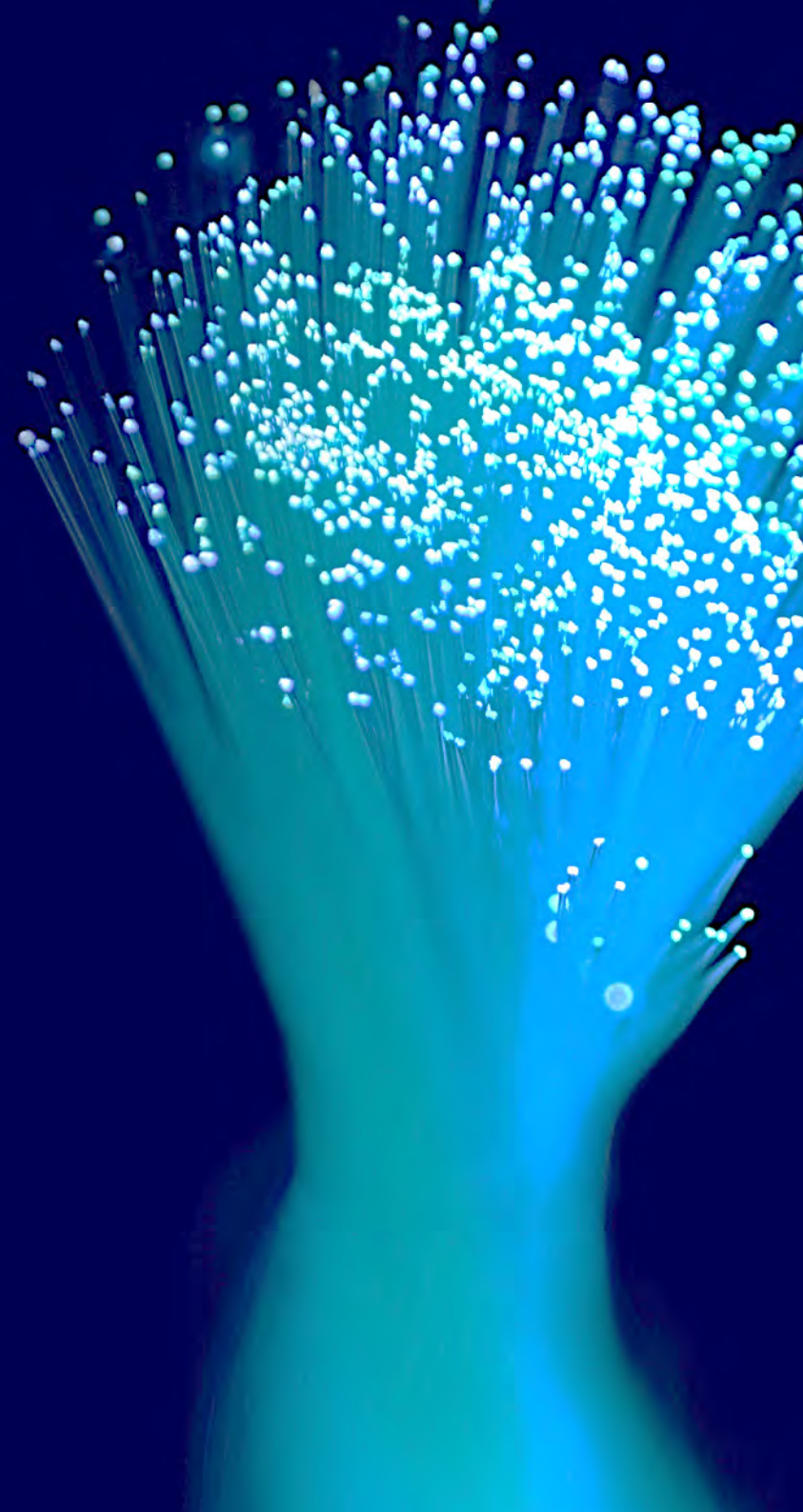




# Preparing for modern delivery

**The need for collaboration and integration  
in the future of IT**

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**To build technology at market speed, companies must go beyond performing the basics faster. They must adopt the right pace of innovation to improve the customer experience, experiment with the least amount of risk and effort, harness learnings from failing fast and small, and thrive in the digital economy.**

In short, organizations need a modern delivery model for technology. This model will integrate often disconnected elements such as DevOps, agile development, automation and cloud-native architecture, while driving collaboration to break down the silos that limit IT agility.

However, the future is not about assembling existing capabilities into a single delivery state. Rather, success will be measured by an organization's fluidity: the ability to quickly disassemble and reassemble technical components and disciplines to meet the company's needs.



# Delivery at the speed of product demands

**Organizations must be able to throttle their delivery of products and services, increasing or decreasing speed as the business requires. This capability will define IT of the future.**

Whereas organizations may have previously targeted bimodal IT - with one speed for traditional, sequential delivery and another for more exploratory, agile work - product teams in the future must have the flexibility to operate at a full spectrum of delivery speeds, depending on the strategic requirements for a specific product or service. And unlike bimodal IT, which separates delivery into different functions, the future approach will integrate teams under common methods.

For example, if a product lives on mobile and web platforms and relies heavily on customer feedback, delivery will need to release very quickly, with constant iteration. On the other hand, for a legacy mainframe system in a regulated environment, teams will not need to release updates daily, but they nonetheless must act as if every day is release day. In both products, the constraints are different but the delivery methods should be common, along with a unified vision and purpose aligned to customer value.

To adopt the principles of native digital enterprises, classic organizations will need to embrace this kind of agile thinking, without creating siloes or disconnected tribes.

How can you prepare your organization - including IT and other business functions - for modern delivery and flexible throttling? Companies will need new ways of working, as change and evolution become the new normal.

## Enabling a customer-centric connected enterprise

High-performing organizations recognize that to meet customer expectations and enhance profitability, they must create a customer-centric connected enterprise.

And modern delivery is a key enabler. Indeed, in a 2019 study by Harvard Business Review, the vast majority of respondents said rapid software delivery is critical to company success, and 65 percent of those said customer expectations are the driving force.<sup>1</sup>

These customer experience demands will increasingly drive the future of the modern delivery model. It requires strong collaboration that helps the entire organization - including business-led and IT-led efforts - to create strategic value more rapidly, reduce failed deployments, and foster a culture of customer centricity and continuous improvement.

<sup>1</sup> Competitive Advantage through DevOps (Harvard Business Review Analytic Services, 25 January 2019)

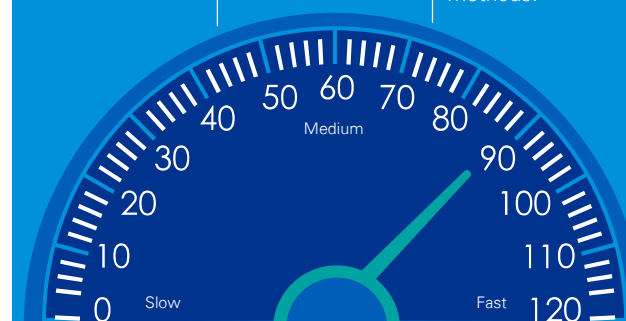
## Do you have a high-performance engine?

IT of the future must have the flexibility to throttle its delivery for different products and services.

Example:  
Legacy systems that require stability and have difficult dependencies, but use design thinking, modern tools, and methods.

Example:  
Products that need a few updates per year but are not receiving continual customer feedback. Should use CI/CD, IaC, agile methods & tools.

Example:  
Products that must constantly iterate to meet changing customer needs and should shift left as much as possible along side all other modern methods.



**Unified vision and common delivery methods**

**“Act as if every day is release day, especially when you don’t need to”**

Michael Wolf, Modern Delivery Lead  
KPMG in the US

# The great shift left

**Modern delivery builds on the agile principle of “shift left,” which moves the quality focus from the end of the development process to the beginning - as a way to reduce defects, cost and rework while increasing customer satisfaction.**

Accordingly, in modern delivery, business functions that have traditionally been siloed will instead be integrated into collaborative, full-stack product teams that can apply their domain expertise to the development and iteration of technology. These teams will include functions that are sometimes relegated to the end of the process, such as security, risk, compliance, customer care and IT operations.

Meanwhile, for efficiency and auditability, organizations will automate as many review and transactional tasks as possible, while creating a DevOps process and toolchain that are traceable through and through. Many companies have already started down this path, but most are missing the opportunity to also improve the complex, collaboration-based activities that cannot be automated. The reorganization of these activities is critical to the success of modern delivery and the connected enterprise.

Therefore, in identifying tasks for automation, successful companies will also take a step back, examine the bottlenecks in how work is performed, and consider ways to break down silos in the organizational structure. For example, is there an opportunity for the product engineering group to partner with security and risk teams to implement “controls as code” or “compliance as code” as a fundamental development and organizational asset? This kind of change can improve speed and safety throughout the entire value chain.

Shifting left can ultimately help organizations make skilful decisions before development. For instance, one regulated company used continuous integration and continuous deployment (CI/CD), along with infrastructure as code (IaC), to automate a SOX-based application. But would this automation comply with SOX requirements? Because the company had shifted its internal audit capabilities leftward in the DevOps design continuum, the audit team served as a compliance advisor, helping teams make controls-and-design decisions before development began.

# Highly aligned, loosely coupled

Today, many organizations have small “garage teams” working in isolation, each using different kinds of agile methods, such as writing user stories or aligning on story points. However, in a rapidly evolving culture, leadership will find it increasingly difficult to organize teams and budgets at scale. That’s why the leading IT functions of the future will drive high alignment among loosely coupled teams. They are likely to:



## Establish consistency in approach

While autonomy is a key tenant of agile development, organizations must have some consistency in their methods in order to succeed at scale. For example, Capital One, which is considered a leader in agile and DevOps, used the Scaled Agile Framework® (SAFe®) to unify its software delivery teams in commercial banking, change their focus and composition, and ultimately become more responsive to customer needs. As a result, the company significantly improved employee satisfaction ratings and achieved a threefold reduction in lead times.<sup>2</sup>



## Restructure team dynamics

To scale agile beyond individual teams and into the broader connected enterprise, companies must also address team size. Capital One again sets a good example: the commercial banking group reduced its teams to eight people, which helped the company gain momentum in development.

“By reducing team sizes, we improved team chemistry, which left them feeling like they had the autonomy to solve issues themselves,” said Mike Eason, CIO of Commercial Banking at Capital One, in a Scaled Agile case study.<sup>2</sup>



## Build agreement on customer expectations and organizational goals

As teams align on methods and structure, they also need to prioritize measures for shared success. Many connected organizations are starting to use objectives and key results (OKRs) to align their delivery backlog to business goals.

For example, DevOps technology company GitLab publishes its OKRs both internally and publicly, enabling every team member - in the front, middle and back office - to understand corporate goals and align them to product features.<sup>3</sup> Indeed, when the CEO called on the organization to ensure readiness for mission-critical applications, the infrastructure team was able to prioritize their backlog items to specifically support that goal, while addressing priorities such as mean time between failures (MTBF), disaster recovery (DR) and high availability (HA).<sup>4</sup>

<sup>2</sup> SAFe Case Study: Capital One: Reimagining Product and Delivery through Agile (Scaled Agile Inc, 2017)  
<https://www.scaledagile.com/case-study/capital-one/>

<sup>3</sup> GitLab: Objectives and Key Results (OKRs) (GitLab, 2018) GitLab:

<sup>4</sup> Calendar Year 2018 Q4 OKRs (GitLab, 2018)

# An ecosystem, not a single platform

**Amid a proliferation of SaaS, open-source software and licensed enterprise tools focused on DevOps and agile development, the organizational toolchain has exploded and will continue to evolve. As a result, most companies are dealing with a sprawl of disconnected point solutions, spanning every part of the technology lifecycle. This sprawl often manifests as islands of automation that hamper speed and increase risk.**

To succeed with modern delivery at scale, organizations must develop a consistent technology framework, integrating the DevOps toolchain in a plug-and-play ecosystem that supports connected functions, not isolated ones. The organizations on this path are seeing technology less as sprawl and more as a connected platform.

Developing that ecosystem also means shifting away from the monolithic enterprise mindset that has traditionally powered the IT function, such as an exclusive focus on enterprise resource planning (ERP) systems and IT service management (ITSM) systems. That is, instead of putting all their eggs in one vendor's basket, leading organizations will adopt a best-in-class technology strategy, employing unique tools across the continuum of planning, building, testing and monitoring.

For example, online retailer Wayfair determined that transparency in the toolchain would be key to its success with DevOps. So the company connected and integrated its many platforms and solutions - from CI/CD to monitoring, incident response and ITSM - to automate at scale. Specifically, by combining Jenkins, Artifactory and ServiceNow, the company cut production rollbacks by 50 percent, reduced integration times by nearly 95 percent and lowered revert times from 12 minutes to 2 minutes.<sup>5</sup>

<sup>5</sup> ServiceNow Case Study: Wayfair speeds up DevOps CI/CD pipeline, cutting integration times by 95% (ServiceNow, 2018)

# Governance that manages risk while creating space for innovation



**The modern delivery model must be built on both flexibility and stability, allowing for innovation at market speed while also increasing transparency and security. However, the traditional approach to governance, risk and control (GRC) often holds companies back, keeping them from adopting new tools or methods. Indeed, in many organizations, GRC has ballooned, as companies attempt to detect and prevent a myriad of emerging threats, from data protection and privacy to intrusion, unplanned outages, third-party risk and regulatory compliance.**

While GRC is well intentioned, it can put organizations in a trade-off between stability and growth. Therefore, with today's unprecedented pace of technological change, companies must be able to pivot their risk tolerance. In fact, in a 2018 study of more than 270 global companies, conducted by Innovation Leader and sponsored by KPMG in the US, respondents said that one of the most critical elements for innovation success is the ability to test, learn and iterate.<sup>6</sup>

How can you adjust policies and controls to enable experimentation that's quick and safe? The organizations that figure this out will have a distinct growth advantage.

Just as shifting left helps product teams accelerate delivery safely, organizations need to shift their GRC teams leftward - including internal audit, security, legal, regulatory and procurement - to participate in the introduction of technology and remove roadblocks. For example, can you change procurement procedures to incentivize partner experimentation? Have you explored security-compliant lab environments with protocols for graduating ideas?

Successful connected enterprises will create these kinds of solutions to reach the right balance between flexibility and stability.

<sup>6</sup> Benchmarking Innovation Impact 2018 (Innovation Leader LLC & KPMG in the US, 2018)



# Getting into action

**In many ways, the future of modern delivery is now. The core elements of modern delivery already exist - such as DevOps, agile development, automation and cloud-native architecture - but organizations must assemble them into the right combination of technologies, culture, skills, relationships and governance. This integration will define the future of IT over the next three to five years.**



## For achieving frictionless agility at scale, there are a few critical steps that companies can't ignore:

### Embrace product management over projects

While not every company needs to be a product company, most leaders recognize the value of behaving like one - namely by building full-stack product teams aligned to strategic value versus IT projects aligned to project requirements. These teams should be led by product managers who are accountable to OKRs - not simply deliverables, cost and scope - and who focus on what is most important to the customer from ideation through delivery.

### Build an organization that can run at varying speeds

In the future, an organization's technical debt will be defined by its delivery model, not its technology footprint. Therefore, as the enterprise shifts to objectives based on strategic value, the technology function must match its delivery to the product and customer needs. Not every solution needs an agile or DevOps approach, but without an adaptive model that focuses on the customer and strategic value, organizations can easily slow down the very value stream they are trying to accelerate.

### Create a connected enterprise across departments

To successfully scale agile delivery, the entire organization must shift its culture to address specific business challenges, while aligning to OKRs that support the desired outcomes.

### Embed security and compliance teams at the beginning of the design process

To succeed with modern delivery, organizations must engage risk and compliance functions as valuable advisors at the beginning of a technology effort, not at the end. Otherwise, products may become ready for deployment, only to face show-stopping risks that take them back to the drawing board.

### Integrate and automate the toolchain

To improve the speed, flexibility and traceability of technology delivery, modern architects must integrate the toolchain. They will create an ecosystem of connected, interoperable, best-in-class DevOps tools that support every pillar of the technology lifecycle: from ideation and design to development, testing, deployment and continuous improvement.

One place to start is core operations. Leading organizations are automating many service management activities, such as help desk and incident management, while augmenting them with machine learning and artificial intelligence to improve the customer experience and reduce risk.

Are you on the road to modern delivery? To innovate at scale, the IT function of the future will need a very different way of working.

#### Learn more

Simply building faster teams is not effective if you can't release capital quickly enough to fund development - or if you view technology as projects versus products with strategic value. For more, see KPMG's paper on dynamic investment: [Funding technology at market speed](#).

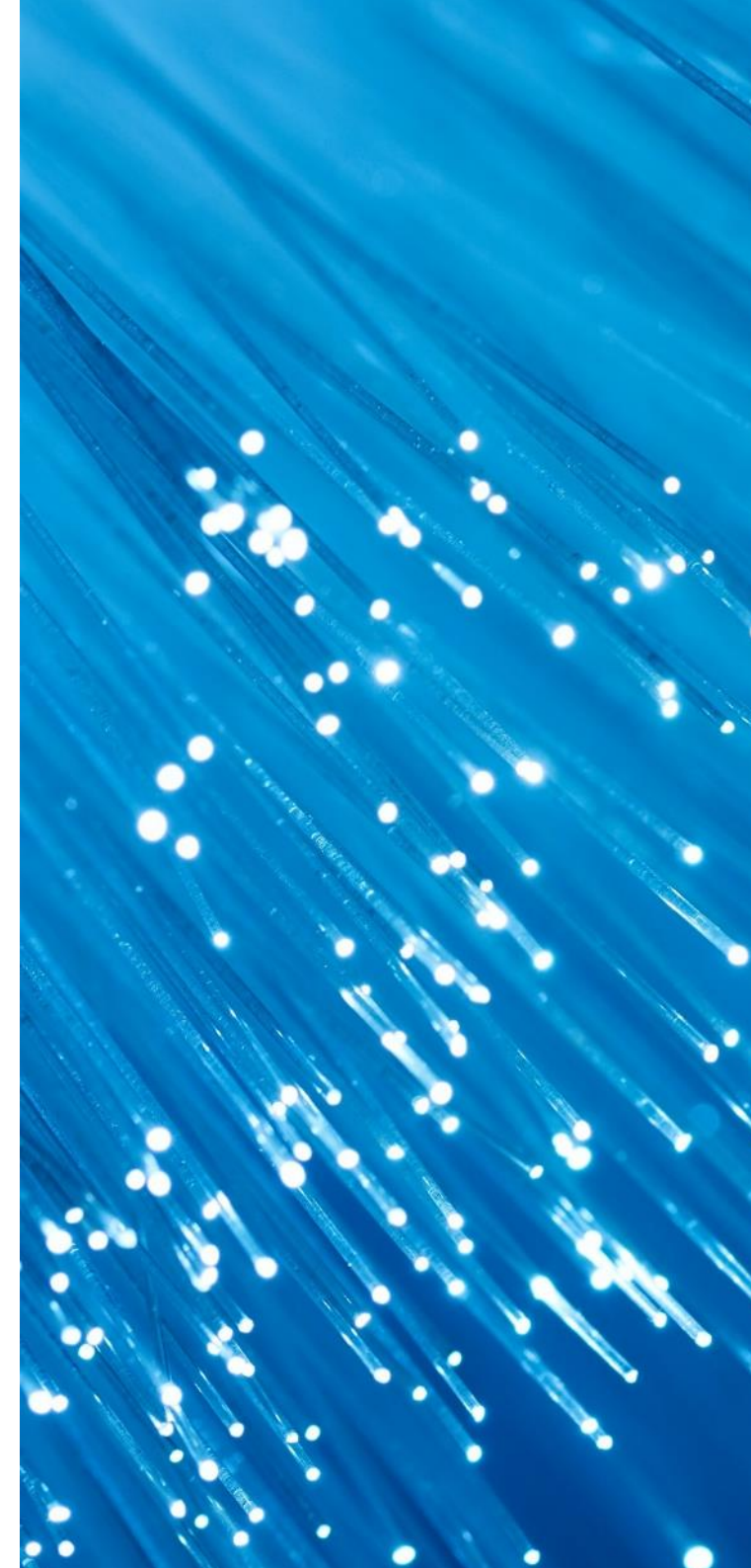
# Why KPMG?

KPMG member firms recognize that CIOs and IT leaders face increasingly complex demands and challenges. Today, IT must advance the business, not just support it, with boards increasingly expecting returns on digital investments and the implementation of successful digital transformation strategies that will drive up agility, responsiveness and enhance the customer experience.

KPMG professionals can help CIOs, technology leaders and business executives to harness new technology and improve the strategic value of their technology investments. If your business is seeking ways to leverage technology as a source of innovation and competitive growth, KPMG member firms can help.

## Related reading

This paper is part of KPMG's Future of IT series, exploring the six most important things that market leaders will do in IT over the next five years. For more on the Future of IT and to read other papers in the series, please visit [kpmg.com/Future-IT](https://kpmg.com/Future-IT).





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