

CONNECTED DEVELOPMENT: DELIVERING DIGITAL-FIRST EXCELLENCE

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Connected Development: Delivering Digital-First Excellence

Introduction: To Enable Successful Digital Innovation Outcomes You Need to Design for Velocity, Value, and Scale

In responding to the COVID-19 pandemic, organizations had to rely on digital technology and adapt to new ways of work, operations, and commerce. This has shown how more digitalized organizations have outperformed their less digitalized peers and what business leaders think about the relationship between business and technology.

This new mindset, which IDC terms "digital first," centers around how digital technology can be effectively employed to better achieve business outcomes. In taking digital-first approaches, leading organizations are ushering in the next digital transformation (DX) era — from scaling digital within the organization to running a viable digital business. In fact, 97% of C-level executives tell IDC that they are prioritizing a digital-first strategy (see Figure 1).

Thinking and behaving like a digital native means organizations need to take development strategies to the next level. The focus is clearly on the ability to develop digital services and applications at a velocity and scale like never before. This switch in corporate mindset and strategy is underpinned by the sheer growth in applications. This growth was catapulted both by the response to the pandemic and as organizations took advantage of pandemic-created opportunities.

In February 2022, IDC's *Future Enterprise Resilience and Spending Survey* underlined this with 81% of organizations globally confirming that the pandemic elevated the need to deliver digital innovation.

To secure strategic competitiveness in a digital-first world, organizations are realigning operations to put the development of digital services and applications at the heart of their businesses. IDC projects that there will be 750 million cloud-native applications created worldwide by 2025 — more than the number of applications created in the past 40 years. This demonstrates the scale and acceleration in digital innovation and the pressure that organizations will face to adapt as they move forward.

AT A GLANCE

WHAT'S IMPORTANT

Organizations are increasingly focused on running viable digital businesses. As a result, many are realigning operations to put digital services and application development at the heart of their business.

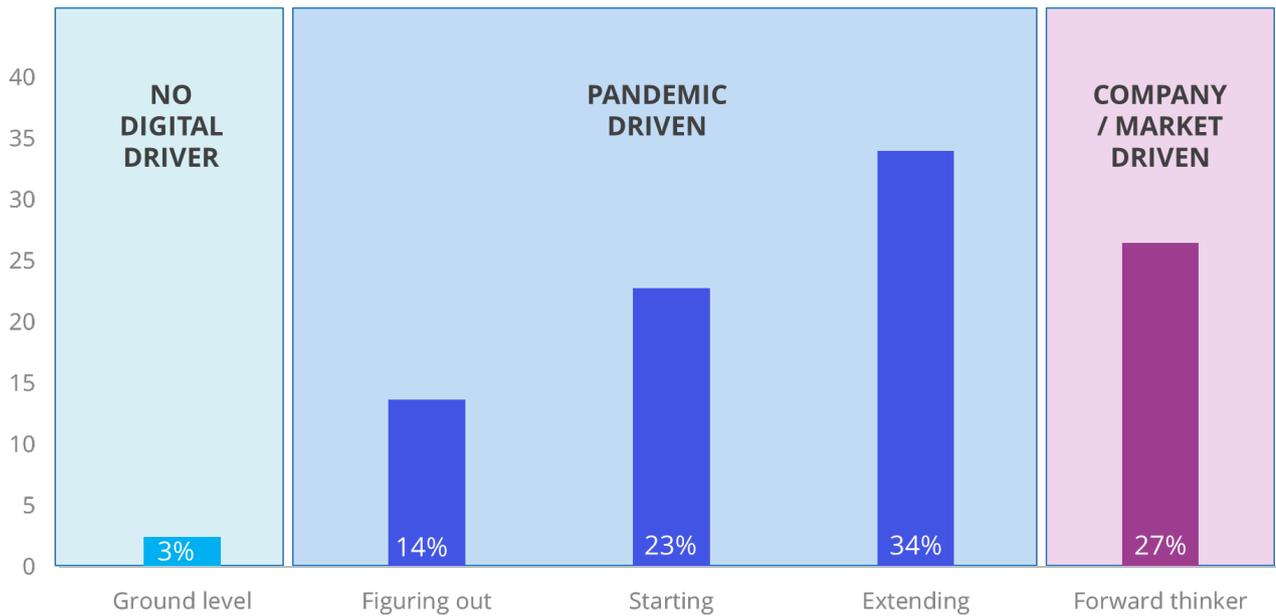
Designing for digital innovation excellence is not an overnight process — it requires consistent investment and adjustment. As digital becomes foundational this requires organizations to design for value, velocity, and scale.

There are four core ingredients to execute successfully:

- » Architect for digital value creation with composable tech products
- » Design for development and delivery velocity with a connected DevOps strategy that drives unity through automation
- » Address the app delivery skills gap by identifying the right tactics and talent to manage growth at scale
- » Create a learning organization that focuses on measurability, repeatability, and reuse

IDC has been tracking this transformation as enterprise organizations transform into what we call digital innovation factories, where one of the organization's key competencies is developing digital services and applications. This sees organizations prioritize the use of software to deliver innovation in the creation, delivery, and ongoing enhancement of products and services to customers. One in three organizations invests in digital services and application development and delivery to increase competitiveness and drive differentiation and innovation in product/services portfolios.

FIGURE 1
Organizational Approach to Digital-First Strategies

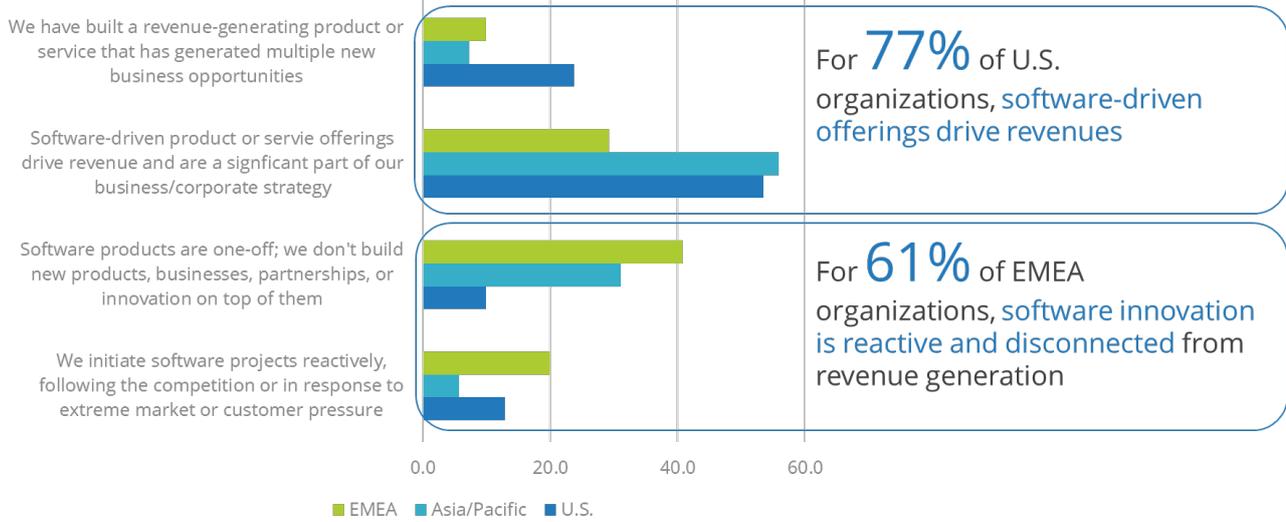


Q. Which of the following statements best describe where your organization is when it comes to adopting a digital-first strategy?
Source: IDC, Future Enterprise Resilience Survey 2022, Wave 2, March 2022 (n = 796)

Not only has the pandemic influenced attitudes to the buildout of digital innovation capabilities — there is now, more than ever, a need for organizations to start to take a more connected and joined up approach to digital innovation. Thriving in a digital-first world means CEOs need to leverage digital to save and generate money.

More organizations are now betting on new tech-driven business models where the primary focus is on both profitability and the generation of new revenue streams. But some are moving faster than others. While there is greater recognition in EMEA that the delivery of digital services and applications plays an important role in future business strategies, EMEA organizations still lag their peers in the U.S. and Asia in terms of their ability to deliver digital innovation.

FIGURE 2
Current Approach to the Development of Digital Services and Applications



Q. Which of the following most closely describes your company in terms of its approach to software innovation?
 Source: IDC Future Enterprise Resilience Survey, Wave 10, November 2021 (n = 829, U.S. = 202, Asia/Pacific = 370, EMEA = 257)

IDC data indicates that for just over a third (36%) of EMEA organizations software-driven offerings drive revenues, with 10% indicating that software-driven products/services have created multiple new business opportunities. This compares to over three-quarters (77%) of U.S. organizations claiming that software-driven offerings positively impact revenues — a stark contrast to EMEA, where 61% of organizations take a very siloed and disconnected approach to software projects.

Accelerating Digital Innovation Excellence

The journey to become a digital innovation value engine and truly deliver digitally innovative products and services that positively impact revenues is hard. On the one hand, organizations struggle with cultural, collaboration, and business model shifts needed to enable digital innovation. On the other, as many organizations have come to learn, running modern application environments is tricky, particularly in the context of deep technical complexity, growing security risks, and the shortage of skills needed to operate such landscapes at scale.

FIGURE 3
Key Challenges in Developing and Delivering Applications and Digital Services



Source: IDC Accelerated App Delivery Survey, September 2021 (n = 611)

Overcoming the friction points to digital innovation excellence is not an overnight process, and requires consistent investment and adjustment.

Designing for Digital Innovation Excellence

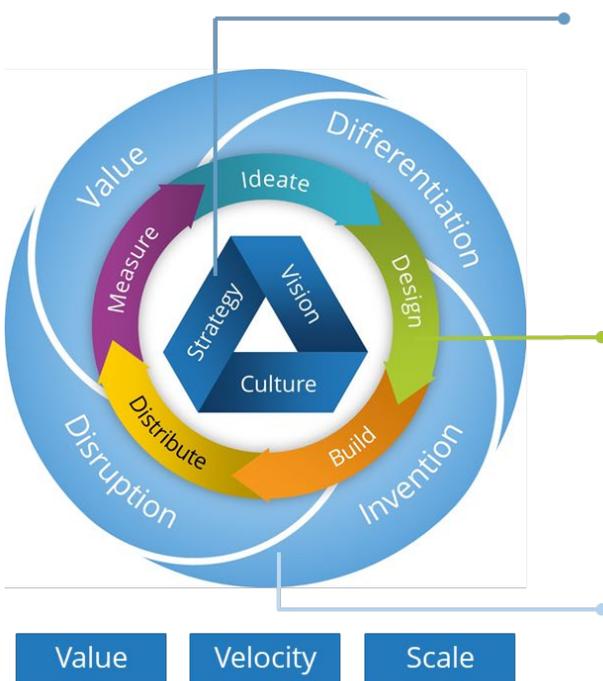
IDC believes that nearly every organization can benefit from building a digital innovation value engine. This value engine comprises the practices, technology, and culture required to build and sustain innovative digital deliverables that achieve strategic business outcomes.

IDC identifies three core components with mutual interdependencies:

- The innovation foundation
- The flywheel of innovation
- The outcomes

The innovation foundation, comprising culture, vision, and strategy, is the core of digital innovation. To successfully create digital innovation, organizations need that foundation to directly feed a flywheel of innovation that executes on the foundational ideas and then in turn drive successful outcomes.

FIGURE 4
Components of the Digital Innovation Value Engine



The innovation foundation: The innovation foundation defines three required elements for a successful digital innovation initiative. Without the right vision, strategy, and culture — which, combined, form a solid foundation for innovation — an organization is unlikely to be able to generate value, invention, differentiation, or disruption.

The flywheel of innovation: With the right innovation foundation, companies can create the self-sustaining process required to deliver innovative and iterative digital services and applications that achieve the desired outcomes. This process includes five key activities: ideate (or iterate), design, build, distribute, and measure. Combined with the right foundation, the process generates sustainable momentum that opens the door to additional digital deliverables that bring business value add — sustaining and creating new value on an ongoing basis.

The outcomes: A successful digital innovation value engine generates value, invention, differentiation, and/or disruption. Determining one or more of these outcomes should be part of the organization's vision for its digital innovation investment.

Source: IDC, 2022

The Framework Structure to Deliver Velocity, Value, and Scale

Organizations need to design businesses to deliver business outcomes and digital value creation. The reality is that most organizations are still on the starting blocks in terms of running a viable digital business, with just over a quarter considering themselves forward thinkers (see Figure 1). There are still many hurdles to overcome as organizations navigate this next digital era. Fundamentally, they need to join the dots across people, process, and modern technology, and evolve technology investment strategies to focus on running a digital business.

IDC identifies four core ingredients for success:

1. Architect for digital value creation with composable tech products
2. Design for development and delivery velocity with a connected DevOps strategy that drives unity through automation
3. Address the modern app delivery skills gap by identifying the right tactics and talent to manage growth at scale
4. Create a learning organization that focuses on measurability, repeatability, and reuse

1. Architect for Digital Value Creation

Composable Tech Products

For the past three years, integration into legacy app environments has been and will continue to be the number 1 organizational challenge to application development and delivery. Organizations are struggling to connect the old with the new, which prevents them from delivering superior and new business value.

There is an urgency now to find a solution to this challenge as the need for speed and agility hits new heights. Many organizations are shifting their focus from migration to the cloud to how to successfully operate in the cloud, grow the business, and innovate. One of the key dimensions dictating how nimble an organization can be is defined by its ability to compose and deliver digital services and applications (software innovation) into its business and/or into the hands of its customers.

This ability is dictated by how quickly an organization can shift from monolithic to composable development and delivery models. Cloud-native technology and cloud-native organizational alignment are important elements in ensuring an organization can compete. Highly modular and composable architectures based on APIs and microservices provide the application infrastructure for digital innovation. At the same time APIs help to ease the pain of legacy integration by more readily enabling the extension of enterprise application data. This enables organizations to effectively build differentiation and competitiveness across core business domains and functions by allowing data to be consumed across the entire application estate. The level of technology investment needed to support digital innovation is a major concern for some organizations, with IDC data showing that 7 in 10 organizations are very concerned with the investment required to stay competitive. This leads organizations to look for the most efficient and effective solution.

2. Design for Development and Delivery Velocity

Enable a Connected DevOps Strategy

As the digital demands on the business continue to escalate, software delivery teams are under extraordinary pressure to deliver more applications faster, putting dev productivity and velocity in the spotlight. The reality is that there is a growing performance gap between "disruptors" — organizations with very mature, automated delivery pipelines — and the rest of the market (the followers/laggards). Disruptors have development lead times of under 6 days, while the rest of the market are at 3 weeks or more. The pressure to ship digital innovation (digital services and applications) faster is defined by the changing competitive landscape, in which disruptors push new or updated application functionality into production in smaller bits but at a very high cadence. What's evident is that the leaders are not letting up, with IDC data highlighting their ambitions to further decrease development lead time by 35% in 2023.

The shift to "digital-first" needs guardrails to avoid the wheels coming off when organizations are driving change at speed. This is where the need for best practices, standardized IT and business frameworks, automation, and DevOps methodologies come in to drive out inefficiency and errors and to improve productivity and ROI. Large organizations not able to operationalize a highly industrial digital service and application delivery machine by the middle of the decade are unlikely to maintain their competitive position.

In a digital-first world, application development and delivery competitiveness must focus on freeing up the IT organizations to focus on business requirements. IDC identifies four imperatives for development and delivery competitiveness (see Figure 5).

FIGURE 5
Imperatives for Digital Service and Application Delivery Competitiveness



Source: IDC, 2022

These four imperatives for digital services and application delivery competitiveness must be supported by enhanced cross-functional collaboration. This makes unified and connected DevOps the goal. Why? Because organizations can drive valuable convergence and collaboration between dev, sec, and ops teams through end-to-end DevOps automation. IDC continues to see automation as a key investment area across both operations and development organizations — ultimately automation is the connective tissue truly driving connected development efforts.

Automation is a strategic differentiator for IT and is critical in helping organizations to adapt to and cope with the scale and complexity of modern infrastructure and next-gen technologies. But while DevOps adoption has increased, DevOps teams continue to find it difficult to identify and share best practices.

Automation success requires a structured and well-defined approach to support productivity gains across people, process, and technology. Just over 60% of EMEA organizations surveyed by IDC (*Accelerated App Delivery Survey*, September 2022) are investing in automated infrastructure and application provisioning, and developer self-service portals. More than 40% are now implementing communities of practice to support the systematic scaling of automation through shared objectives, common frameworks, and best practices.

An end-to-end approach to automation accelerates cross-team collaboration and cultural change and enhances business agility and growth, but only 28% of large organizations have achieved this. The result is the ability to create more efficient IT amid an increasingly complex infrastructure, drive team innovation velocity, and keep pace with rapidly changing customer expectations.

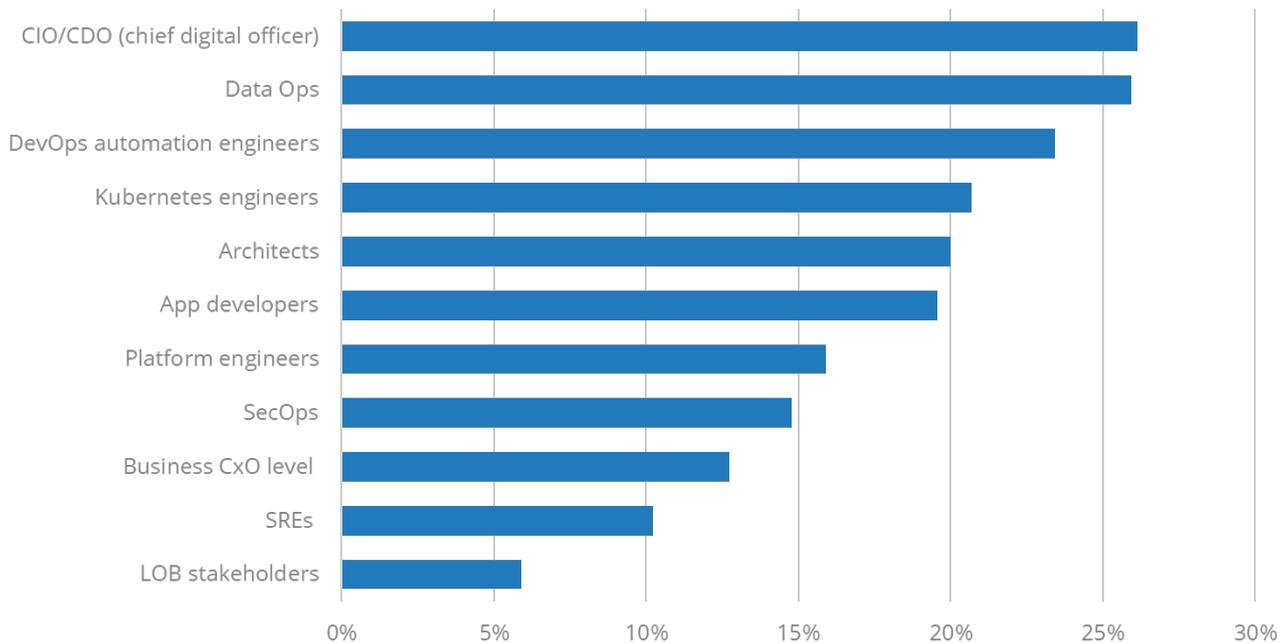
3. Address the Modern App Delivery Skills Gap

Identify the Right Tactics and Talent to Manage Growth at Scale

Speed and velocity will count for little if teams can't navigate the skills gap. As we look at modern application development and delivery on the cloud, we see even more skills challenges at play. To be able to compete in the digital-first era, enterprises increasingly need to become consumers and producers of software innovation. This makes the cloud application developer skills shortage very real and something that is holding back many organizations from achieving their digital innovation ambitions.

IDC finds that 96% of organizations struggle to recruit professional developers and predicts a 4.5 million deficit in professional developers globally by 2025. Leading organizations and digital natives, which have the financial muscle and brand permission, are moving ahead, while most traditional firms are unable to compete for the skills needed. Getting the right people and skills involved is crucial to change both the technology and the culture. There are even greater numbers of new technologies in areas such as DevOps, automation, cloud native, containers, microservices, and API integrations. It's no surprise therefore that augmenting digital service and application delivery effectiveness retraining and reskilling is now the number 1 investment priority for 2023. But who is considered the most important person in the organization when it comes to driving digital innovation and application delivery initiatives? And where should organizations focus their investments?

FIGURE 6
The Most Important Persona in Driving Digital Innovation and Application Delivery Initiatives



Q. Who is the most important person in terms of driving your digital innovation and software delivery initiatives?

Source: IDC Accelerated App Delivery Survey, September 2022

There are a number of personas and roles that are perceived to be critical to digital innovation and application delivery, with the CIO/CDO and DataOps and DevOps automation engineers identified as the most important. This group is closely followed by Kubernetes engineers, architects, and application developers.

As digital services and application engineering teams scale quickly, organizations must focus on the right tactics and talent to manage growth at scale. As organizations accelerate cloud and DevOps engineering strategies to support digital ambitions, it is essential that they get the mix of skills right. They need senior executives to drive strategic direction but also feet on the ground to execute it. IDC finds, however, that for certain roles there is an overall lack of presence in many organizations. For instance, less than 20% of organizations have hired or plan to hire three critical personas: automation architects, microservices, and Kubernetes engineers.

The impact of the skills gap — particularly related to roles such as professional developers, automation architects, and microservices engineers — is significant. IDC research quantifies the direct impact of this skills gap as difficulty in meeting quality objectives, slower software release cycles, lower customer satisfaction, and an inability to conceive and deliver innovative digital services and applications. It's important not to overlook the role of automation architects and microservices and Kubernetes engineers in executing digital innovation strategies.

In addressing the skills gap there is growing recognition of the importance of partners in helping to plug into valuable engineering know-how, accelerate learning, and empower creativity. Co-creation of digital services and applications is increasingly becoming the norm. IDC finds that those organizations with highly mature digital services and application delivery engines

recognize the strategic importance of application services providers, with 44% of them identifying their primary application services partner as the most strategic technology to deliver digital innovation and accelerate application delivery excellence.

4. Create a Learning Organization: Focus on Measurability, Repeatability, and Reuse

Organizations are rushing to set up robust software dev and delivery capabilities, and this is blurring the lines between business and IT. What's interesting is that IDC's *Accelerated App Delivery Survey 2021* shows that 57% of large organizations have an industrialized and unified app dev capability, but only one in three of these "app-dev" advanced organizations has clear alignment with the business.

Becoming digital by design demands organizational cohesion and integration. A fifth of large organizations have permanent representation of business in tech teams and vice versa, facilitating internal collaborative efforts and self-service applications that meet business needs. To build digital innovation faster for the business and users at speed, organizations need business and IT stakeholders with unified objectives and common execution frameworks. To accelerate digital-first capabilities and become an innovation-led organization requires a clear vision. Organizations need to ask themselves:

If software development is seen as a core organizational competency, what are the organization's digital aspirations and how are these measured?

Successful digital innovators tend to count digital aspirations among high-level business goals. For instance, senior leaders at mature companies are increasingly setting revenue goals associated with digital products or services, whereas the least mature organizations don't examine the business outcomes of digital products. Identifying and defining strategic drivers that help define and measure the success or failure of your digital innovation journey is critical to its success. CIOs are facing increasing pressure to justify spend on software development and delivery, particularly in the face of macroeconomic disruption. This demands better insight into the performance of software development teams, with a focus on productivity, efficiency, and business value delivered. Many CIOs struggle to provide this kind of insight to the C-suite as they lack the visibility into software development teams and processes. Those who succeed, design with strategic objectives in mind and can communicate the value of the teams' progress and alignments with business objectives now and in 10 years' time.

Hand in hand with setting digital aspirations is the need to accelerate platform- and product-led thinking across engineering teams. To drive a common approach, organizations need to focus on providing team guardrails and not blockers — with an emphasis on how to positively impact team behavior and creativity. Communities of practice help to support this process, and help teams and engineers accelerate learning and the dissemination of best practices.

The Fujitsu Approach: Build Services Faster with Adaptive Development and Engineering

Fujitsu has rapidly evolved and extended its application and digital platform conversation as it recognizes the need to respond both differently and at speed to customer requests. It provides modern technology, people, and process expertise to help organizations rapidly create adaptable, product-centric digital services. Fujitsu has set up its delivery engine to be able to engage with customers at any stage of the product life cycle, leveraging an agile, adaptive, and iterative approach.

Core to the Fujitsu approach is the ability to help customers be digitally "relevant, responsive, and resilient" with a focus on adaptive and composable business models that help customers respond rapidly to change and create sustainable high-velocity digital services for business growth. To become an adaptive organization, Fujitsu works with customers to reengineer their capabilities with an emphasis on delivering business outcomes.

"Build Services Faster" is a critical component of this strategy and focuses on equipping customers with the capabilities to achieve high-velocity application life-cycle management. Three core components support this:

1. **Architect for velocity:** Helping customers shift from monolithic to composable architectures. Fujitsu is bringing together its digital, data, and cloud expertise across cloud-native engineering and application modernization to provide full-stack development capabilities that leverage cloud-native, low-code, and API platform expertise.
2. **Agile innovation approach:** Driving the right team formation, culture, and control. This leverages capabilities Fujitsu has built in DevOps automation and implementation (including engineering skills on demand) together with its agile and cloud expertise. A great example is how Fujitsu worked with the Andalusia government to optimize continuous development for fast, agile, and flexible response.
3. **Addressing resource gaps:** Helping clients to overcome skills shortages with both people and technology. Central to this are the skills and expertise Fujitsu has grown in low-code capabilities and by working with its partners.

"Working together with a Center of Excellence model, enabled by Fujitsu's Software Factory, we deliver full-stack, multi-disciplined development, underpinned by agile procedures and process automation tooling. The new way of working is fast, integrated, and flexible to changing needs enabling continuous development and rapid scale, thanks to the ability to reuse repeatable components." Andalusia government

Fujitsu recognizes the need to engage and respond differently, and its strategy now focuses on how to engage more intimately and faster with a goal of delivering in 4 weeks and not 4 months. Its strategy is centered on product-centric development that combines both technical and cultural skills to enable customers to augment existing resources to deliver high-velocity digital services.

The focus is shifting to faster knowledge transfer to help customers succeed. Build Services Faster is just one component of Fujitsu's [Adaptive Organization](#) framework, which has been developed to help customers accelerate holistic, high-impact, and continuous enterprise transformation.

Essential Guidance/Recommendations

- **Be practical when building out capabilities to deliver digital innovation excellence.** Identify gaps across technologies, talent, architectures, and processes. To support your digital innovation value engine, prioritize a modern application delivery strategy that drives automation and cloud-native cohesion. Digital business success relies on agility, flexibility, and speed, so focus on a unified strategy with repeatability and reuse, where underlying DevOps and agile processes are automated to enable continuous delivery and deployment. Reuse and automation as well as composable application architectures are critical to achieve scale and business resilience.
- **Address organizational design and team culture.** Remember that human latency is greater than application latency. To design with a customer-centric approach in mind requires cross-functional teams across technology and the business. The emphasis should be on how to positively impact team behavior. Consider setting up communities of practice to support this process and align around common goals that measure the business value delivered. The goal should be opening up collaboration without overloading teams.
- **Provide guardrails, not blockers.** The push for improved deployment speeds and more rapid ideation and experimentation cycles means there is a critical need for control. But this does not mean adding rigidity and processes that slow innovation. This requires organizations to support both team autonomy and ease of collaboration. It is about providing guidelines and guardrails that enable speed with a degree of control. So, focus on building in self-service and security to create the guardrails for scale while empowering teams to innovate.
- **Build an adaptive data strategy.** The ability to ingest, manage, and organize ever-increasing volumes of data is a top challenge for any large organization. Ensuring that application delivery teams have access to quality data is critical in driving speed and agility. Ensure your digital development architecture, approach, and resources are aligned to a comprehensive and adaptive data strategy.
- **Recognize that the cultural and mindset shift will be hard.** You need to enable the space for experimentation to let teams release value iteratively. Change is not an overnight process — it's a journey that requires consistent investment and adjustment. Study your team topologies and align principles across teams to knock down silos.
- **Focus on the human side of software innovation to access skills and innovation expertise.** The shift to modern cloud-native technologies is not just about the new technology — it's as much about a new way of working. Create a level of excitement around learning new skills and make sure you understand where the technology is headed as this will help to create an adaptive skills strategy that augments staff retention.

Create an environment where continuous learning is the norm and invest in training and certifications that support organizational goals.

- **Focus on technology partnerships for joint capability gain.** When implementing and operating new technologies, it can be tough to build the right skills in-house at the required speed. Foster a partnership rather than a supplier relationship and mentality; partners will help to fill skills gaps in the short term and build technology capabilities through knowledge transfer in the medium term.

MESSAGE FROM THE SPONSOR

To drive growth, consumer value, and societal impact in today's dynamic and rapidly changing markets, every organization needs to continuously adapt and evolve at high speed. Increasing the velocity of digital services innovation, development, release, and iteration is a crucial part of addressing this challenge. For many organizations, however, ambitions to build services faster are constrained by technologies, approaches, behaviors, and skills gaps, which prevent them from matching or outperforming their digital-native peers.

As a globally trusted digital and sustainability transformation expert, Fujitsu has the solutions, highly skilled people, and leading engineering capabilities to overcome these challenges and achieve success. Together with our leading innovation partners, we help customers to develop and deliver digital services, applications, products, and features that have a transformative impact on their organization and the people they serve.

Want to accelerate? Get started [here](#).

About the Analyst



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Jen Thomson has more than 20 years' experience advising IT vendors and senior IT and business executives on their digital business optimization and transformation strategies. She leads IDC's European research on accelerated app delivery, cloud, and services.

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