 73% of respondents fell into these categories in relation to Microservices, 76% for Headless, 76% for API-first, and, topping the list, 83% for Cloud-native / Serverless. The numbers declaring they had no plans to adopt any of these technologies were remarkably low, averaging just under 2%.

WHEN WILL YOU ADOPT THESE TECHNOLOGIES?

MICROSERVICES
- 18.5%
- 31%
- 23.5%
- 14%
- 10%
- 3%

HEADLESS TECHNOLOGY
- 29%
- 26.5%
- 21%
- 15%
- 7%
- 1.5%
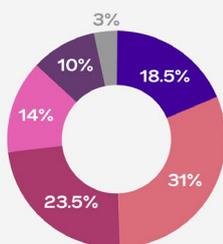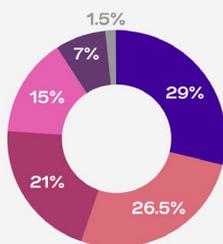
API-FIRST
- 25.5%
- 25.5%
- 25%
- 17%
- 5%
- 2%
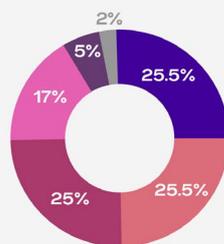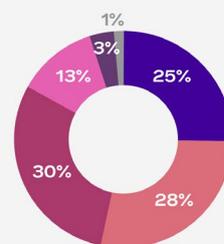
CLOUD-NATIVE/ SERVERLESS
- 25%
- 28%
- 30%
- 13%
- 3%
- 1%

- ● ALREADY ADOPTED
- ● IN LESS THAN 6 MONTHS
- ● WITHIN 6-12 MONTHS
- ● BETWEEN 12-24 MONTHS
- ● AFTER 24 MONTHS
- ● NO PLANS TO ADOPT

Given the benefits to be gained from Headless and Microservices, and the drivers of change we outlined in section 2, this is encouraging. But it does beg the question - why the delay? Just under a quarter of respondents (24%), for example, said they did not plan to implement Microservices for at least a year, with 10% of them stating it would not be on the radar for the next two years. Similarly, 22% said the same about Headless and API-first, and 16% about Cloud-native / Serverless.

To explain why, we found evidence of considerable doubt over the risk, cost and complexity of making the switch to a new platform technology. For example, more than two thirds (67.5%) of respondents felt moving to a Microservices environment would prove too costly, while 57% expressed similar concerns about complexity and 56% about risk.

Heads of IT and CIOs expressed far more concern about the potential complexity of Microservices (68%) than Heads of Digital / eCommerce (47%), reflecting their more acute understanding of the architectural challenges. This also supports another key finding that organisations recognise they can't do it all themselves, with only 14% of respondents seeking to keep the new technology delivery inhouse, and 80% preferring to work with an experienced tech delivery partner when moving to a modern architecture.

Less than 2% of the organisations surveyed have **no plans to adopt** the new technologies.

CONCERNS ABOUT MOVING TO A MICROSERVICES ENVIRONMENT

MOVING TO A MICROSERVICES ENVIRONMENT FOR MY ORGANISATION IS…

"TOO RISKY"
- 4%
- 12%
- 23%
- 28%
- 33%

"TOO COMPLEX"
- 2.5%
- 10%
- 22%
- 30.5%
- 35%

"TOO COSTLY"
- 1.5%
- 8.5%
- 24.5%
- 22.5%
- 43%

● STRONGLY AGREE   ● SOMEWHAT AGREE   ● NEITHER AGREE NOR DISAGREE   ● SOMEWHAT DISAGREE   ● STRONGLY DISAGREE
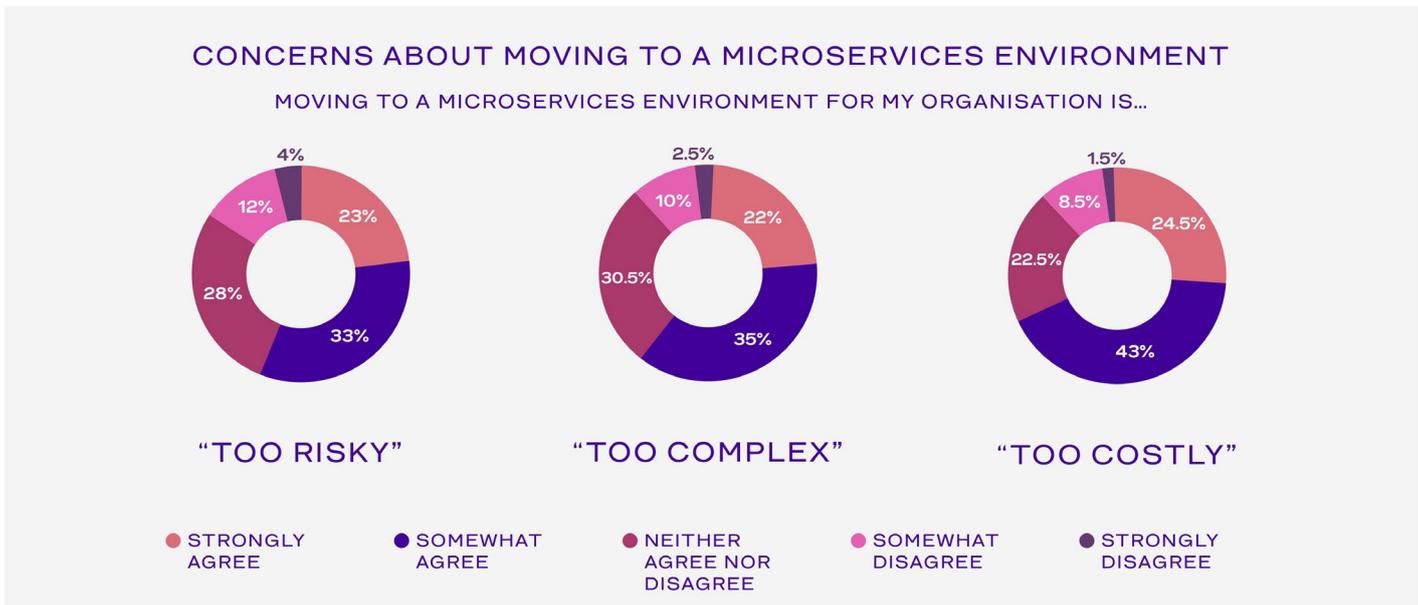
WHAT ARE YOUR BIGGEST CHALLENGES IN ADVANCING YOUR ECOMMERCE PLANS (incl. adoption of Headless & Microservices technologies)?

40% Dependencies on other parts of the business

37% Challenge of resource

35% Lack of stakeholder backing

34% Degree of business change

33% Agreement on digital strategy

31% Insufficient funding

25% Limited or non-current knowledge of available tech options

**1%** There is no challenge in advancing our eCommerce plans

Elsewhere, we asked respondents to expand on their concerns by ranking the factors arresting development of their eCommerce plans and adoption of these technologies. The fact that issues of dependency on other parts of the business comes out top (40%), with the degree of business change involved (34%) also ranking highly, reveals exactly what sort of complexities organisations are concerned about. And as previously noted, there is a slight divide in sentiment between CIOs / Heads of IT and Heads of Digital / eCommerce in the urgency in moving to a Microservices environment, with 32% pushing for "now" vs. 20% of the latter. Evidently, CIOs and Heads of IT would enhance their chances of ready adoption by securing more alignment and buy-in across the business.

The findings also support our experience with eCommerce and technology uptake, in that the organisations with the most successful digital commerce operations are those that have placed eCommerce at the centre of their business, where internal siloes have been overcome. Too often in the past, eCommerce and the technology required to deliver it effectively have been the preserve of a small number of people or a team. Businesses should work to consign this kind of insularity to the past, with digital commerce sitting as a core capability across business functions.

We might also say that concerns over agreement on digital strategy (33%) and lack of stakeholder backing (35%) suggest levels of joined-up thinking across organisations are not all that they could be. In Section 1, we also noted the different levels of understanding of the four approaches covered in the survey across tech and business roles - twice as many CIOs and Heads of IT told us their knowledge of these technologies was strong compared to Heads of Digital and eCommerce. It is difficult to agree on the strategic importance of a technology when understanding varies like this.

Although you might expect companies with very large workforces to have less of an issue when it came to resources, our findings in fact suggest the opposite - 55% of respondents in the largest companies identified "challenges of resource" as a key issue. Less surprisingly, the second reason identified was the bane of many large companies – bureaucracy – with 45% identifying "lack of stakeholder backing".
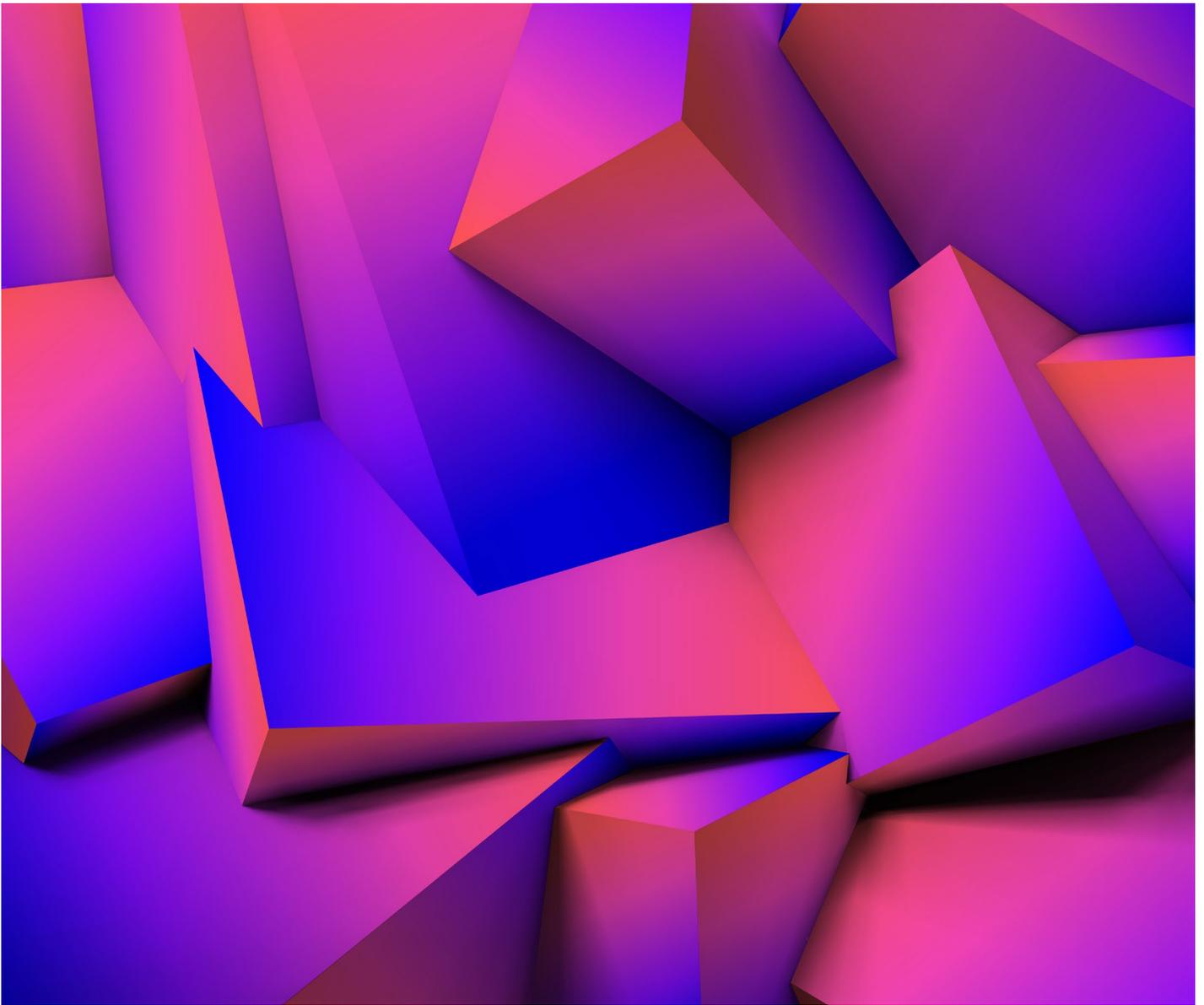
SECTION CONCLUSION

It is clear that there is a considerable head of steam building up behind the adoption of Headless, Microservices and other API-based approaches in eCommerce. Our results suggest that around three quarters of organisations should have one or more of the four technologies embedded in their eCommerce platforms within the next 12 months.

However, it is important to understand the reasons why roughly a quarter of businesses are looking at longer time frames for adoption. Their concerns - availability of resources, risk and complexity - are shared by a sizeable number of organisations who are planning to adopt within 12 months. A key issue appears to be the strategic role eCommerce plays in the organisation, and the potential need to drive wider structural change in order to get the full value of the benefits on offer.

This is all important because, in the current post-lockdown environment, even 12 months might be too long for many organisations to get their digital house in order. With online commerce booming, the pressure to roll out agile omnichannel digital offerings that clear the decks for an unwavering focus on customer experience is immediate and irresistible. The organisations hitting the front are those that already have these capabilities embedded into their eCommerce assets. And many are using Headless, Microservices or one of their near relatives.

Part 3:
Headless & Microservices – The Time Is Now
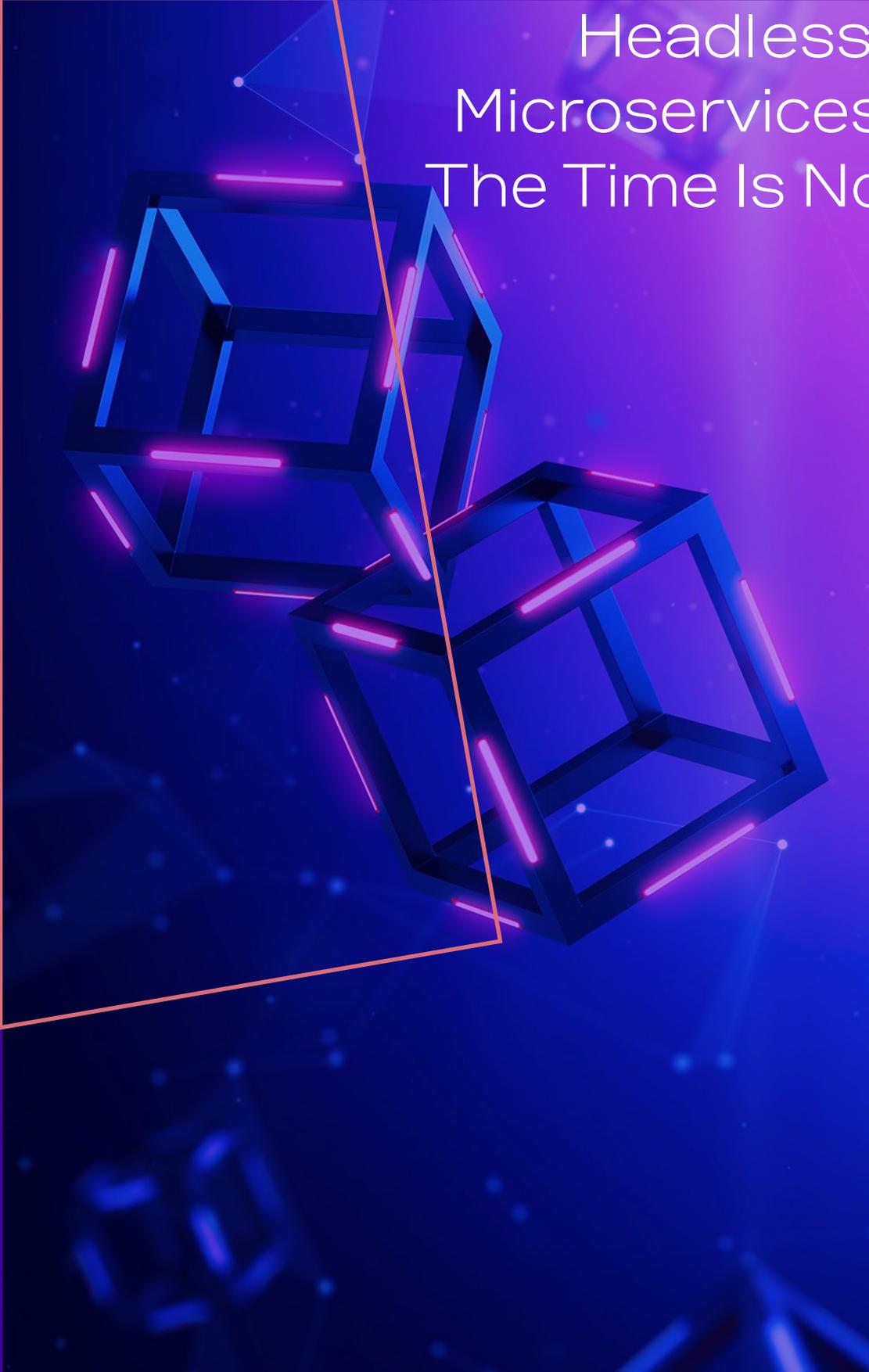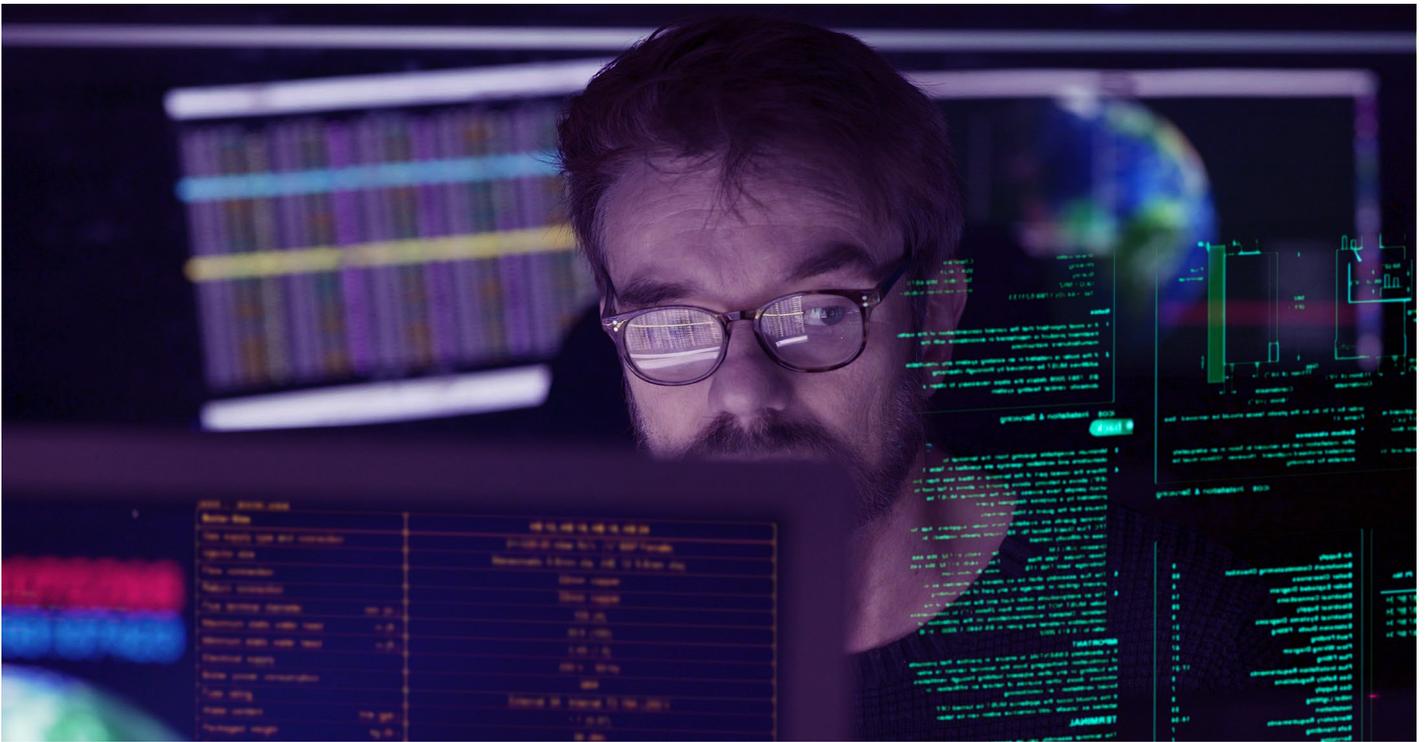
STEPS TO ADOPTION

At Wunderman Thompson Commerce, we see it as a real positive that so many organisations understand the benefits of Headless and Microservices, and how both would improve their eCommerce operations. But what next?

For many organisations, a major barrier is understanding the steps that need to be taken to move from their existing platform architecture to a more agile approach. Unless you are a brand new business building your first eCommerce site, no one is starting from scratch. Businesses already have working eCommerce assets and a major consideration is protecting their investment in what they already have.

In most cases, it simply isn't viable to expect enterprises to tear up their entire digital infrastructure and start again. Too much has been invested in eCommerce assets and resources already. If change has to come, businesses want an option that preserves the value in what they have already.

Fortunately, the journey from monolithic to a more agile approach to eCommerce platform architecture can be broken down into incremental steps. This makes it easier for organisations to plot their adoption pathways in ways which preserve their existing assets. The key to it all is APIs. If you want your eCommerce operations to have the benefits of Headless and Microservices, then you first of all need to have APIs embedded into your platform. APIs open the door to being able to connect to third-party SaaS services of your choosing, and the next step from that is to operate in a Cloud-native environment.

With this in mind, here are three key practical steps for updating and upgrading from a monolithic platform:

Step 1. Stand up an API gateway

As the name suggests, an API gateway acts as a portal which helps APIs connect external services to platforms. Especially with legacy platforms, it is common to need lots of different APIs, often one for each different third-party app, to get round data compatibility issues. This can quickly become complex and cumbersome to manage.

An API gateway is effectively a management tool for exposing multiple APIs in a single location. Amongst other things, it routes requests from client to platform via a single API pathway, avoiding the need for duplication. An API gateway can also take care of protocol translation, e.g. between modern and legacy standards, and can allow a single set of security credentials to be used across multiple services. Other technologies such as the query language GraphQL can be used to improve the efficiency of API calls through the gateway.

Technical benefits of an API gateway include standardised logging, centralised security, better reporting and enhanced protection against malicious attacks. For eCommerce operators, using API gateways offers the simplest, most efficient option for opening up a legacy platform to APIs – assuming your existing systems has APIs. For Headless deployments, they provide a single point of control for managing the separation of backend and frontend. They also future-proof your architecture, ready for embracing the more radical decoupling involved in Microservices.

API gateways can also be thought of as presenting a uniform barrier, behind which all the messy, technical complexity of the main platform is hidden from view. In front of it, you can present a neat, streamlined, consistent set of APIs. This also means you can switch off, upgrade or replace individual backend assets without any impact on performance or functionality at the frontend - no more downtime for system maintenance or updates.

Step 2. Build up services piece by piece

Unlike building a monolithic platform, switching to an API-based architecture doesn't have to be an all-or-nothing enterprise - you don't have to separate every frontend function from the main platform in one go, nor do you have to create a completely decoupled architecture within the scope of a single project.

The beauty of APIs is that once you have a gateway set up, you can alter the architecture tool by tool, feature by feature. You might, for example, want to start by creating APIs for non-transactional features like browse/search or product display, migrating key aspects of the UX to a headless experience without disrupting the other commerce functions. Alternatively, you might want to 'go Headless' with a single transactional part of the user journey, such as checkout or a store finder. This would give you the option of rolling out different iterations of the site at high speed, e.g. with customised checkouts for different markets.

Step 3. Gradually progress from Headless to Microservices

In the race to develop bigger and better digital shopping experiences, to fully integrate omnichannel journeys and to add value with cutting edge technologies, the greater agility you get from UI/UX functions by separating them from the main commerce engine is fast becoming table stakes in eCommerce development. That is why, once you are up and running with APIs and an API gateway, Headless is likely to be the first approach you try.

Microservices offers far greater flexibility and takes the scope for customisation to a level beyond Headless. We might even say that Microservices is where the potential of API-based eCommerce platforms can be fully realised. But Microservices is also much more complex and more challenging to orchestrate than Headless.

Again, the key is to start small. There is nothing to say you have to embrace Microservices across your whole eCommerce stack at once; you can use it as a tool as and when it makes most sense. You might, for example, want to start off with just a single feature, say, an enhanced wishlist. If you have browsed all the plug-and-play SaaS wishlists available and none of them quite meets what you want, you can use a Microservices approach to build your own, function by function, tool by tool, replacing your monolith with services piece by piece. Martin Fowler coined the term "Strangler Pattern" to explain this strategy for monolith retirement over time.

"COMPOSITE COMMERCE": FUTURE-PROOFING YOUR PLATFORM ARCHITECTURE

So, what happens when you have reached the point of adopting a Microservices approach into your eCommerce platform? Is that the end of your journey towards a more agile architecture that gives you the freedom to embrace a dynamic approach to CX?

Not at all - and not least because these technologies are not perfect. There are drawbacks as well as advantages. Microservices in particular introduces a considerable level of technical complexity. There are a lot more 'moving parts' to maintain, i.e. the API gateway, service registries, multiple individual programmes and so on, which all need to be configured, deployed, scaled and monitored in unison. Because they are, in effect, distributed systems, this all makes building, testing and deploying Microservices-based applications and platforms that much more challenging.

There are, therefore, opportunities to improve on the Headless/Microservices-based approach. An important starting point is to view these not as fixed off-the-shelf solutions, but as tools to be used and adapted to suit the needs of your commerce platform.

With that in mind, we should emphasise that the above is not intended as a fixed route map from APIs through Headless to the final destination of Microservices. To reiterate again - all of these technologies should be treated as tools for achieving your strategic eCommerce objectives, not as ends in themselves. Maybe you will never need to embrace Microservices; maybe a Headless architecture will deliver everything you need, or maybe the kind of customised API-based platform that serves your purposes best fits in neither the Headless nor the Microservices camp.

Ultimately, this is the key lesson to take from what these technologies can deliver - the freedom and flexibility to customise your eCommerce platform as the needs of your business require. Notably, more than a quarter of the businesses we surveyed are using SaaS products which have limits on their customisability and could benefit from a composite approach, where functionality that can't be added to the platform can be located outside of it.

Looking beyond Headless and Microservices, this is where the real future potential of these approaches lies - in the ability to custom-build an eCommerce platform from the ground up, rather than having to rely on the restrictions of prefabricated, off-the-shelf products.

The commerce businesses that are furthest along this path are already shifting away from the big platforms to create their own purpose-built technology stacks which combine API-first techniques with cloud-based SaaS and PaaS (platform as a service) services, plus on-premise as required. The key is that, by placing everything behind a single API management layer, businesses are able to develop their own cohesive solutions made up of many smaller parts - best-in-breed SaaS services, the latest commerce technologies, even the assets contained in an existing monolithic platform.

The technical innovation of a single, consistent API management layer creates a level of agility in eCommerce platform development that completes the journey away from monolithic architectures. The term coined by Wunderman Thompson Commerce to describe this next phase of progression is "Composite Commerce" - as in, building entire architectures piece-by-piece using whatever services and tools are best suited to your requirements and objectives.

For speed, agility, scalability and readiness to embrace both the technological trends and consumer expectations of the future, we expect composite architectures to become the norm within five years. Headless, Microservices, API-first and the rest have shown us the path away from the restrictions of monolithic platforms. Composite Commerce will see digital enterprises reap the full benefits.

RISKS OF DELAYING (OR NON-) ADOPTION

We mentioned earlier that delaying the adoption of Headless and Microservices by 12 months or more could see some businesses running legacy eCommerce platforms fall badly behind the curve.

The approaches we have discussed in this report, leading into Composite Commerce, open the door to greater agility in what you can do with an eCommerce platform, which in turn means more innovation and a stronger focus on CX. Development timescales are an important factor in their own right here. With a composite architecture, you can separate your development teams - having, say, Agile scrum teams whose brief is to roll out innovative and attractive frontend services at high speed, while a more technical team takes care of the heavier, slower backend management work, completely separately.

With distinct development cycles for your most customer-friendly features, you can also speed up testing and feedback loops to drive forward continuous improvement.

All in all, the risk for legacy platform operators, who might face months of development to add a new channel or customise a site for a new market, is that by the time they get their site improvements live, their customers have already been tempted away by a rival that pioneered those experiences months earlier.

Composite architectures also lead to better frontend performance. Because they are not coupled directly to resource-intensive backend functions, customer-facing sites, apps and tools built using a Headless or Microservices approach achieve better load speeds and a faster, more seamless in-page experience. As page speed is now a key metric used to determine Google search rankings, continuing to run a non-composite architecture risks damaging your visibility.

Once customers are on your site, consumer tolerance of slow page loading and glitchy performance is rapidly diminishing. We know, for example, that slow page loading is a major cause of increased bounce rates and cart abandonment, and is often cited as a reason why customers choose a rival service. On the other hand, faster load speeds show a direct correlation with increased conversions. The bottom line is, faster eCommerce sites make more money, because they give customers a more satisfying experience.

If we take mobile page load speeds as an example, it is often said that the optimum load time is three seconds or lower - anything higher and bounce rates start to rocket. The average page load speed for a legacy eCommerce site is seven seconds, according to MatchMetrics, and that's a major hindrance for optimising mobile

CX. This is one reason why so many businesses have developed native mobile apps. But by delivering faster, smoother interactions with web browsers (partly thanks to the work of API gateways), composite architectures are starting to be able to deliver browser-based experiences that match the speed and efficiency of a native app.

By embracing Composite Commerce, businesses, therefore, not only have the opportunity to deliver a better CX and increase conversions, but can also reduce the development burden of running channel-specific native apps. The flexibility of composite means one size can be adapted for all uses.

A final word on monoliths

It's important to state that not all businesses who retain their monolithic platforms will necessarily struggle or fall behind, although the role of these platforms is likely the change. The majority of the more traditional platforms now have comprehensive API coverage and can continue to play an important role as part of a Headless/Microservices strategy. These platforms often contain tried and tested business functionality and familiar back-office tooling which can still be leveraged effectively where scalability is already understood and APIs have less need for dynamic change. For some retailers, their existing platform will form a key part of their technology strategy, whilst for others it may be seen as something to move away from completely, in favour of a more modern, bespoke solution.

Conclusion
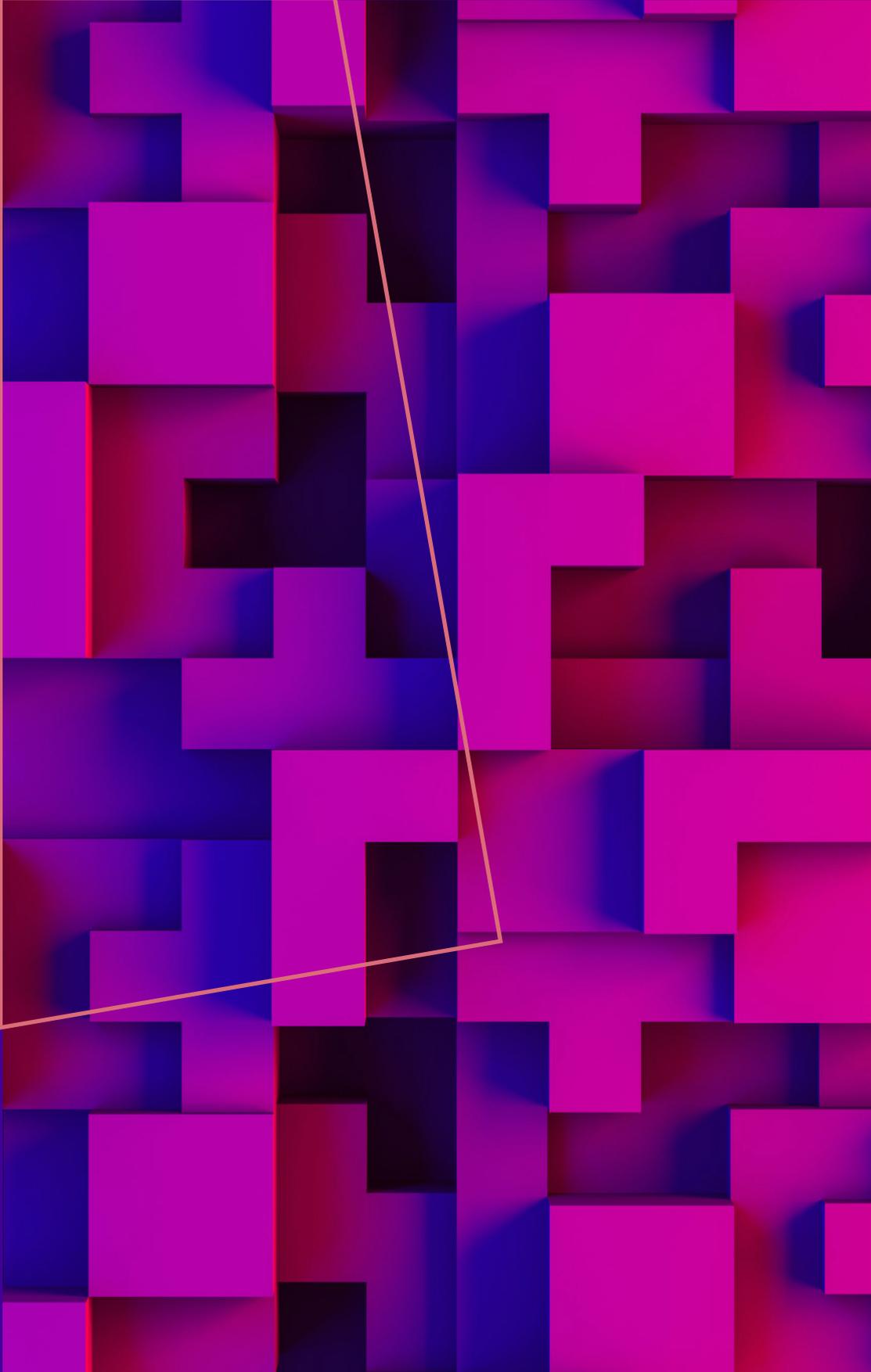
Conclusion

Our survey results show unequivocally that awareness of the issues surrounding commerce platforms is high - higher than we might have expected, in fact. Not only do a convincing majority of organisations (81%) rate their understanding of Microservices, Headless and the rest as solid or better, but a similar proportion rate their abilities to work with them highly, while two thirds (67%) see them as a good fit for their business right now.

This is encouraging news because, as our results also show, most organisations recognise that the clock is ticking on their current eCommerce platform. More than half expect to need a new solution in no more than 12 months. There is a clear consistency in what businesses are looking for from their next commerce platform, too. Four in five businesses we surveyed told us they wanted solutions that increase flexibility, omnichannel integrations and ease of customisation, and which also future-proof their capabilities. And this is because businesses are aware of the need to create better, more bespoke customer experiences, with the ability to respond rapidly to what the data tells them their customers want.

There is no doubt that COVID-19 has brought the need for more flexible, adaptive commerce platforms that can be readily shaped to deliver the very best experiences across all channels into even sharper focus. The pandemic has accelerated the growth of digital commerce, creating a new impetus for businesses to embrace digital transformation as quickly as possible.

In that context, although three quarters of businesses we spoke to have already started to embrace a new approach to eCommerce architecture, or say they plan to do so in the next 12 months, we have concerns that the numbers are not already higher. Some of the 25% that don't have any immediate plans to turn to Headless, Microservices or API-based platforms will risk being left behind. We also have qualms about timescales of up to 12 months. That is a long time in business and in technology. Thanks to the likes of Headless and Microservices, development times at the cutting edge of commerce are now measured in weeks rather than months. Delay embracing these approaches for up to a year, and you risk being left far behind in the jet-stream of the biggest digital innovators - especially in today's post-lockdown world.

We understand the concerns over resources, disruption and getting enough stakeholders on board that participants in our survey raised. Headless and Microservices represent a fundamentally different way of thinking about how commerce platforms are built and run - there are technical complexities involved and risks. There will inevitably be a degree of cultural pushback and uncertainty.

But ultimately, the days of the monolithic eCommerce platform are numbered for a great many businesses today, and the time to embrace these more agile, adaptable, efficient approaches to platform architecture is now. At Wunderman Thompson Commerce, we have the experience and expertise to help businesses through the transition. And we can recommend the pathways which create the least resistance.

About Wunderman Thompson Commerce

Wunderman Thompson Commerce is a global eCommerce consultancy of 1500+ commerce experts across more than 20 offices, united in helping clients win through eCommerce.

We define and deliver digital growth for ambitious brands, retailers and manufacturers. The cornerstone is inspiration – and we seek and promote it in all that we do.

Our global eCommerce consultancy offers strategic clarity, technology enablement and creative insight and delivers winning commerce capabilities across all major channels: marketplaces (including Amazon), online retailers, D2C and social commerce.

We help brands increase results at scale on Amazon, deliver eCommerce strategy and optimise multichannel journeys. We inspire customer engagement and transactions at every touchpoint, while deploying and integrating world class technology from key strategic partners including Adobe, SAP, Salesforce, commercetools, HCL and IBM.

Clients include AkzoNobel, DFS, Halfords, Hotter, Jumbo, RXBAR, Sainsbury's, Selfridges, Specialized, Tempur and Tiffany & Co.

We are part of Wunderman Thompson, a WPP agency which is part creative agency, part consultancy and part technology company, and whose experts provide end-to-end capabilities at a global scale, to deliver inspiration across the entire brand and customer experience. Wunderman Thompson is a WPP Agency (NYSE: WPP).

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Selected Services
To Support Brands And Retailers

ECOMMERCE PLATFORM TECHNOLOGY
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Through the implementation of world-leading commerce platforms underpinned by future-ready technologies, we're able to support the most ambitious client strategies. We've been doing this for more than 30 years — with hundreds of successful eCommerce implementations to our name, including the world's largest fashion and B2B platforms and grocery replatform. READ MORE

Connect with our Global CTO, Glen Burson.

ENGINEERING
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Our engineering practice underpins all of our technology solutions. We have specialists supporting all major ecommerce platforms as well as unbeatable experience in modern technologies such as SPA/PWA, headless commerce, microservices, cloud and serverless architectures. By choosing the tech solution that works best for you and keeping a laser focus on quality, we deliver well engineered solutions that meet your needs both now and in the future. READ MORE

Connect with our Director of Engineering, Nick Vincent.

INNOVATION AND FUTURE-READY TECHNOLOGY
Reviewing, testing, and deploying innovative technologies and solutions to keep businesses ahead and future-ready.

We explore, recommend and implement workable innovation, testing ideas, methodologies and leading-edge technologies to help businesses shape their own future and stay ahead. After all, how can you navigate the future of eCommerce without an understanding of the tech and trends shaping it? READ MORE

Connect with our Head of Innovation, Naji El-Arifi.

CUSTOMER EXPERIENCE
Inspiring transactions across the journey.

In putting the customer at the heart of every journey touchpoint, CX must not only work, but inspire both action and transaction. Our ability to create and support these journeys is born of science and commercially driven — we create optimised, multichannel customer journeys that drive engagement and transaction at every point. Key to this is our unique methodology "Commerce Experience Design" that exploits the synergies between Interface Design, User Experience Design and Service Design. READ MORE

Connect with our Director of Customer Experience, Rachel Smith.

ECOMMERCE STRATEGY
As a growth partner, we help retailers and brands strategise for high-performance eCommerce through a suite of proven end-to-end services.

We help enterprise-level organisations to transact more business online by designing and implementing high-performance, future-ready digital strategies. This starts with defining a balanced multichannel strategy, aligned to your vision, and the planning of eCommerce solutions to support your growth ambitions and customer journeys. READ MORE

Connect with our Strategy Director in Europe, Krantik Das or our Chief Strategy Officer in North America, Adam Brown.

DIGITAL TRANSFORMATION
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The digital landscape is accelerating at an unprecedented rate, pressurising brands to adapt fast. As digital commerce experts, we use our combined practical experience and knowledge of running and working for major global brands online, to work collaboratively with clients, engaging and enabling operational and business teams, adapting ways of working, and transforming processes, to exploit new capabilities, that help them win through digital. READ MORE.

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