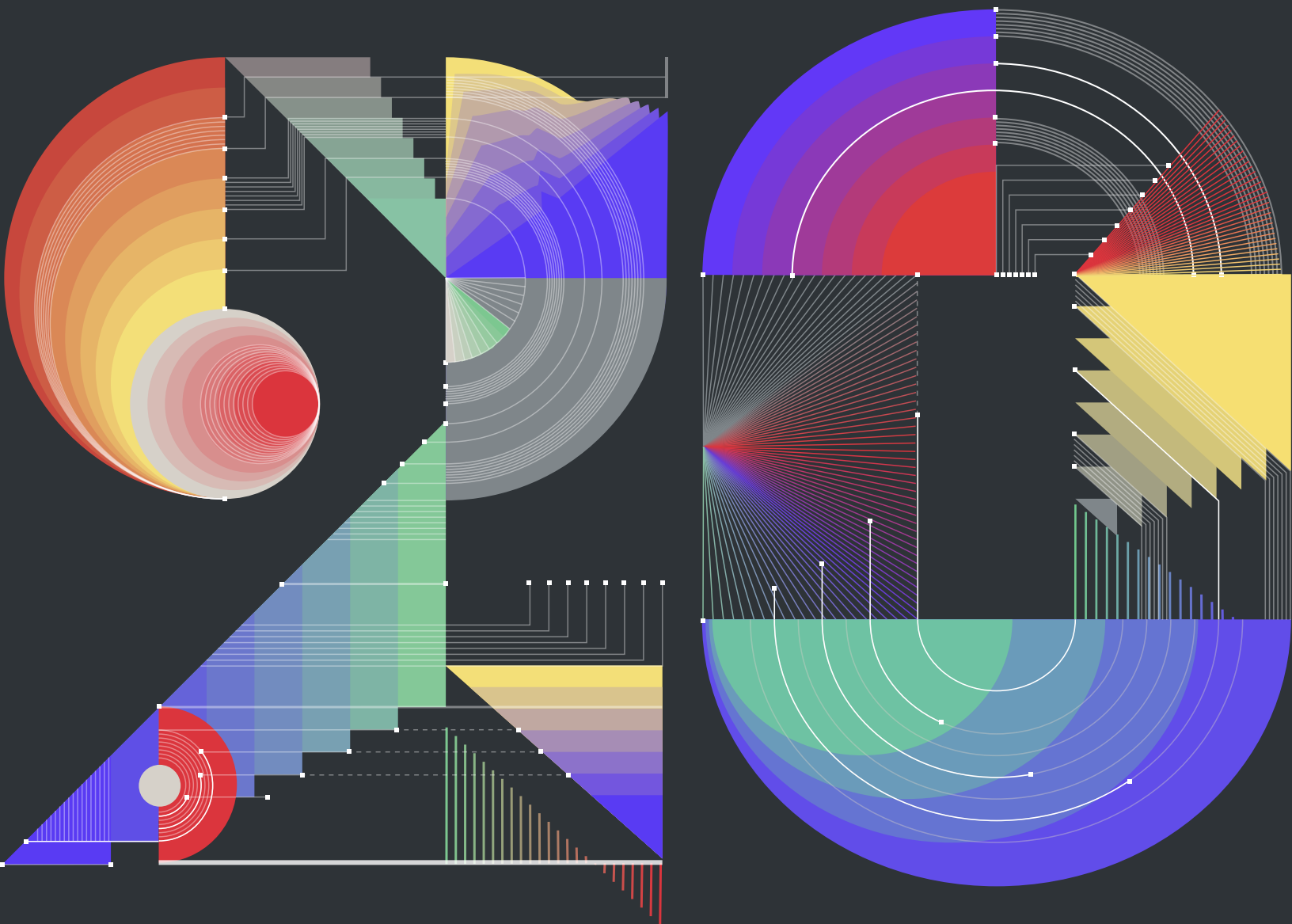




2020 Digital Innovation Benchmark



What do technology leaders need to know to drive business innovation and remain competitive?

In this 2020 Digital Innovation Benchmark, we explore today's leading organizations and their use of modern software architectures and other emerging technologies to enable business innovation, including:

- What is the current state of IT initiatives and challenges?
- How do the IT landscapes of organizations impact their overall ability to innovate?
- What IT strategies are organizations using to increase their agility?
- What challenges do organizations face in executing their key IT objectives?
- How are organizations addressing these challenges?

Kong engaged Vanson Bourne to field a survey of 200 senior technology decision makers in the U.S., including CIOs, CTOs, VPs of IT, IT directors/architects and software engineers/developers from organizations across a range of industries, with respondents evenly divided between publicly traded and privately held companies that had 1,000 or more employees.

The survey was fielded in August 2019, with respondents across industries including business and professional services; financial services; IT, technology and telecoms; manufacturing and production; and retail, distribution and transport. Interview candidates underwent a rigorous screening process by Vanson Bourne to ensure suitability and data quality.

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SPEED OF INNOVATION IS THE ONLY TRUE COMPETITIVE ADVANTAGE

Innovation Is Eating the World

Technology companies have long lived by the “innovate or die” ethos, prizing rapid improvements and product innovation as a core part of their culture. Today, the speed at which an organization can innovate has become critical to generating and maintaining success within every industry. As customers increasingly demand new digital experiences, the threat of competitive disruption looms larger than ever with 57 percent of technology leaders across industries feeling concerned that they are at risk of competitive displacement.

Move Fast or Die Fast

The stakes for increasing innovation velocity are both high and immediate, as 71 percent of technology leaders believe that organizations would be out of business within six years if they fail to keep pace with innovation in their industry. For public companies, the urgency associated with increasing innovation speed is even more pressing, as 39 percent reported that they believed organizations would be out of business in less than three years if they failed to keep pace with innovation.



71% of technology leaders believe organizations will be out of business within six years if they fail to keep pace with innovation



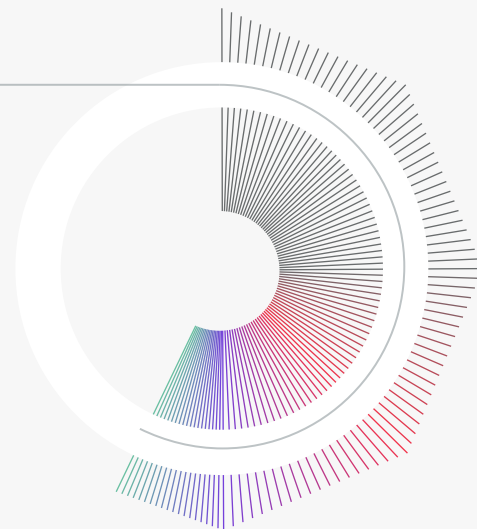
39% of public companies believe organizations will fail in less than three years if they don't keep up with innovation

Average of less than five years survival if companies don't keep up with innovation

57% of technology leaders are concerned that they could be left behind by competitors who innovate faster



1/5 of technology leaders at public companies are **extremely concerned** that they will be left behind by competitors that can innovate faster

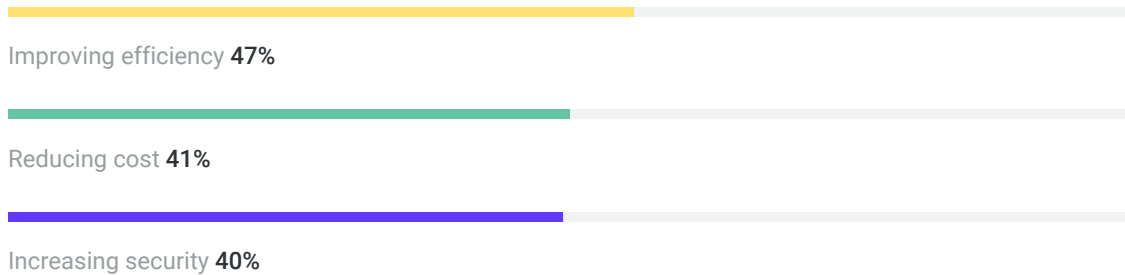


SPEED OF INNOVATION IS THE ONLY TRUE COMPETITIVE ADVANTAGE

Moving Fast Is Priority #1

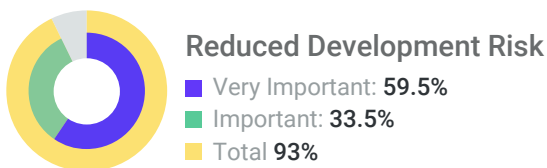
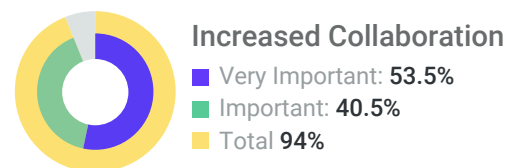
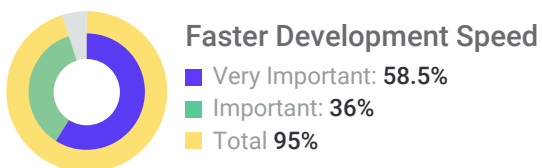
While technology leaders reported that their top priorities center around improving efficiency (47 percent), reducing cost (41 percent) and increasing security (40 percent), the importance of achieving these objectives within the context of accelerated innovation is clear.

Top Priorities for Technology Leaders



Technology leaders overwhelmingly emphasized the importance of faster development speed (95 percent), increased collaboration (94 percent) and reduced deployment risk (93 percent) as key desired outcomes for adopting new technologies. Though the objectives are clear, many technologists face challenges within their existing IT landscape that they must overcome. To deliver best-in-class services and experiences to their customers, technology leaders must simultaneously accelerate the pace of innovation and improve quality.

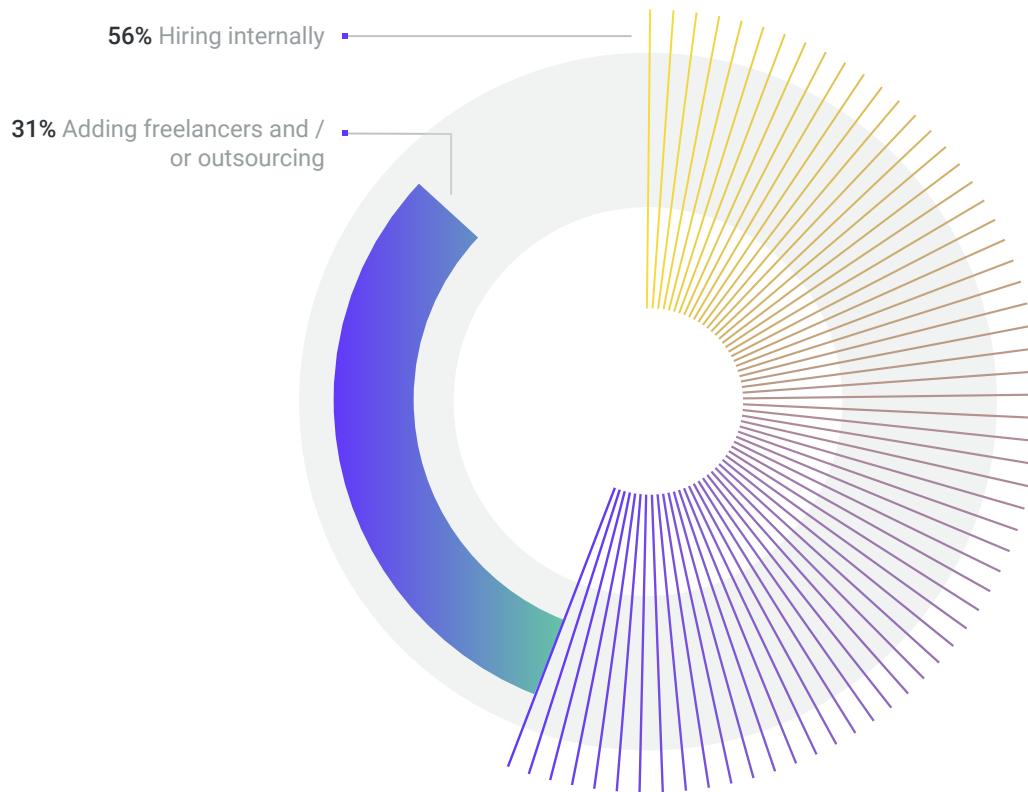
Importance of Key Benefits from New Technologies (Beyond Cost Reduction)



Funding Innovation and Speed in 2020

Organizations recognize the importance of being agile and forward-thinking in their use of technology and are making investments for this in 2020. Nearly four-fifths (78 percent) of U.S. companies are increasing their IT budget in the coming year, with one in four (27 percent) public companies expecting their budgets to grow 26 percent or more. The vast majority (87 percent) of companies will be increasing headcount — 56 percent will achieve this by hiring internally, and 31 percent will be using more freelancers and/or outsourcing to meet their hiring goals in a tight labor market.

87% of Organizations Will Increase Headcount over the Next 12 Months



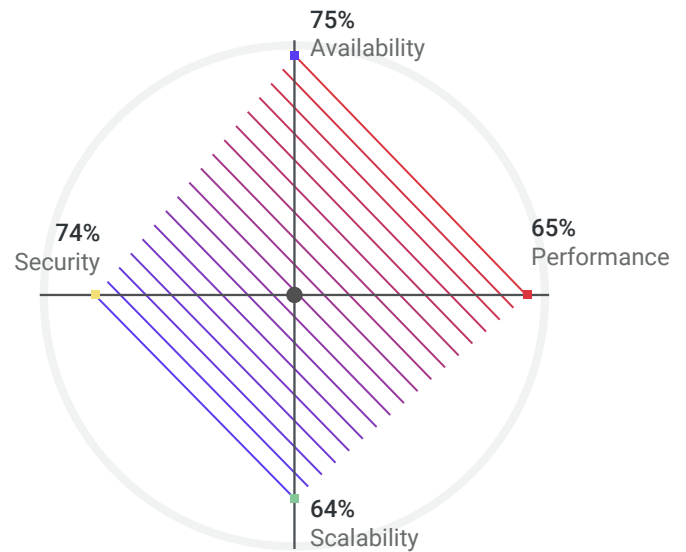
THE BALANCING ACT OF INNOVATION AND STABILITY

Forced to Choose Between Quality and Speed

As technology leaders are continuously pushed to release better, faster and more complex services on tighter timelines, ensuring output quality becomes increasingly difficult. Technology leaders place the highest importance on the availability (75 percent), security (74 percent), performance (65 percent) and scalability (64 percent) of their applications, which challenges their ability to rapidly introduce new services and iterate on existing ones.

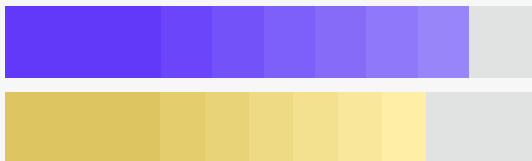
Leaders at public companies are even more concerned with availability (78 percent) and security (78 percent) versus their counterparts at privately held companies (71 percent and 69 percent respectively). The conflict between achieving key objectives for application quality while accelerating the pace of innovation creates a catch-22 for technology leaders, forcing them to sacrifice either speed or quality.

What Application Attributes are Very Important to Your Organization?



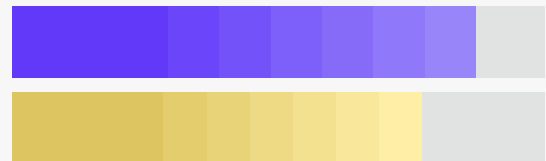
More public companies consider availability and security as very important compared to privately held companies

Availability is considered very important

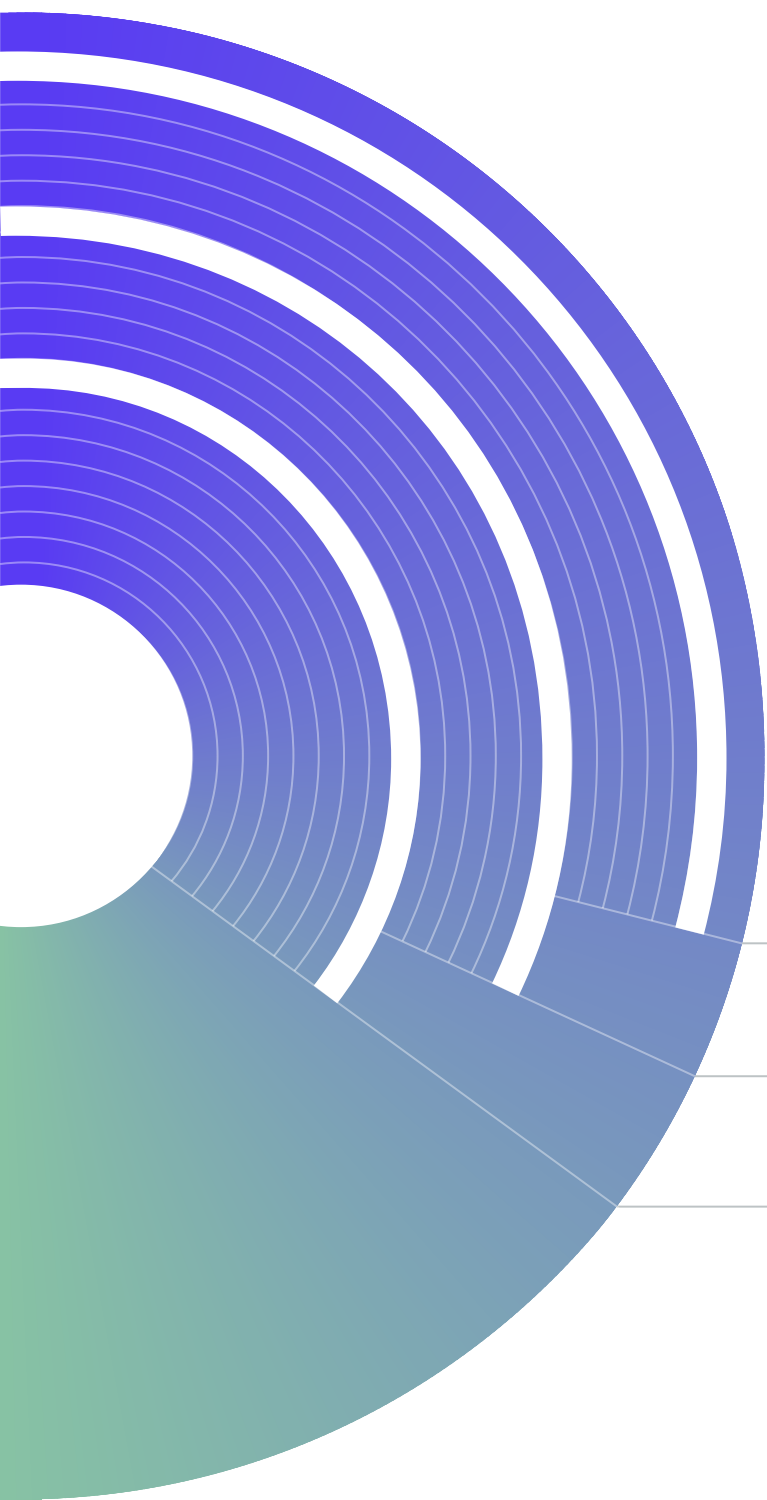


Public Companies: 78%
Privately Held Companies: 71%

Security is considered very important



Public Companies: 78%
Privately Held Companies: 69%



Bottlenecks Slow Innovation Efforts

Further challenging efforts to increase agility, technology leaders report multiple bottlenecks to innovation, citing the complexity of using multiple technologies (35 percent), lack of automation (32 percent) and reliance on legacy technologies (29 percent) as core causes of reduced development velocity. This combination of complexity, outdated technologies and lack of automation creates a perfect storm of challenges in moving fast and ensuring quality.

Bottlenecks to Innovating Quickly

- Reliance on legacy technology **29%**
- Lack of automation **33%**
- Complexity of using multiple technologies **35%**

Digital Transformation Efforts as an Attempted Remedy

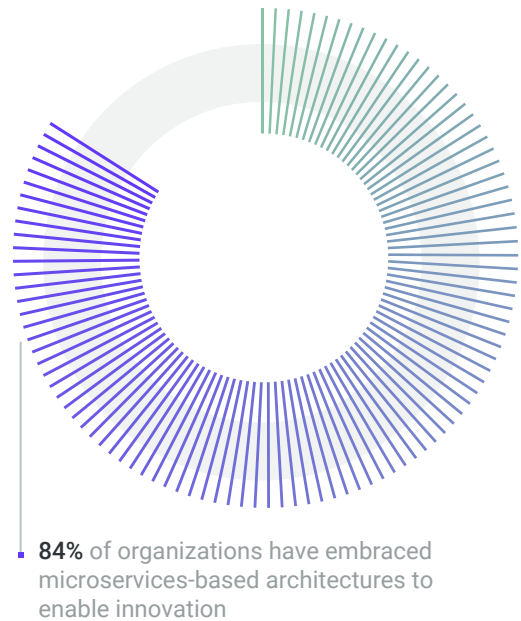
To address these challenges, many companies have undergone digital transformation initiatives focused on modernizing their technology infrastructures to better support rapid innovation without sacrificing quality. While many of these transformation initiatives have failed to generate material improvements, the success of API and microservices programs have prompted technology leaders to emphasize these practices as a core of their innovation efforts.

THE RISE OF MICROSERVICES AND APIS AS INNOVATION ENABLERS

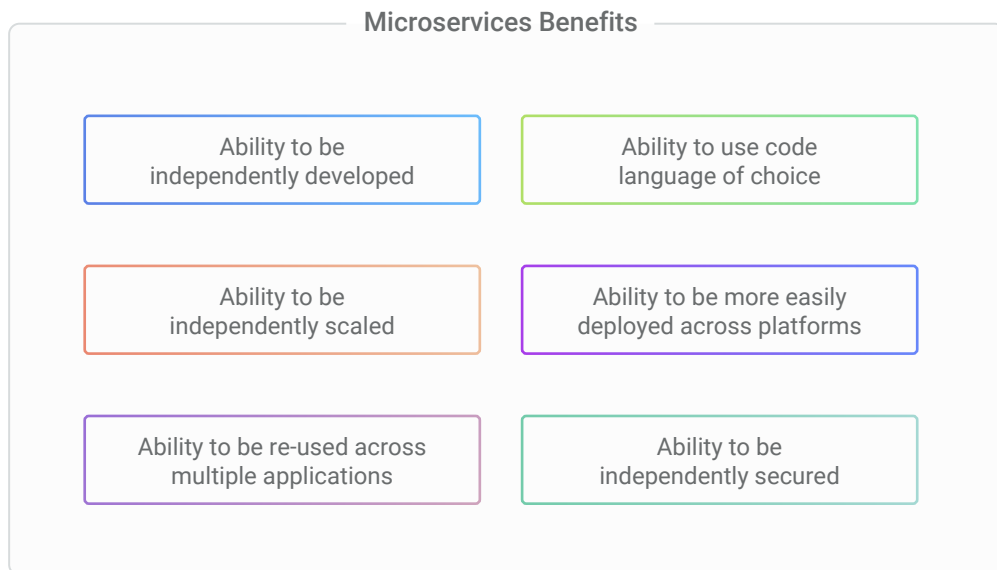
Small is the New Big

To spur innovation, the vast majority of organizations (84 percent) have embraced microservices architectures.

Microservices represent a new paradigm for developing applications where smaller, decoupled services are used to provide the functionality needed by an end application. In contrast to monolithic applications where all of the functionality is contained within one large codebase and is tightly coupled together, microservices are fully independent.



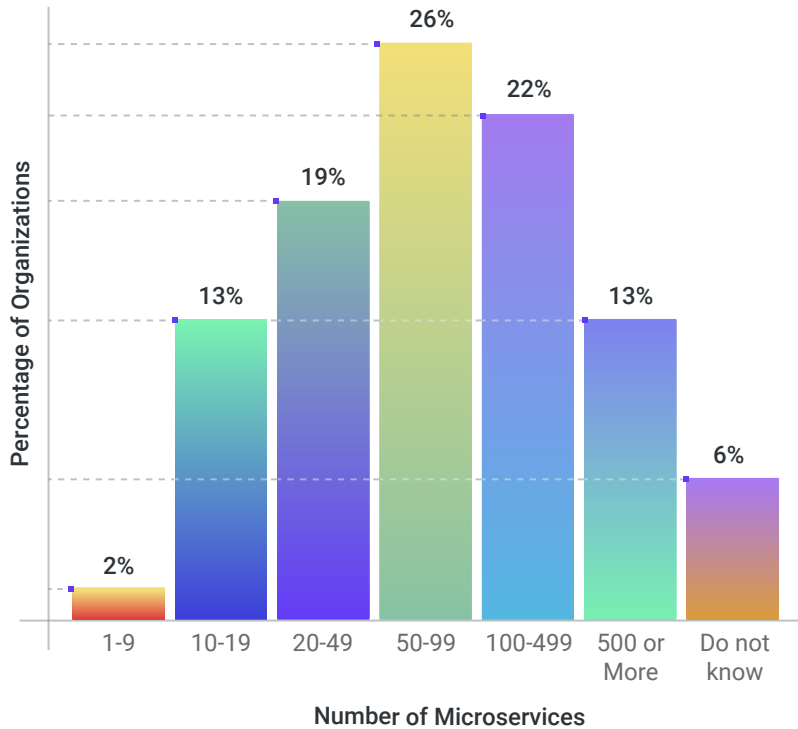
The independent nature of microservices provides several benefits, including:



Small Services, Big Adoption

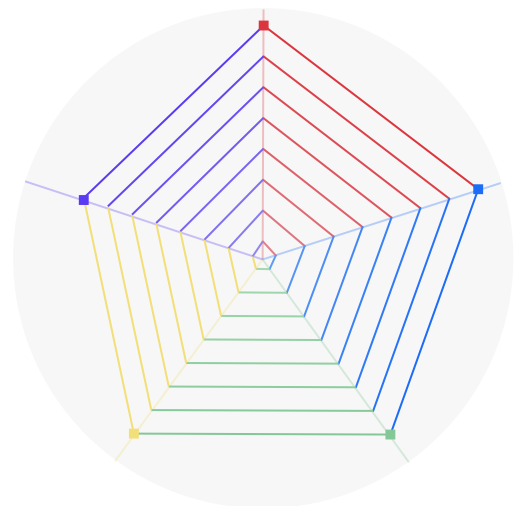
The benefits of microservices have led to rapid adoption among technology leaders, with surveyed organizations running an average of 184 microservices and 60 percent of respondents running 50 or more. These properties provide an avenue for technology leaders to address the catch-22 of enabling rapid innovation while ensuring performance quality. Consequently, technology leaders note multiple reasons for transitioning to microservices depending on the priorities of their individual organization, with improvements to security (56 percent), increased development speed (55 percent), increased speed of integrating new technologies (53 percent), improved infrastructure flexibility (53 percent) and improved collaboration across teams (46 percent) consistently mentioned as drivers of adoption.

Number of Microservices Running in Production



Why Are Organizations Transitioning to Microservices (Beyond Cost)?

- Improved security 56%
- Improved development speed 55%
- Improved speed to integrate new technologies 53%
- Improved infrastructure flexibility 53%
- Improved collaboration across teams 46%



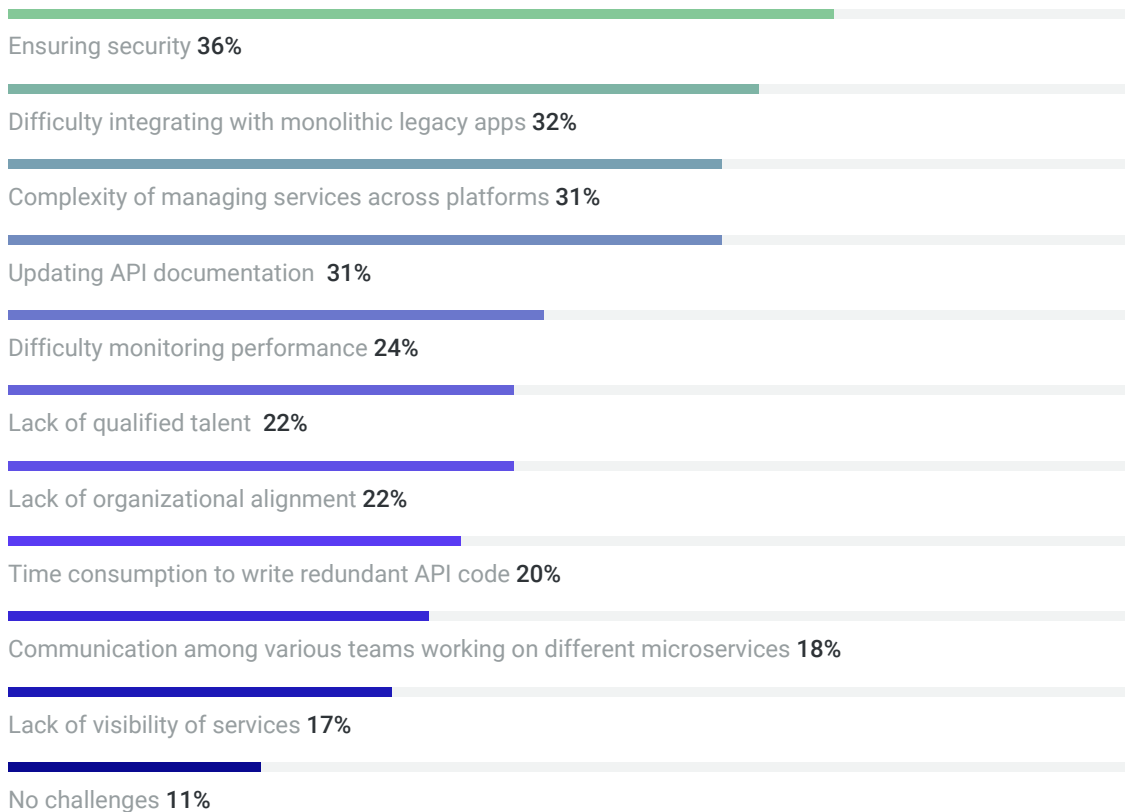
COMPLEXITY AND CHALLENGES OF MICROSERVICES AT SCALE

Simple Doesn't Mean Easy

Though the benefits of microservices are clear, organizations face myriad challenges in adopting them. Despite broad adoption, technology leaders note several difficulties that their organizations experience in deploying microservices, including ensuring security (36 percent), integrating with legacy apps (32 percent) and complexity of management (31 percent).

The challenges of ensuring security, integrating with legacy apps and the complexity of management for microservices extend to a range of deployment environments for applications across on-premises, hybrid cloud, public cloud or multi-cloud. This survey's respondents represented all major cloud providers. Microsoft's Azure public cloud takes the lead among respondents with 43 percent, closely followed by 42 percent of organizations choosing Amazon AWS for their application deployments. Twenty-seven percent of organizations use the Google Cloud Platform to deploy applications.

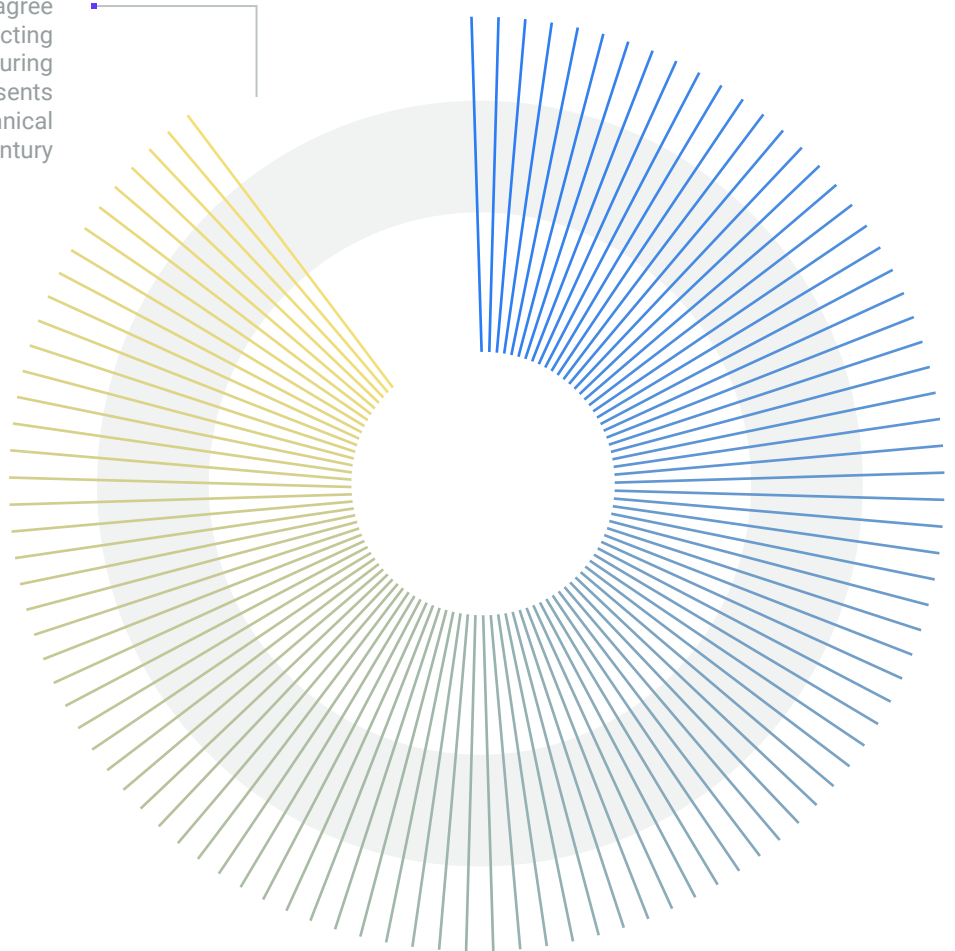
Top Challenges of Microservices Adoption



API Performance Is Critical to Microservices Success

Effective microservices architectures require effective APIs, but technology leaders report numerous challenges associated with developing, managing, securing and scaling APIs can create a bottleneck to microservices adoption. The challenge in ensuring connectivity at scale is well understood by the market, with 90 percent of technology leaders agreeing that securely connecting applications and ensuring performance at scale represent one of the greatest technical challenges of the 21st century.

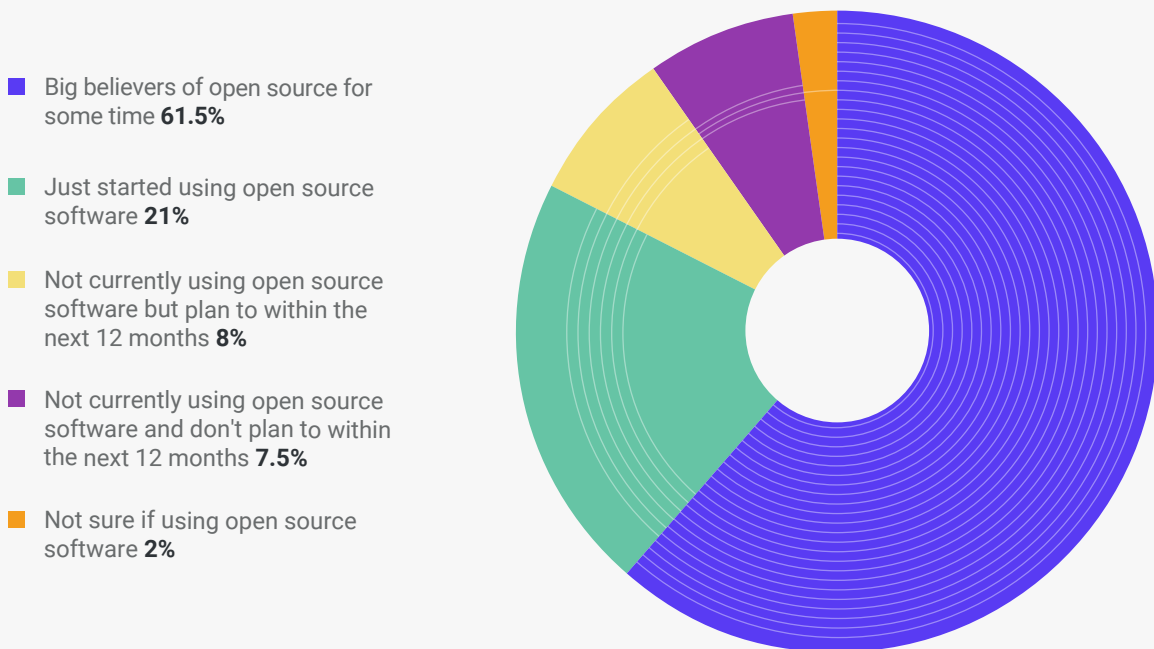
90% of technology leaders agree that securely connecting applications and ensuring performance at scale represents one of the greatest technical challenges of the 21st century



Developers Have More Power Than You Think

Developers are the early adopters and gatekeepers of new technologies in an API-driven world. They drive innovation, new initiatives and often decide which new technologies succeed and which fail. Developers made open source prevalent among a large majority of organizations, with 83 percent usage in companies. Only eight percent of all respondents do not use open source today and have no plans to adopt it within the next 12 months.

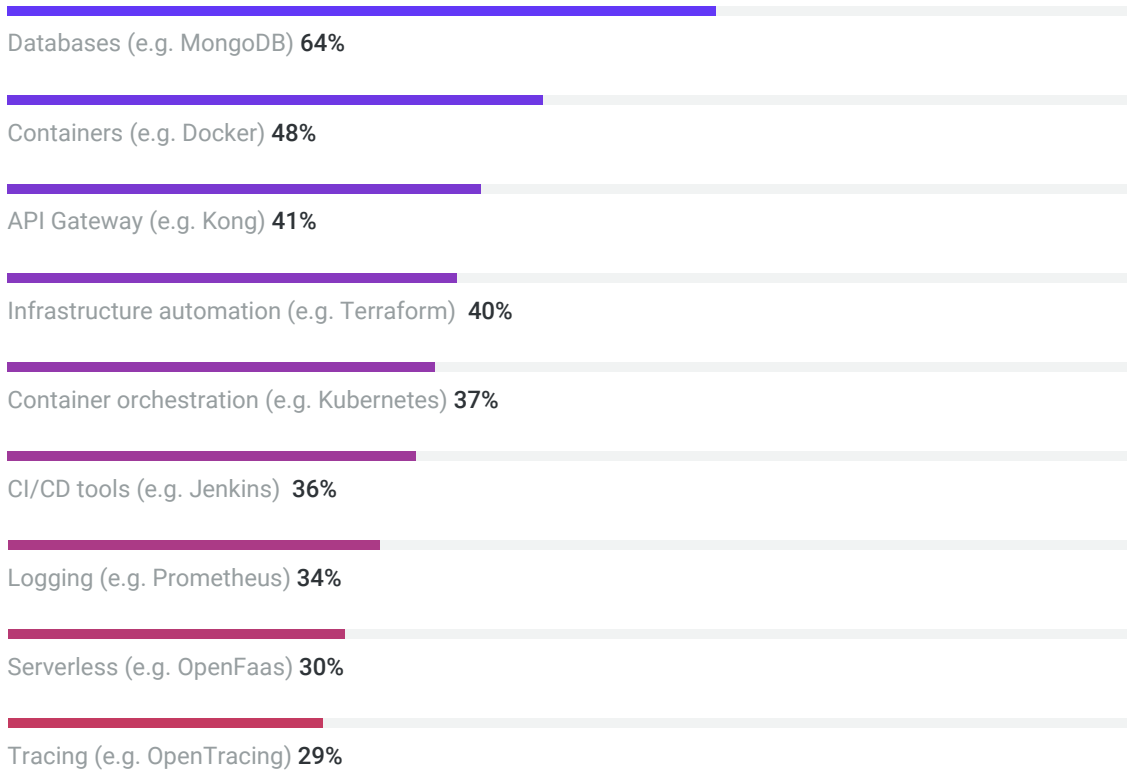
Open Source Software Is Prevalent at 83% of Organizations



Open Source Powers the Transition to Microservices

The most commonly used open source technologies are databases that are used by 64 percent of all respondents. The next most commonly used open source technologies are containers (48 percent), API gateways (41 percent), infrastructure automation (40 percent), container orchestration (37 percent) and CI/CD tools (36 percent), which are all critical technologies to develop, deploy and run microservices at scale. They enable new innovative applications and business solutions.

Most Popular Open Source Technologies



WHAT TECHNOLOGY LEADERS NEED TO KNOW

In conclusion, technology leaders across organizations of all sizes and types are consistent in the ways that they are viewing innovations objectives and the strategies they are employing to address them. Here are some key takeaways to keep in mind as you plan your technology strategy moving forward.

- **Microservices can be a lynchpin for successful transformations**

More than 80 percent of respondents that have adopted microservices report that their organization performs well against metrics for development efficiency, ability to use new platforms, collaboration across teams and sharing of services across applications.

- **Making microservices work at scale isn't easy**

Ninety percent of technology leaders agree that one of the biggest challenges for organizations in the 21st century will be having a way to connect services and secure data in motion at massive scale with optimum performance.

- **Effectively managing your microservices is critical to success**

Eighty-nine percent of technology leaders agree that companies that are not able to effectively support microservices will be less able to compete in the future. Adopting tools and technologies built for microservices can increase your ability to effectively manage them at scale.

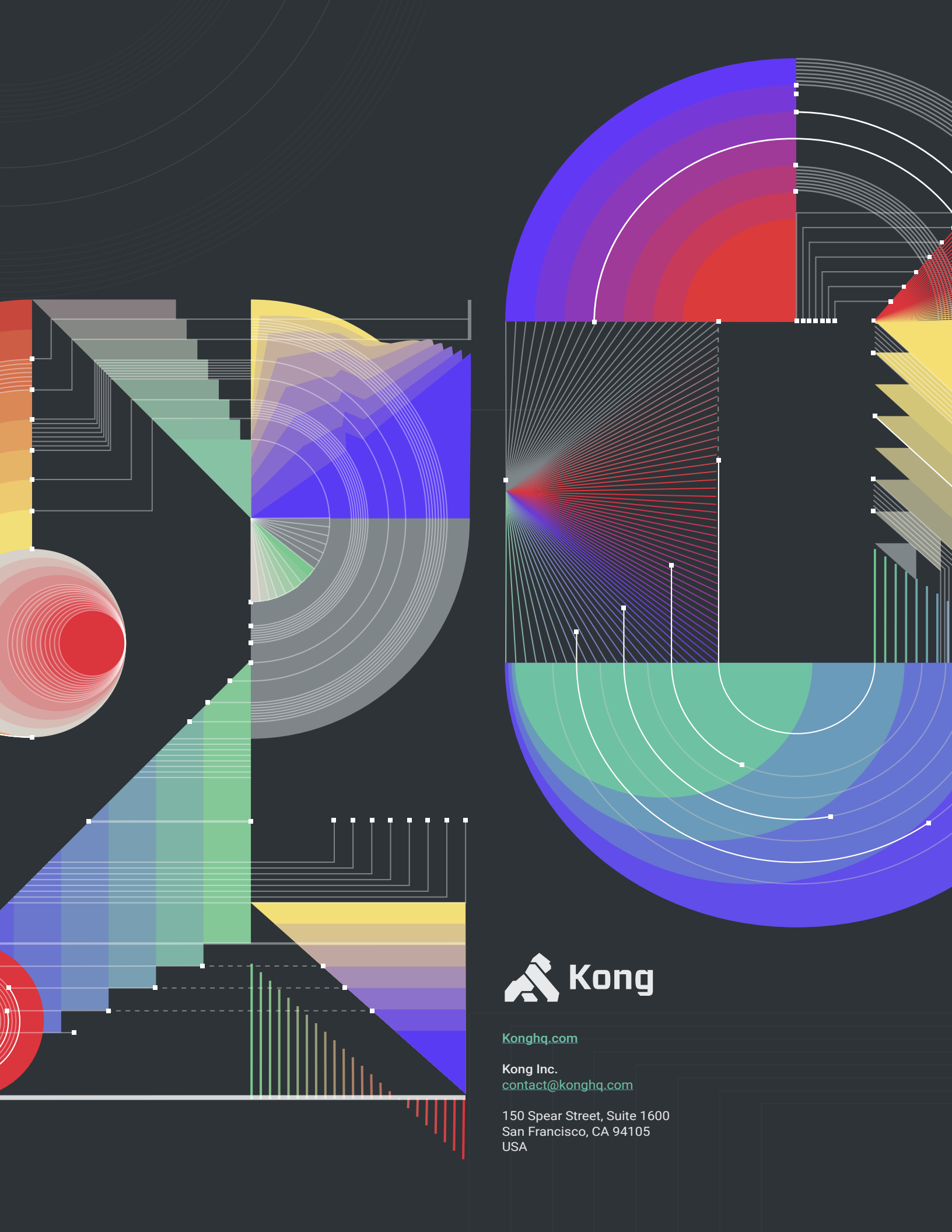
- **Personal stakes are incredibly high**

Seventy-four percent of technology leaders agree that a failed digital transformation effort will result in a missed promotion, lost bonus or even termination. Technology leaders can increase the likelihood of success for their transformation initiatives by engaging with trusted partners to help them along their journey.



ABOUT KONG

Kong delivers a next-generation API and service lifecycle management platform designed for modern architectures, including microservices, containers, cloud and serverless. Offering high flexibility, scalability, speed and performance, Kong enables developers and Global 5000 enterprises to reliably secure, connect and orchestrate microservice APIs for modern applications. Kong is building the future of service control platforms to intelligently broker information across services.



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