



**Gartner®**

**Leadership Vision for 2022**

# Top Strategic Priorities for IT Leaders

### From Chris Howard, Chief of Research, Gartner

As we head into 2022, we continue to feel the human toll of the global pandemic, but we already know it has been a watershed period in which attitudes and norms have permanently shifted — in our everyday lives and at work.

Living through COVID-19 has increased social awareness — as have growing demands for equity for those who are underrepresented.

Businesses have also changed. For many organizations, the pandemic has catalyzed digital business initiatives as we adapt to the demands of employees, customers and other stakeholders, who were forced into new digital options that they have now come to favor.

B2B purchasers are happy to buy digitally, without a sales representative; B2C consumers are buying off social media platforms; employees are physically distributed and communicating asynchronously — and IT infrastructures must secure the organization despite this “anytime, anyway, anywhere” way in which we’re operating.

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You and your team may be burning out, and it’s never been more important to prioritize your time and energy.

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In your role as a leader, you’ve now spent months adapting to change and delivering new solutions at speed. You and your team may be burning out, and it’s never been more important to prioritize your time and energy. To help with that, Gartner Leadership Vision provides top-level guidance to leaders and their teams on where to focus — based on our data-driven research.

We’re providing detailed insights to our clients across dozens of roles, and we’re now excited to share excerpts with the business community beyond our clients. We hope this will help you to focus discussions with your teams, peers and other leaders, so you can more quickly and effectively diagnose priorities and actions, especially as you solidify your strategic plans for 2022.



**Chris Howard**  
Chief of Research, Gartner

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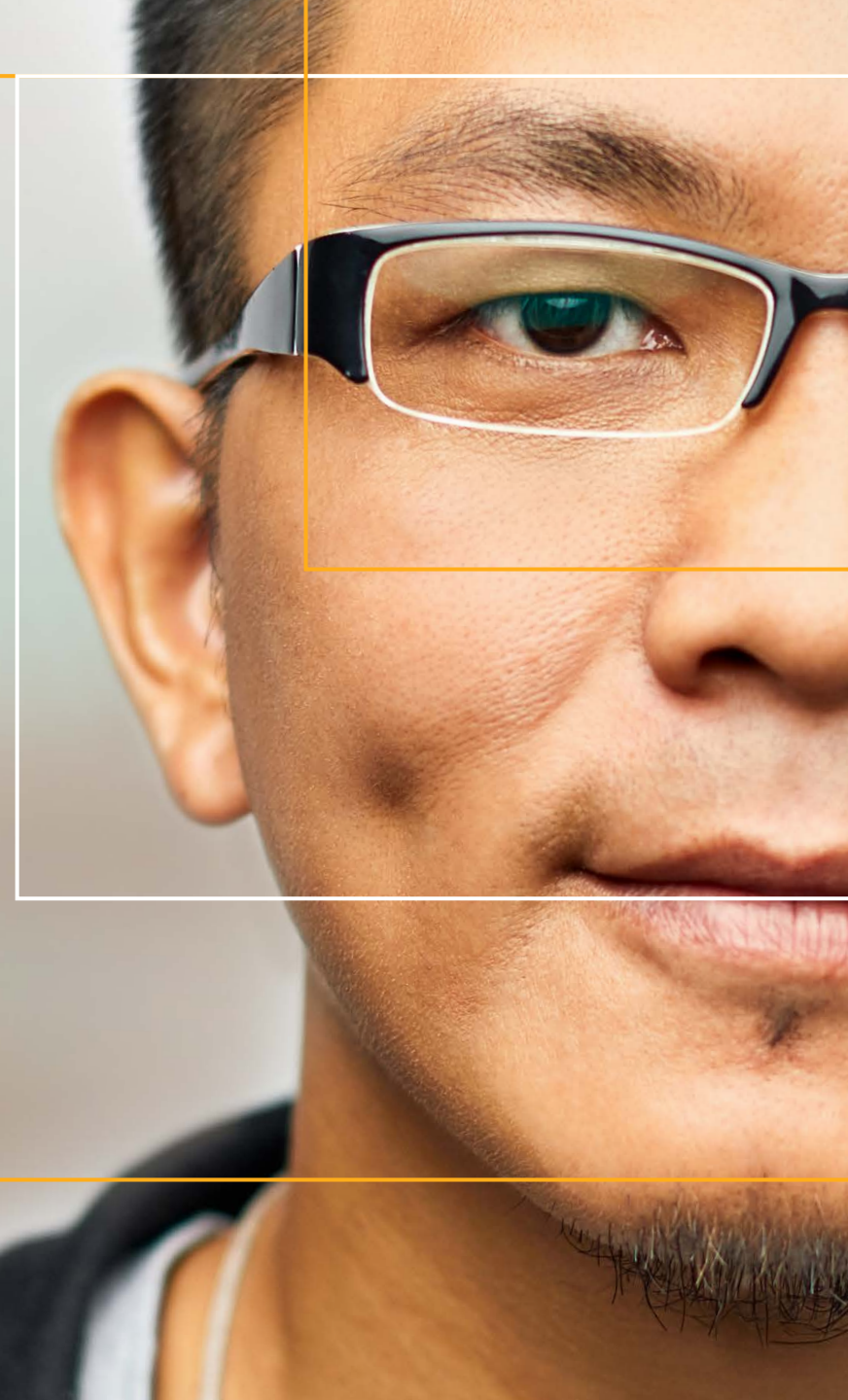
CIOs

# Software Engineering Leaders

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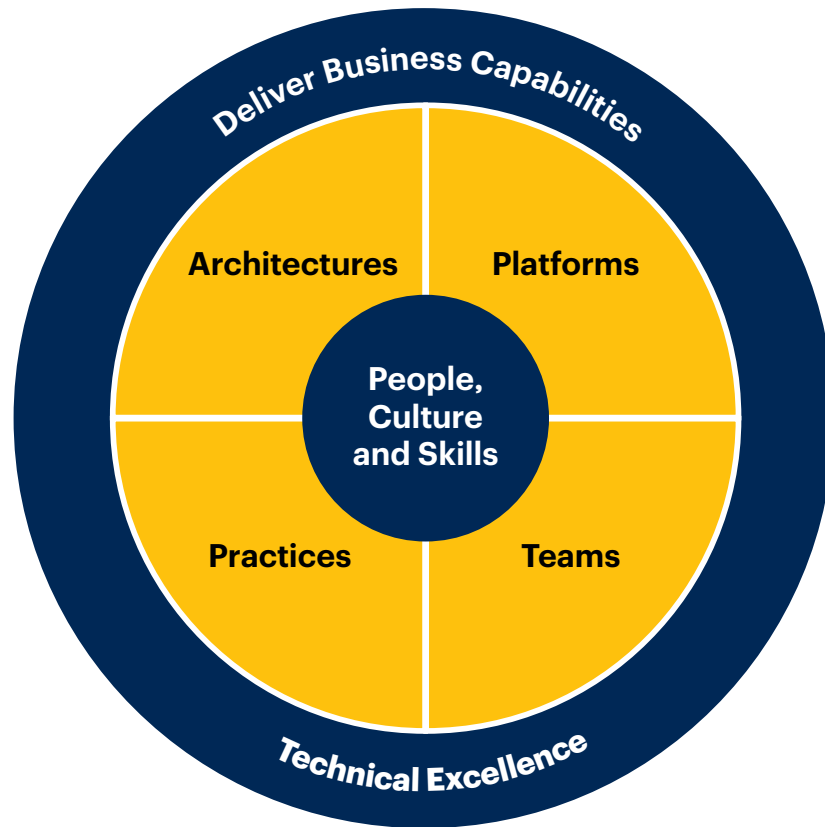
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# Broad Mandate for Software Engineering Leaders



The **imperative** for software engineering leaders is to **build software to deliver business capabilities** and adapt software to changing business needs over time.

Software engineering extends beyond writing code and emphasizes technical excellence. It factors the **platforms** to run the software, including automation and low-code development, assembling **teams**, including cross-functional teams from across the organization, adopting the right **architectures** and **designing** high-quality experiences, and employing **practices** that guide you in building high-quality software efficiently.

The **software engineering leader** leads a team of software engineers and provides guidance in all of these areas. They support the business and help their team acquire and maintain the necessary **skills**, while fostering a **culture** for success.

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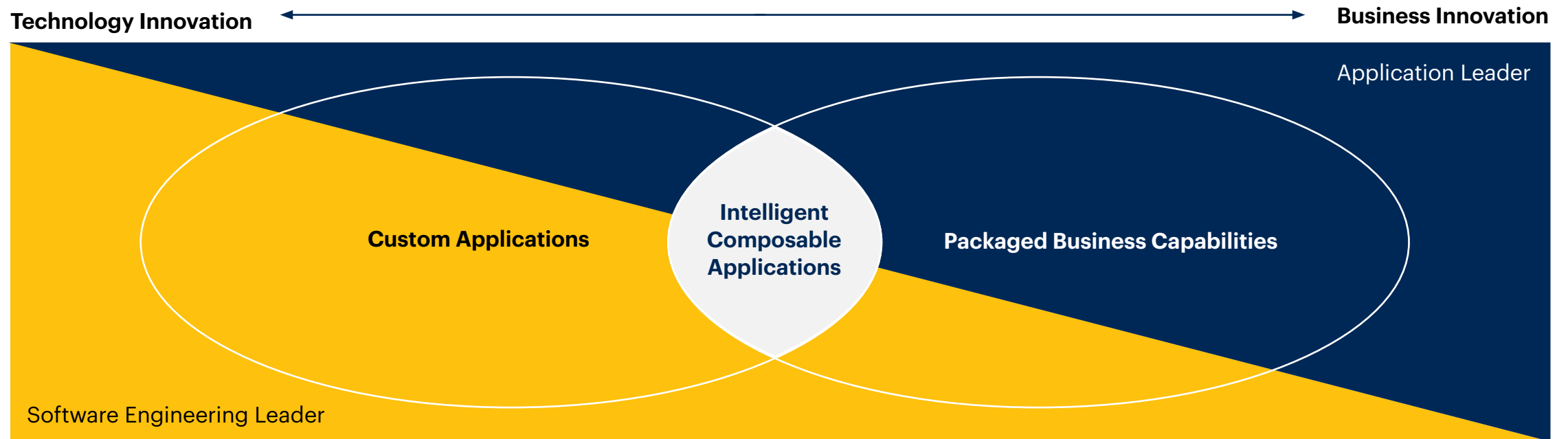
Over time, a lack of technical excellence diminishes your ability to deliver business capabilities.

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Source: Gartner

# Application Leaders and Software Engineering Leaders Deliver Intelligent Composable Applications

The intersection of applications and software engineering



Source: Gartner

# Three Challenges and Actions for Software Engineering Leaders



## Building and delivering quality software at scale

47% of software engineering leaders say delivering secure software features among their performance objectives.



### Actions

Focus on automation across the full delivery life cycle and maximize composable architecture.



## Delivering scalable and secure digital products

Application programming interfaces (APIs) open access to data and application functionality to more users and ecosystem partners, but API security is a top concern.



Leverage APIs to provide the ecosystem with functionality, but install countermeasures against threats related to app integration.



## Building, developing and retaining high-performing teams

High-performing teams deliver **53% better** outcomes in employee experience and productivity and **37% better** outcomes in attracting and retaining external customers.

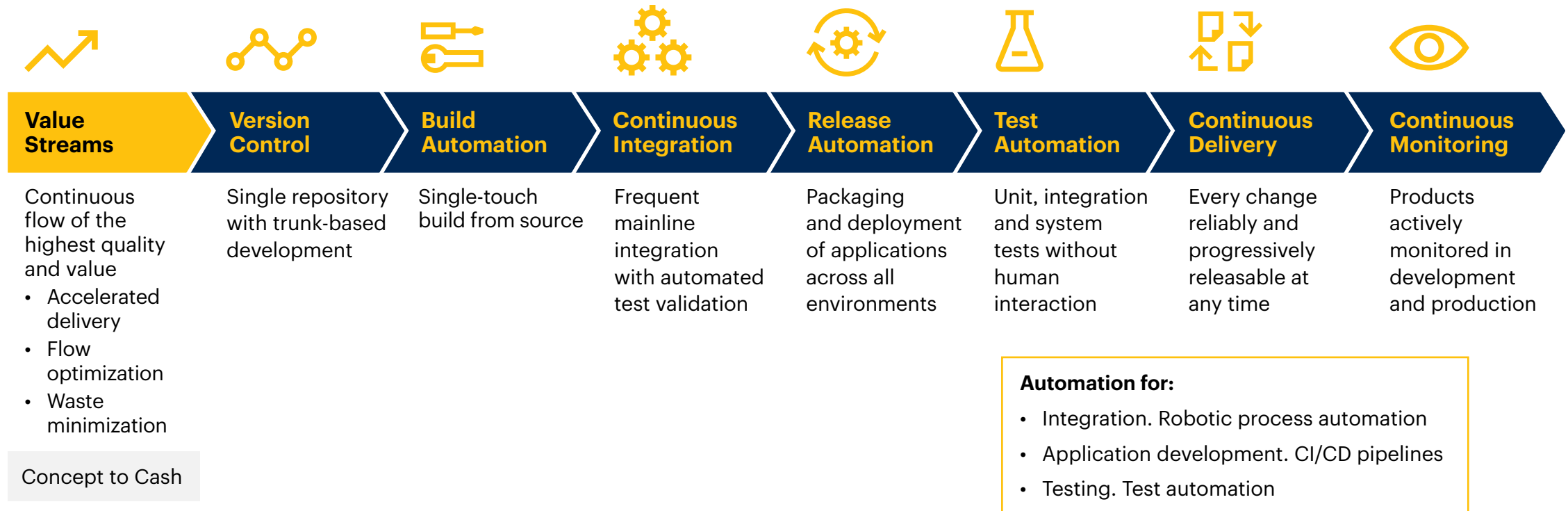


Adopt cross-functional fusion teams and establish a talent development program.

Source: Gartner 2021 Software Engineering Leaders Survey, Gartner strategic assumptions, 2020 Gartner Software Engineering Team Effectiveness Survey

# Focus on Automation Across the Full Delivery Life Cycle and Emphasize Value Streams

## Creating frictionless pipelines

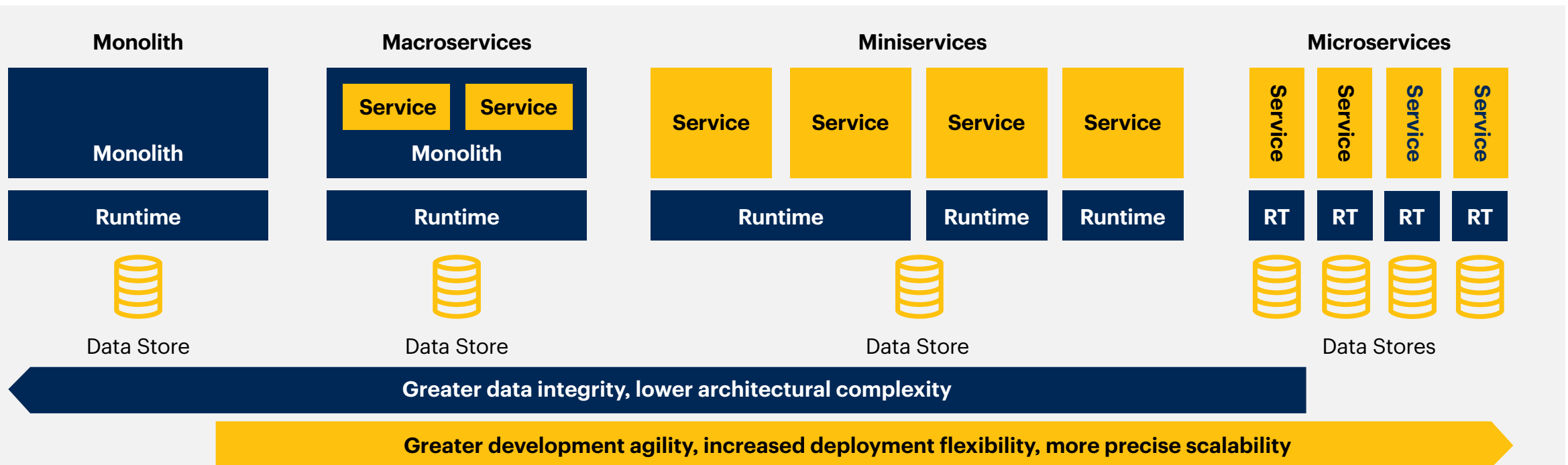


Source: Gartner



# Emphasize Granularity to Maximize Composability and Optimize Architecture

## Spectrum of options for microservices architecture



Source: Gartner

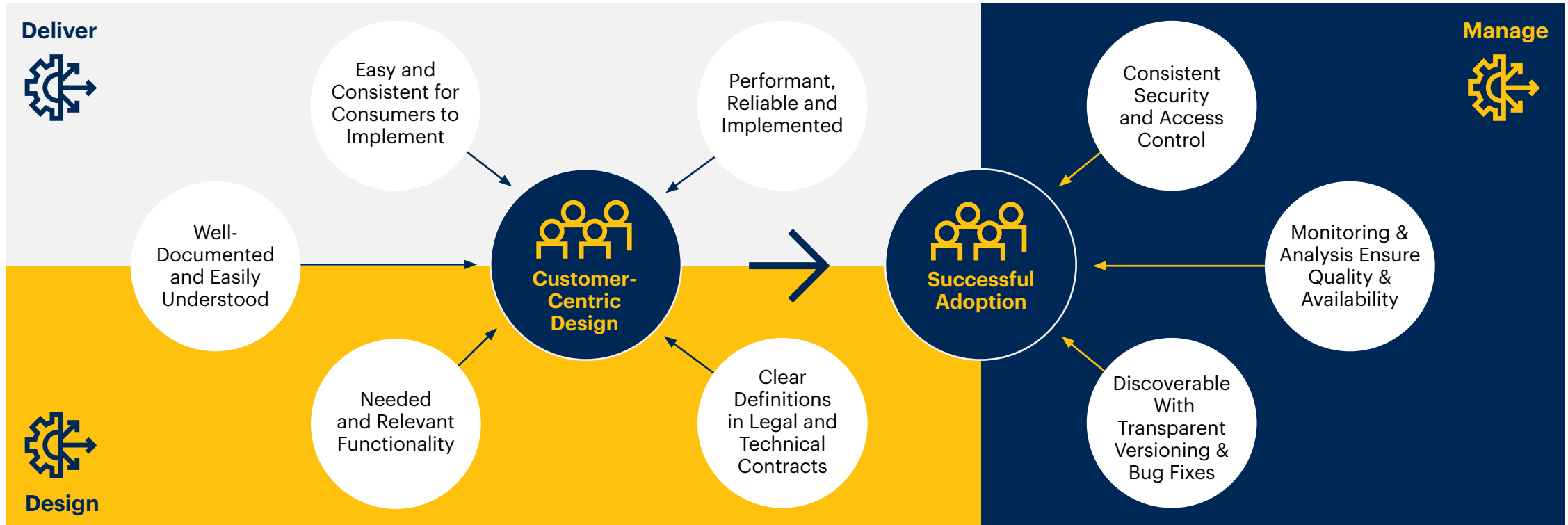
# Leverage APIs to Provide Ecosystem Access to Functionality ...



API Consumers

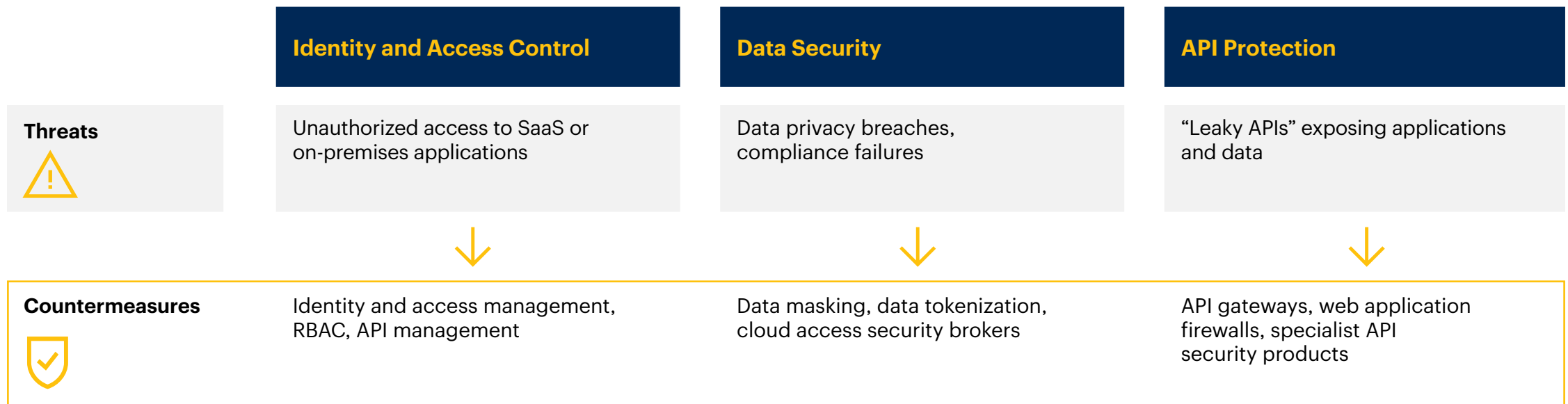


API Provider



Source: Gartner

# ... But Install Countermeasures Against Threats Related to Application Integration



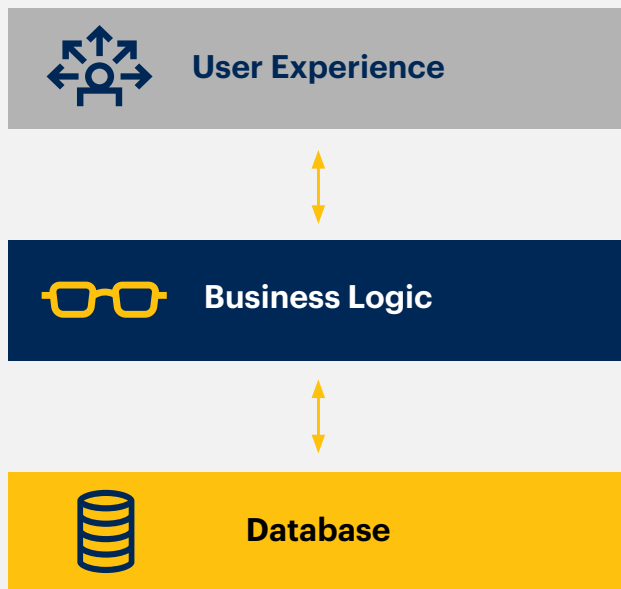
Source: Gartner

Note: RBAC: Role-Based Access Control

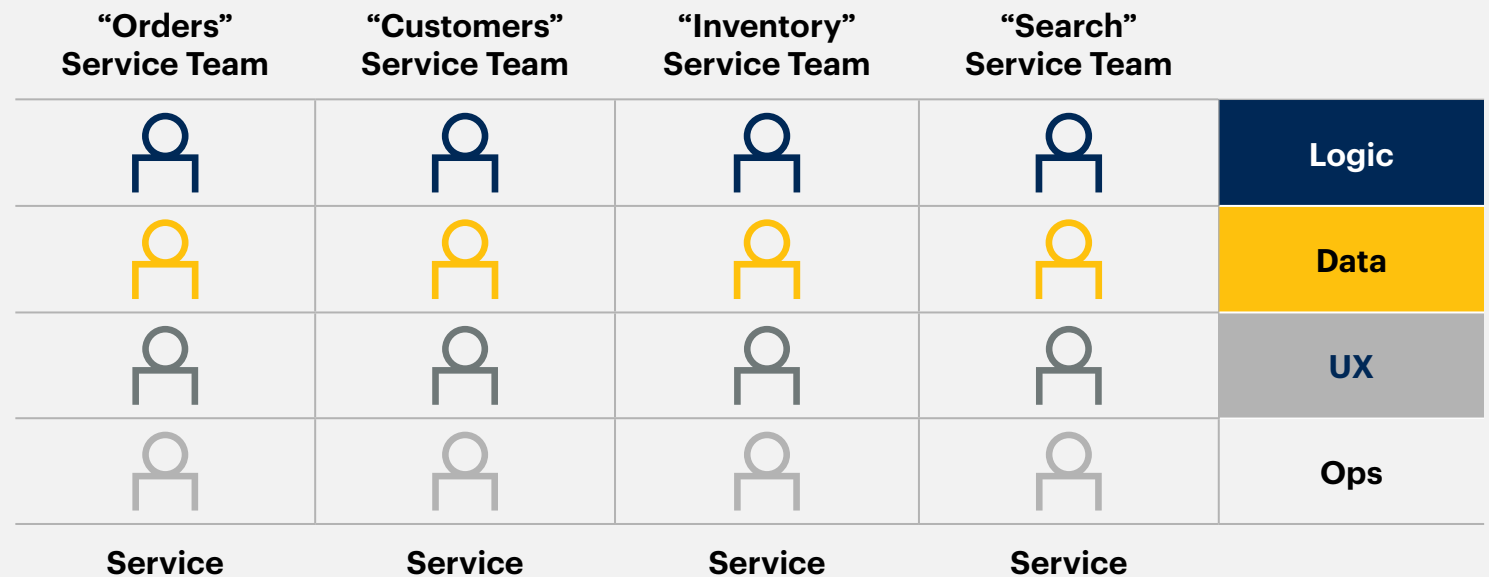
# Adopt Cross-Functional Fusion Teams

## Functional teams versus cross-functional teams

### Functional teams



### Cross-functional teams



Source: Gartner

# Establish a Talent Development Program

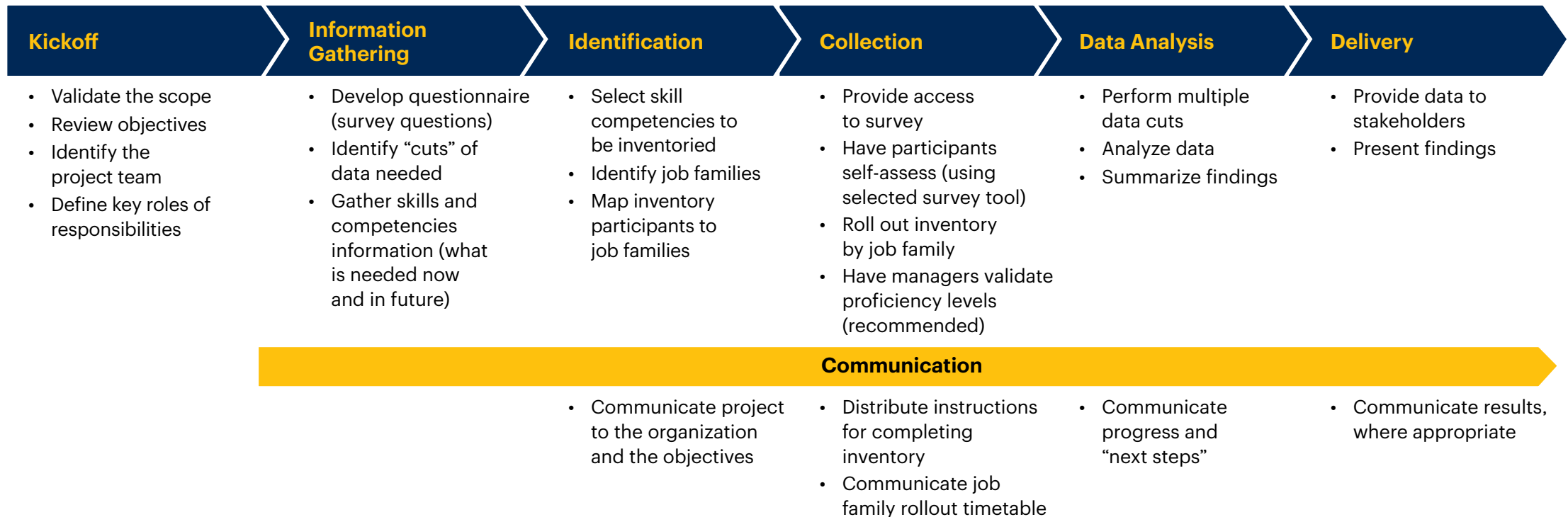


## IT skills inventory process

Week 1

Duration

Week 8



Source: Gartner

# Action Plan for Software Engineering Leaders in 2022



**Build APIs**



**Enable Skills  
Development**



**Embrace  
Fusion Teams**



**Automate Across the  
Life Cycle**



**Optimize Architectural  
Granularity**



**Adopt a UX  
Mindset**

Source: Gartner



# Data and Analytics Leaders

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# Major Trends and Themes Across Data and Analytics

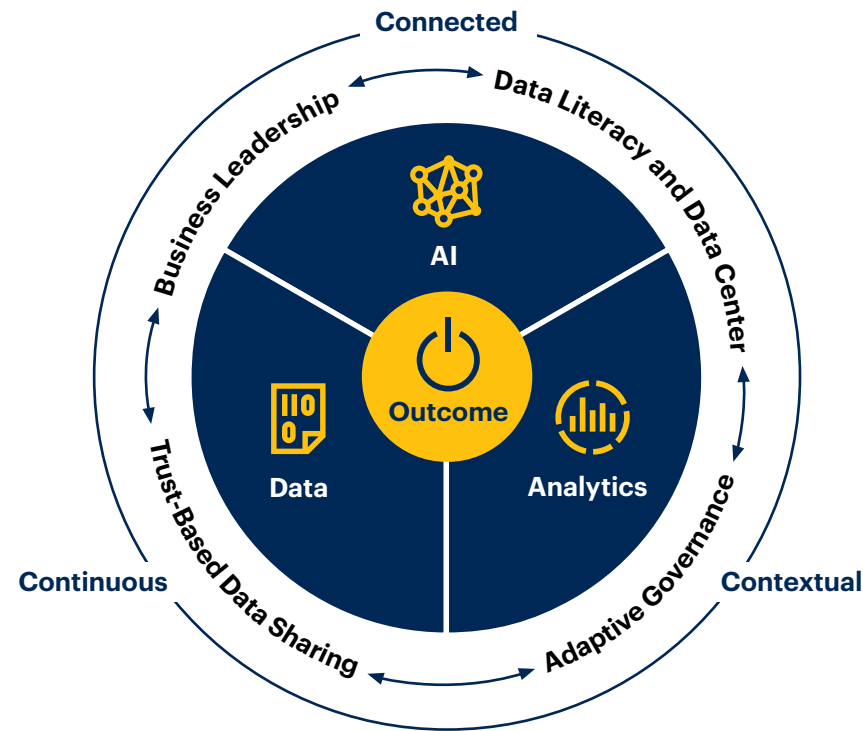
**Progressive data and analytics (D&A) leaders are shifting the conversation away from tools and technology and toward decision making as a business competency. This evolution will take time to achieve, but D&A leaders are in the best position to help orchestrate and lead this change.**

## Decision Intelligence

Understanding explicitly how people, machines/technology and data come together to inform and make decisions is no longer an esoteric goal. This is fast becoming a source of differentiation and survival.

## Composability

Organizations need more advanced and flexible data, analytics and artificial intelligence (AI) capabilities to support, augment and automate decisions. Moving to a composable architecture allows you to assemble the needed packaged data, analytics and AI capabilities that may exist from multiple vendors.



## Data Literacy

Successful digital businesses require a data-literate workforce and data-driven culture to drive measurable business outcomes.

## Data Fabric

An integrated layer (fabric) of data and connecting processes offers enterprisewide coverage of data across applications that is not constrained by any single platform or tool restrictions.

## AI Engineering

Multiple efforts in the AI world work together to operationalize machine learning (ML) and other tools and techniques to solve complex problems.

Source: Gartner

# Three Areas of Focus for D&A Leaders in 2022

The evolving D&A landscape creates challenges, opportunities — and sometimes both — across the various initiatives spanning D&A.



## Elevating the value and strategy discussion

This needs to include techniques, models and methods to communicate business value to executive leaders, boards and CEOs. This is probably the most important aspect of all D&A. Without this in place, no amount of any investment will convince others of D&A's value.



## Coping with ever-increasing demand and need for impact

Data and analytics are everywhere in today's organizations, but D&A is not one simple thing. It can take years to create or adapt D&A into a competitive weapon that drives effective data-driven decision making. The journey starts with strategy, an explicit link to value creation and business outcomes.



## Managing and exploiting the D&A ecosystem

The D&A ecosystem comprises all types of information assets — structured and unstructured; referential and transactional; database, file or record; image or text. With business outcomes in mind, you can narrow your field of focus and avoid “boiling the ocean.”

The three areas of focus impact a range of teams and initiatives

D&A Leaders

D&A Strategies

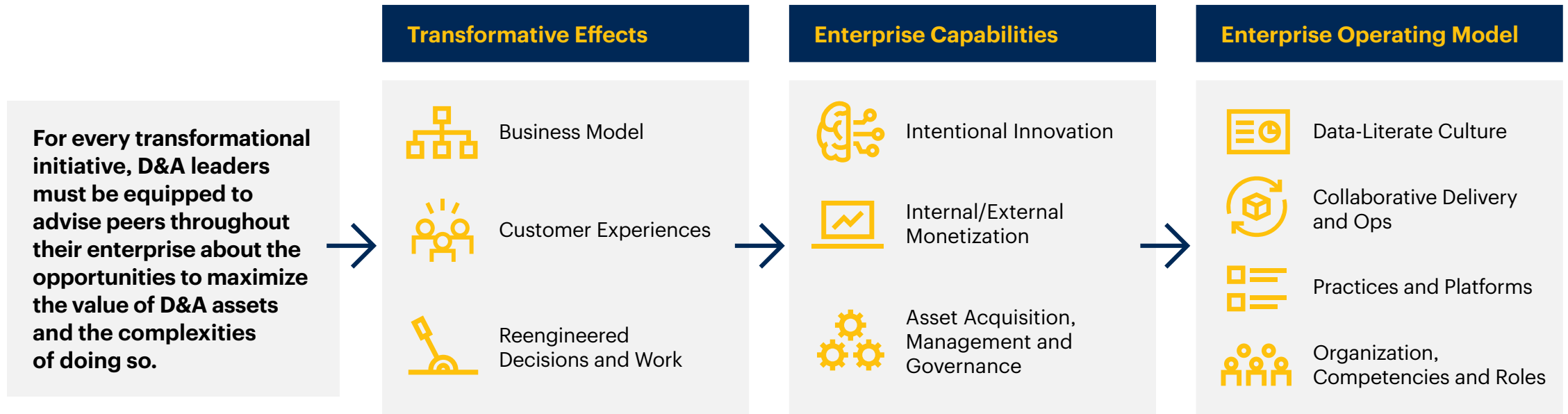
AI

Analytics

Data Management

# Position D&A as a Catalyst of Transformation

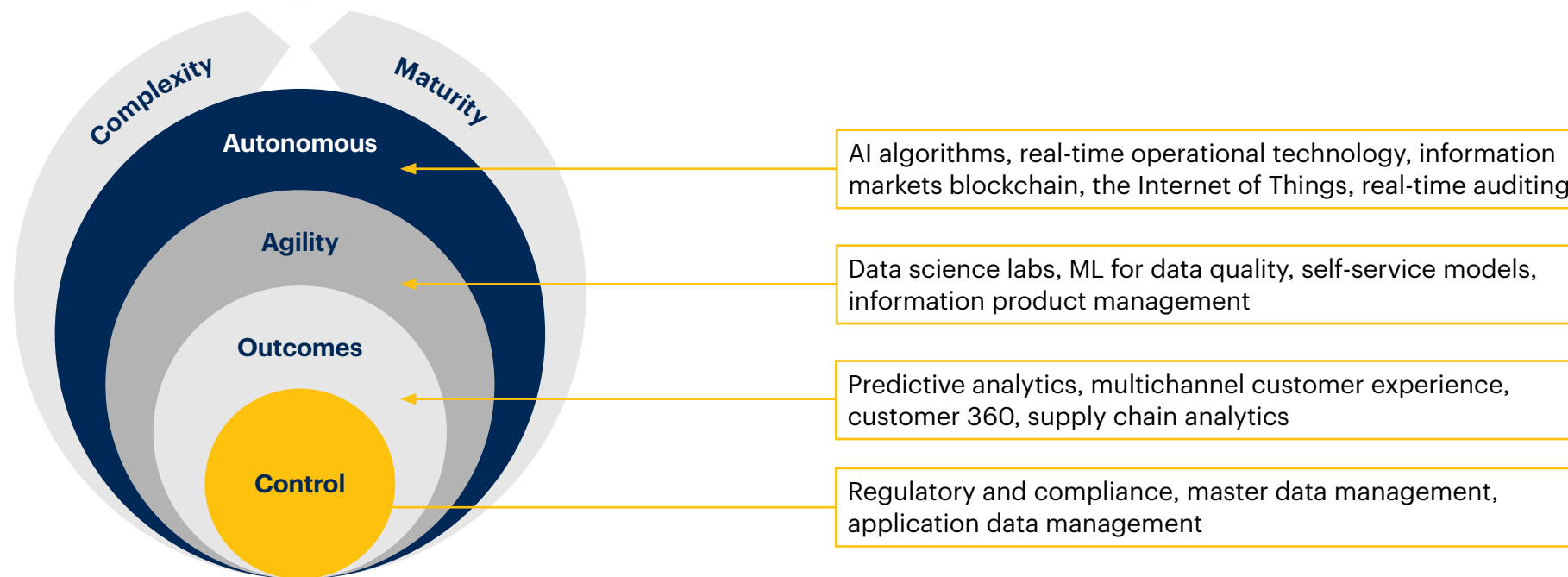
**Aim to create a business strategy that is infused with D&A, not a data strategy or an analytics strategy. In this way, D&A becomes a value creation center that connects D&A to the business and helps to ensure enterprise success.**



Source: Gartner

# Move Away From One-Size-Fits-All D&A Governance

**Traditional one-size-fits-all approaches to D&A governance cannot deliver the value, scale and speed that digital business demands. Adaptive governance enables D&A leaders to flexibly select different governance styles for differing business scenarios.**



Source: Gartner

# Modernize the D&A Operating Model to Execute the Strategy

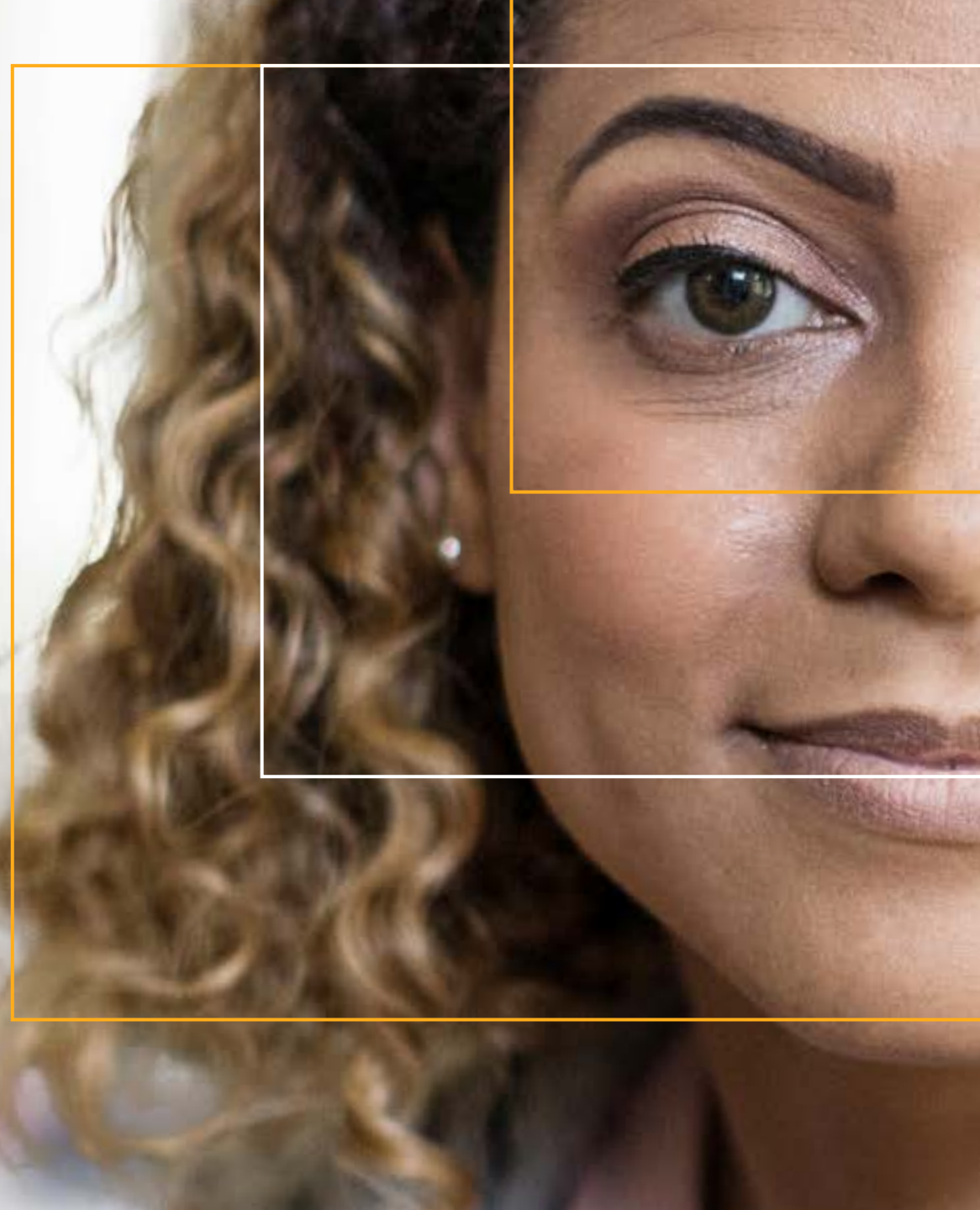
**D&A leaders need an operating model that defines the integrated set of operational competencies and capabilities (resources, processes and structures) needed to successfully execute the strategy.**



Source: Gartner









# Security and Risk Management Leaders

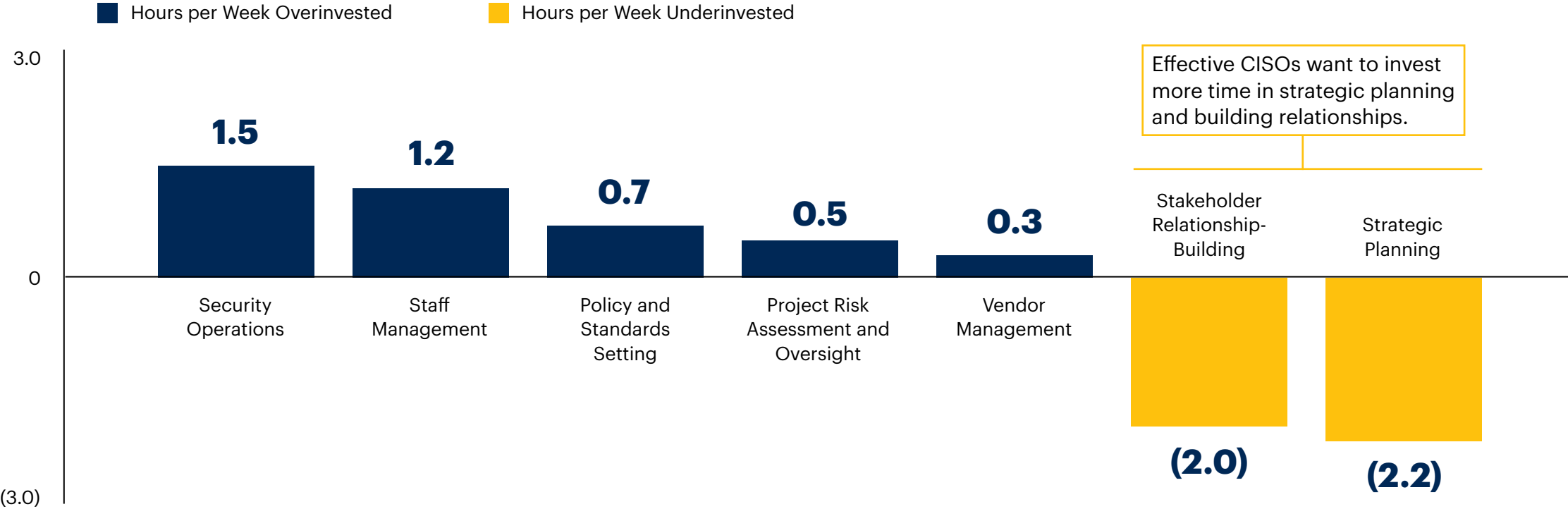


# Job 1: Reframe the Role of the Cybersecurity Leader ...

Today, business units and individuals have the ability to make substantial decisions about their digital destiny — which sometimes lead to bad security outcomes. Security and risk management (SRM) leaders are being squeezed between an increasingly aggressive threat environment and the unrealistic expectation that the chief information security officer (CISO) won't ever interfere with business unit computing. Successful CISOs recognize these misconceptions and actively work to change them in 2022 and beyond.

Leadership Misconception	Reframe
 <p>“The CISO prevents breaches.”</p>	 <p>“A leader facilitates risk management.”</p>
 <p>“Cyber risk is security’s problem.”</p>	 <p>“Cyber risk is a business/organizational risk.”</p>
 <p>“Security is a roadblock to speed.”</p>	 <p>“Security enables agile and secure products.”</p>

# ... And Focus on Adding Value



n = 129 CISOs  
Source: 2020 Gartner CISO Effectiveness Survey

# Three Challenges and Actions for the Security and Risk Management Leader



## The loss of control

One in five workers consider themselves digital technology experts since COVID-19. **49%** of “ineffective” CISOs incur unrealistic expectations from stakeholders.



## Actions for the SRM leader

Develop a culture of cyber judgment and align this culture with evolving talent needs.



## Boards demand value

**One in 10** organizations are now creating cybersecurity-specific committees at the board level. Boards identify cybersecurity risk as the second highest source of risk for the enterprise.



Prioritize customers and market-facing business relationships and focus on value-generating activities.



## A cybersecurity mesh architecture has evolved

If endpoints, digital citizens and IT assets will be located anywhere, then cybersecurity controls need to be able to follow suit.



Choose cybersecurity technologies that offer high levels of integration, automation and orchestration capabilities.

Source: Gartner

# Create Competent Decision Makers Across the Organization

All employees are now citizens in a digital democracy. The security and risk team must equip them with processes and guiderails that encourage them to follow safe paths. Building cyber judgment in this way is a practical risk response to the phenomenon of citizen computing.

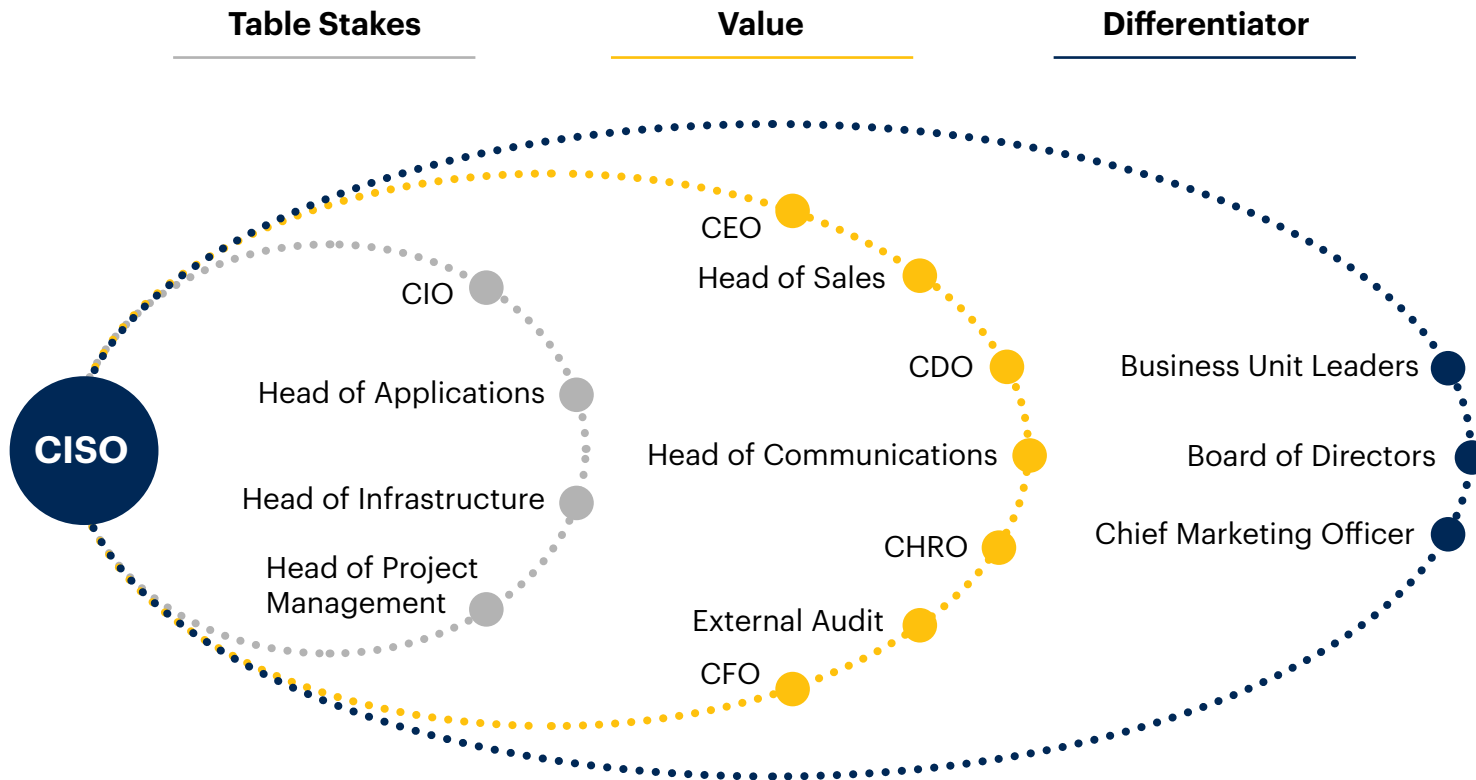
Security Activities	Low Trust	Medium Trust	High Trust
<b>Risk Assessment</b>	Security-led	Self-administered, security reviewed	Self-administered
<b>Control Implementation</b>	Done by security	Controls for high risks are implemented by security	Done by groups
<b>Exception Request</b>	Issued by security	Made independently within a predefined risk range; peer reviewed	Made autonomously within a predefined risk range
<b>Verification</b>	Frequent security reviews	Reviews only in cases of major revision	Self-verification

As digital citizens increasingly demonstrate higher levels of trustability, the need for centralized governance activities decreases.

The ultimate goal of cyber judgment is self-service.

Source: Adapted from client case study

# Build Game-Changing Relationships Outside IT



Building relationships with business unit leaders, heads of sales and heads of marketing is key as these are the exact areas where increased technology use is leading to a higher volume and variety of information risk decisions. There is an order of magnitude difference between the number of top- and bottom-performing CISOs who meet with these higher-impact stakeholders on a frequent basis.

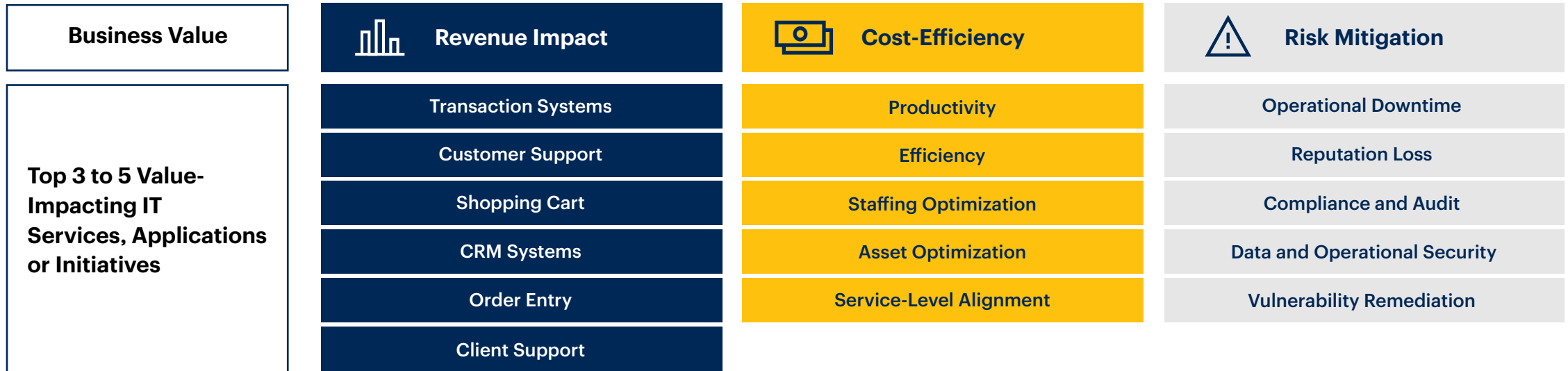
Source: Gartner



# Prioritize Three to Five Areas With High Business Value

Concentrate on the relatively small number of activities that provide the greatest marginal return on time and resource investment — and make these choices consistent with the reframing of your mission.

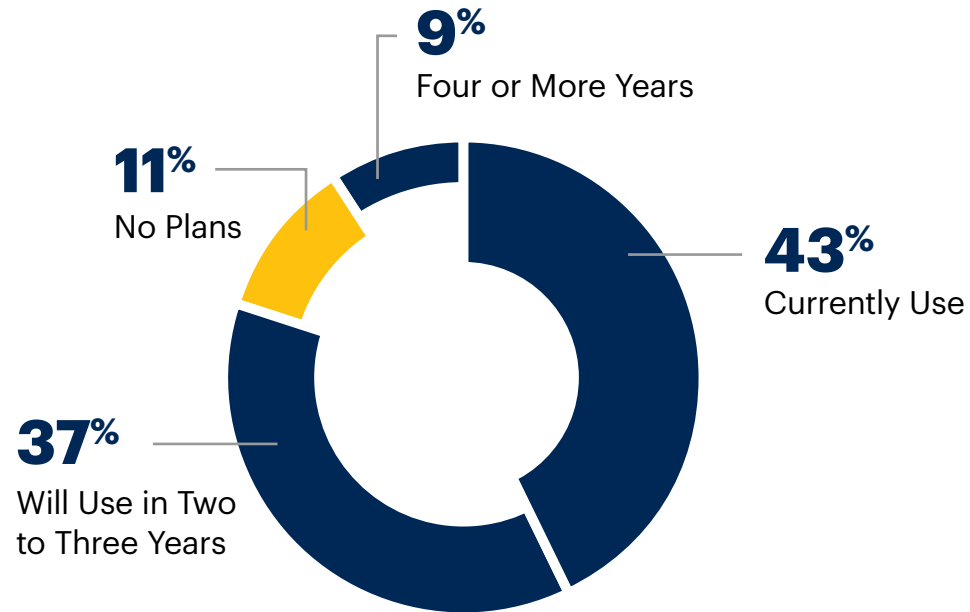
Make it clear to internal customers that you are not there to solve all their problems, but that you will identify and address the significant ones.



**Prioritize three to five things you own and control that have the greatest impact on business value priorities.**

Source: Gartner

# Use Cloud-Delivered Solutions for Scalability, Integration and Automation

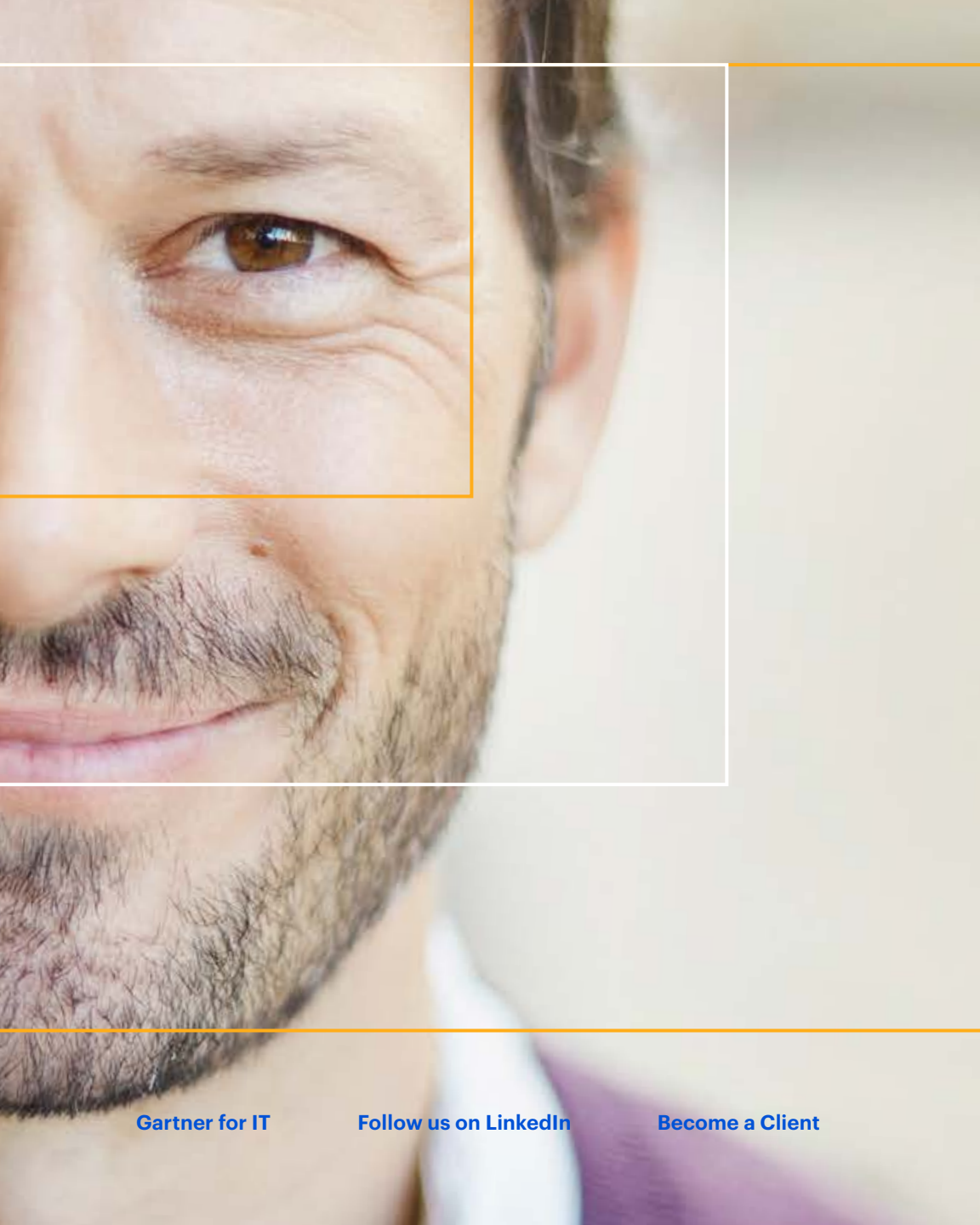


**80% of organizations surveyed already have or plan to have a cybersecurity product as a service in the next two to three years.**

n = 396, all respondents; excluding "don't know"

Q. Are any of your organization's information security products delivered "as a service"?

Source: Gartner 2020 Security & IAM Solution Adoption Trends Survey



# Infrastructure and Operations Leaders

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# Move Toward Adaptive Resilience

## Mature a resilient I&O practice without sacrificing agility.

Delivering adaptive resilience is imperative for infrastructure and operations (I&O). I&O must build, integrate, broker and govern technology platforms that balance resilience and agility to enhance customer experiences and solutions, while delivering optimal business outcomes and growth. This “adaptive resilience” will help meet new challenges, each of which will strengthen the organization’s ability to adapt and grow. This model must acknowledge I&O’s role, not only to deliver technology services but also to govern and guide services wherever they live.



Source: Gartner

# Three Trends and Actions for the I&O Leader

## Employees outside of IT increasingly perform technology work

Technology work, once primarily the purview of IT departments, is being democratized. A growing share of business leaders are setting up their own teams to digitalize internal business capabilities or create market-facing offerings — a trend that has been accelerated by the COVID-19 pandemic.



### Actions for the I&O leader

Adapt to a world of technology democratization, and focus on developing a governance model to accommodate infrastructure, services and technology work that isn't directly sourced out of I&O.

## The skills gap is growing

According to I&O leaders, the top 3 skills categories include: cloud and edge, automation and continuous delivery (i.e., scrum management, agile, DevOps, SRE).



Invest in skills that support iterative, customer-focused frameworks, and in new ways of working, such as DevOps, product management and agile.

## Automation remains a key strategy for lowering costs

**46%** of I&O leaders rank lowering costs in their top 3 priorities for the next 12 months. Of those, **70%** plan to use automation to achieve that cost optimization.

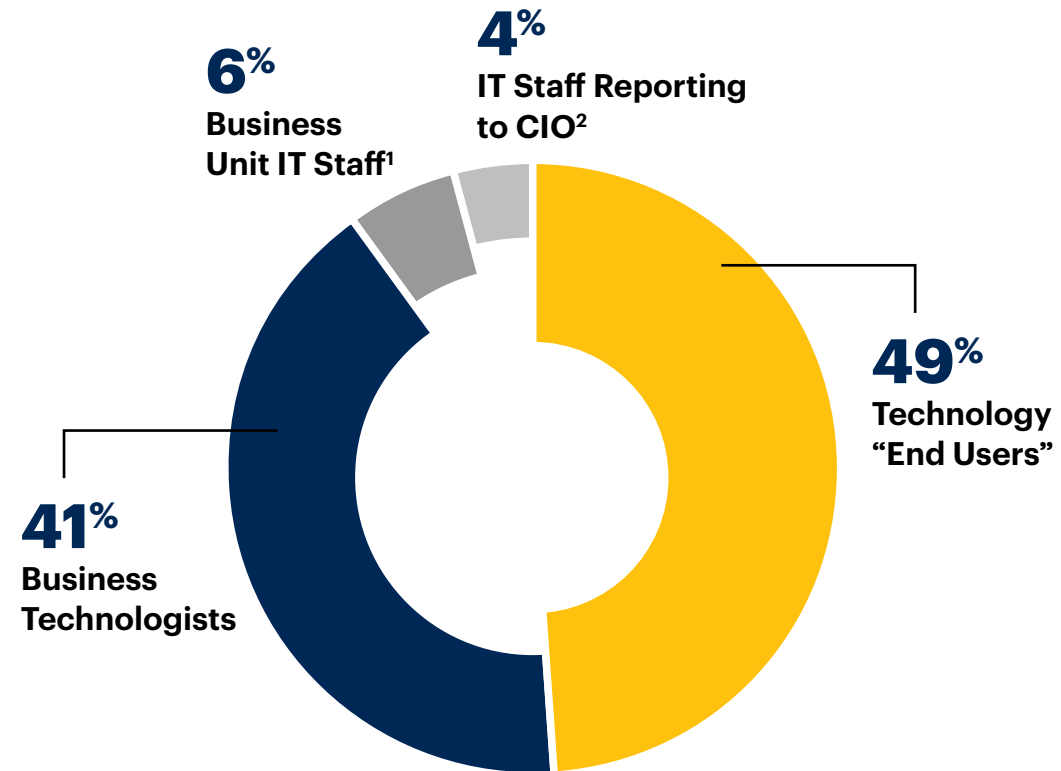


Targeted five areas for automation:

- Provisioning and orchestration
- Change and asset management
- Configuration management and patching
- Monitoring
- Security and governance

# Prepare for More Business Technologists

**The Gartner definition for “business technologist”:** An employee outside of the IT department who creates technology or analytics capabilities



n = 11,848 employees across the entire workforce

Source: 2021 Gartner Reimagining Technology Work Survey combined with 2020 Gartner Digital Friction Survey

<sup>1</sup>Business unit IT staff reporting to divisional or BU CIOs

<sup>2</sup>By CIO, we mean the senior most IT executive; actual titles may vary

# Identify, Then “Forward Fill” Critical Skills

In a continuously shifting job market fraught with skills and labor shortages, I&O leaders should generally focus on the skills that are expected to be in high demand, which are also difficult to find — for example, the skills in the critical skills quadrant.

These skills are also the ones that can help I&O achieve its customer-centric goals of speed, agility and efficiency.

**Critical IT skills relate to a wide range of technologies, applications, programs and solutions, including:**

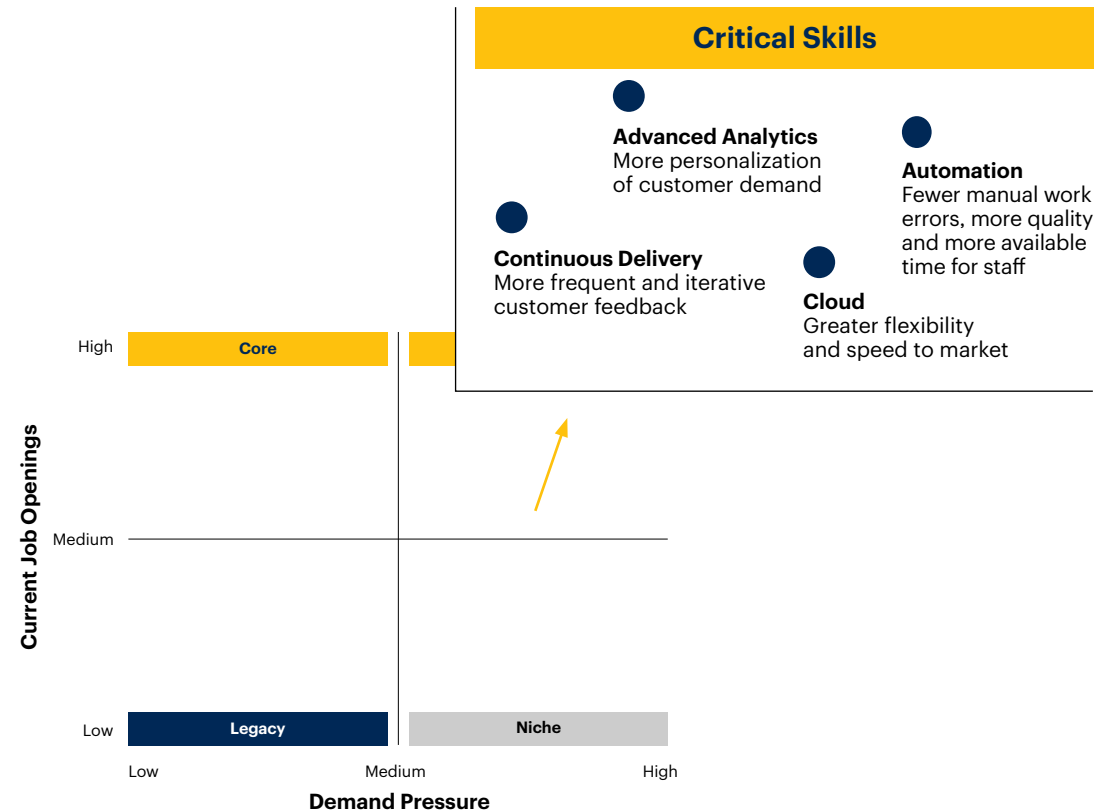
**Cloud** — PaaS, IaaS, Kubernetes and cloud architecture

**Advanced analytics** — Artificial intelligence, R, machine learning, Python, data science, data integration, business analysis and business intelligence

**Continuous delivery** — Agile software delivery, DevOps, Scrum methodology, user experience and continuous integration

**Automation** — Reducing errors from manual work, improving quality and freeing up staff

Source: Gartner



# Improve Automation Maturity

Organizations with high automation maturity show the characteristics on the right of the graphic, but this isn't achieved overnight. Automation maturity requires the right resources, skills, tools and a focused plan aligned to goals and outcomes.

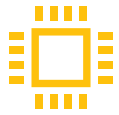
## Automation Maturity Characteristics



Source: Gartner



# Next Steps Toward Adaptive Resilience



**Lead in a Technology  
Democratized World**



**Balance Resilience  
With Agility**



**Improve Automation  
Maturity**



**Prioritize Value  
Optimization**



**“Forward Fill”  
Critical Skills**



**Enable Hybrid and  
Distributed Work**

# Enterprise Architecture Leaders

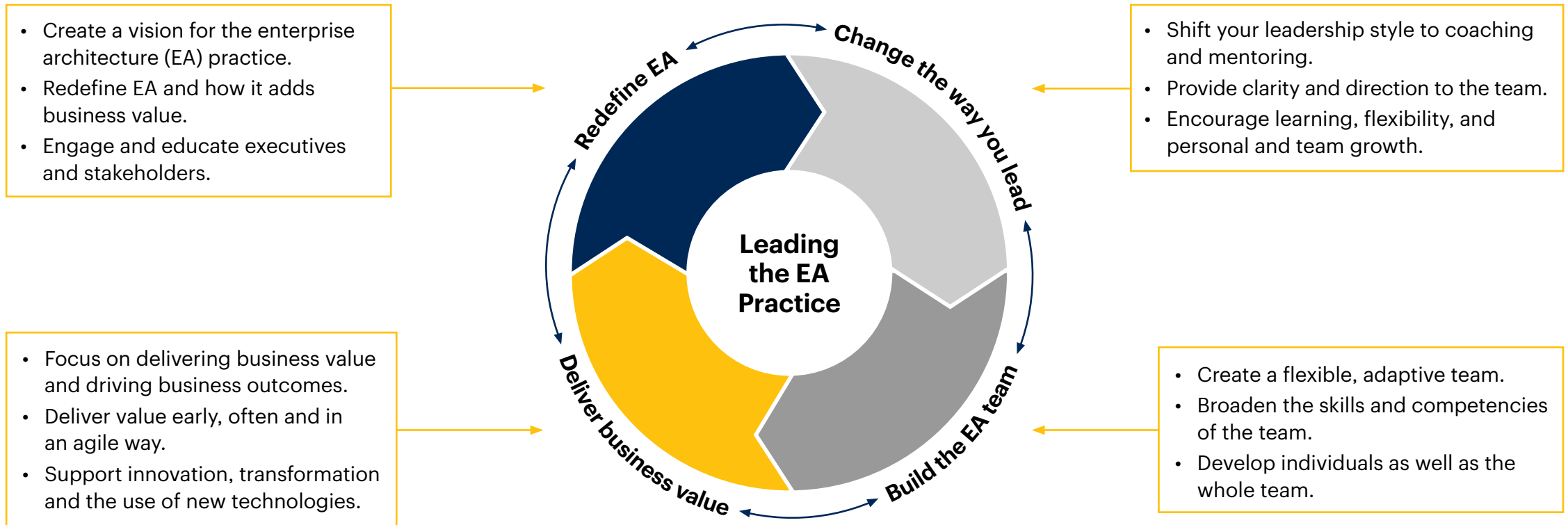
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# Lead Enterprise Architecture in Four Key Areas



Source: Gartner

# Trends and Actions for EA Leaders



## Adopting a new style of leadership as the delivery of digital/IT services democratizes

There has been a steady and growing shift in the delivery of digital capabilities — moving out of the IT organization and into the business. As these capabilities move into the business, they are also moving to outside service providers.



### Actions for the EA leader

Adopt a new style of leadership by focusing on developing organizational influence rather than spans of control.



## Delivering EA as an internal management consultancy

EA can bring a set of internal management consulting services that provide insight and clarity to executives and stakeholders. Given future uncertainty, the ability to support executives in shaping strategy, in a quick, iterative way, will make EA invaluable.



Shift EA toward an internal management consultancy by clearly defining what EA is, how it works and how it adds value to the organization.



## Architecting the organization for composability

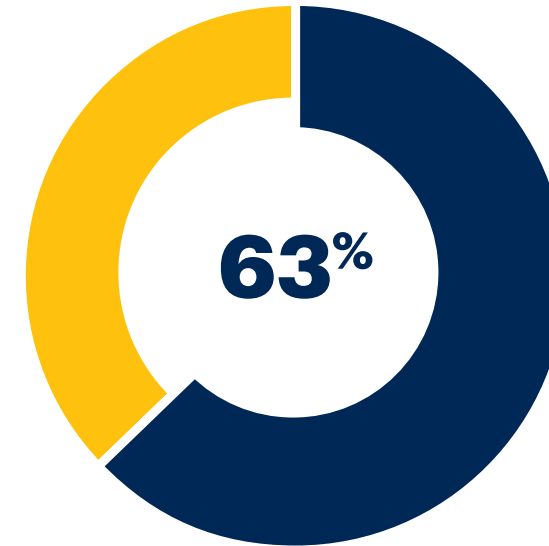
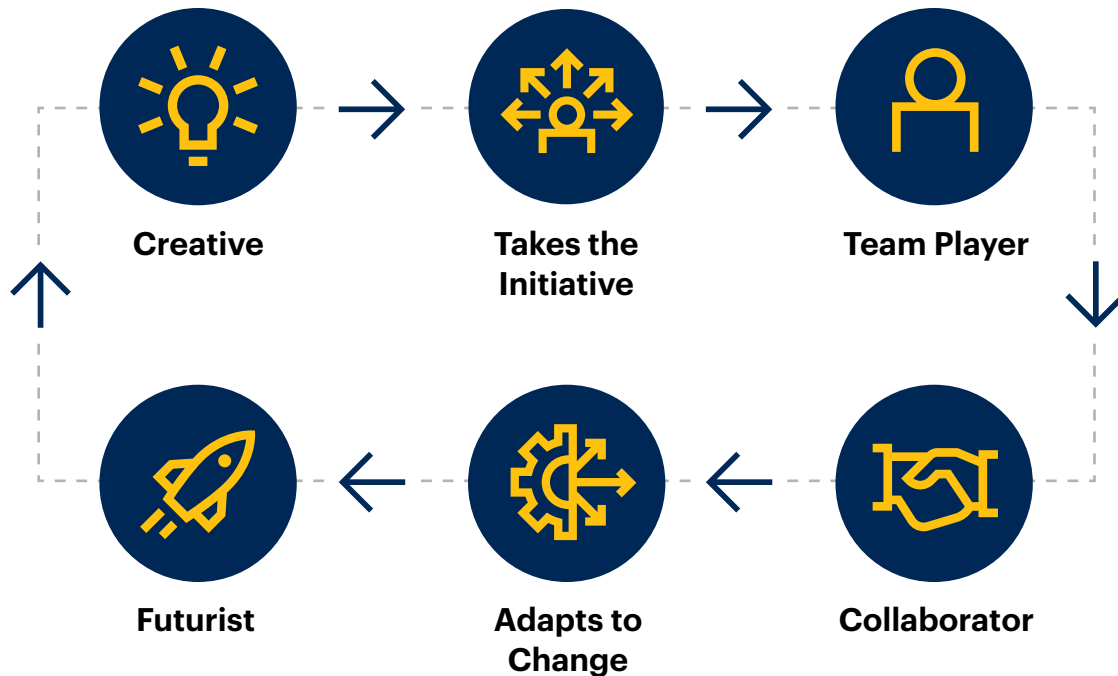
For many organizations, the global pandemic highlighted the importance of adaptability and resilience. At a high level, adaptability is being able to respond quickly and efficiently to change, and resilience is being able to do that repeatedly.



Build a business with high composability. Create an adaptive tech base, use iterative work practices, and develop a design approach that allows the business to change quickly, in a way that is easy to execute.

# Become an Influencer (and an Innovator)

As organizations democratize digital delivery, the EA leader will need to lead through influence — and by inspiring those on the EA team, along with its stakeholders.

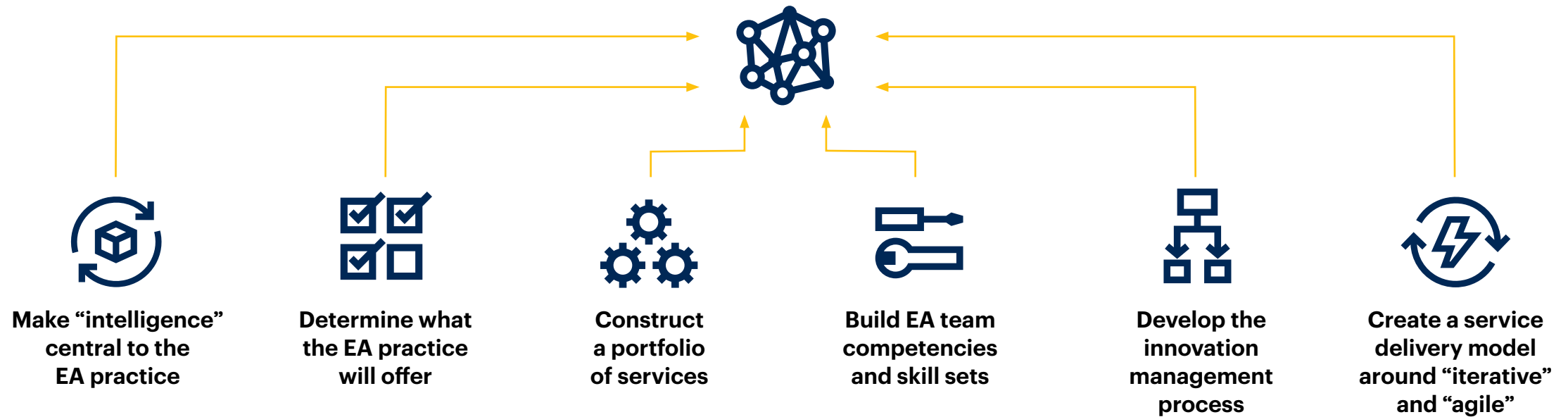


of high-performing EA practices indicate a need for better proficiency in storytelling

Source: Gartner

# Reframe and Rebrand the EA Practice

**Aim to provide a clear definition of what EA is, how it works and how it adds value as a consultancy.  
For example, will you be a strategic consultancy or focus on a technical specialty?**



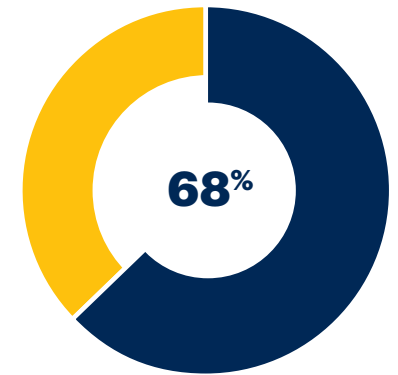
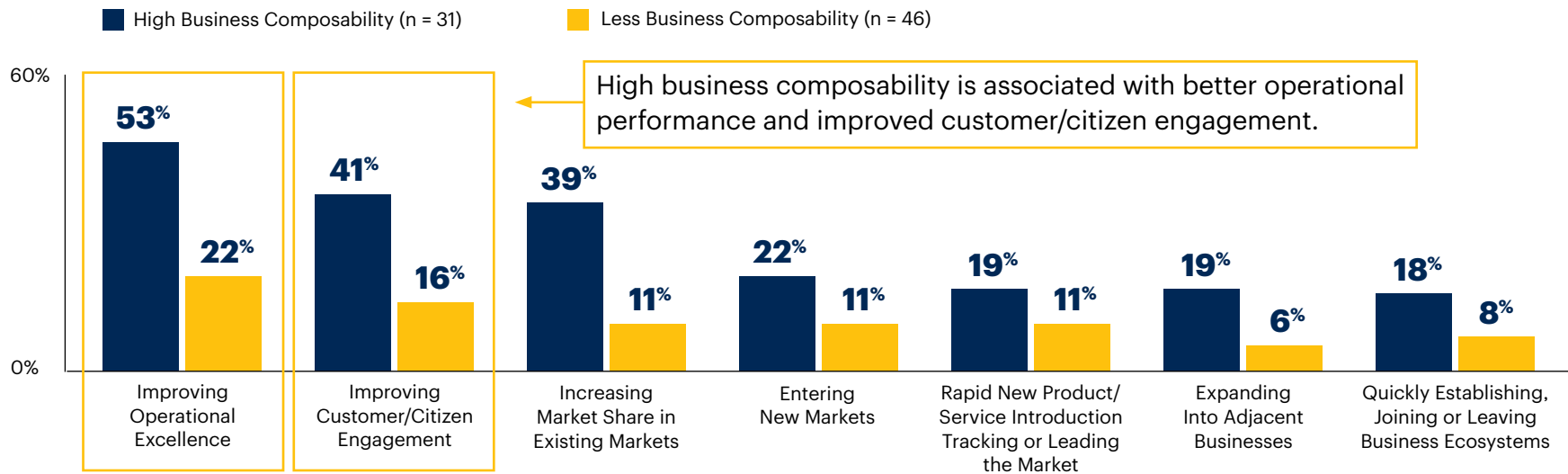
Source: Gartner

# Embrace the Benefits of Composability

Many trends shaping today’s organizations set the stage for the adaptable, or “composable,” enterprise. EA leaders play a key role in building an architecture that supports this change, while communicating the benefits to the organization.

## Assessments of Enterprise Effectiveness

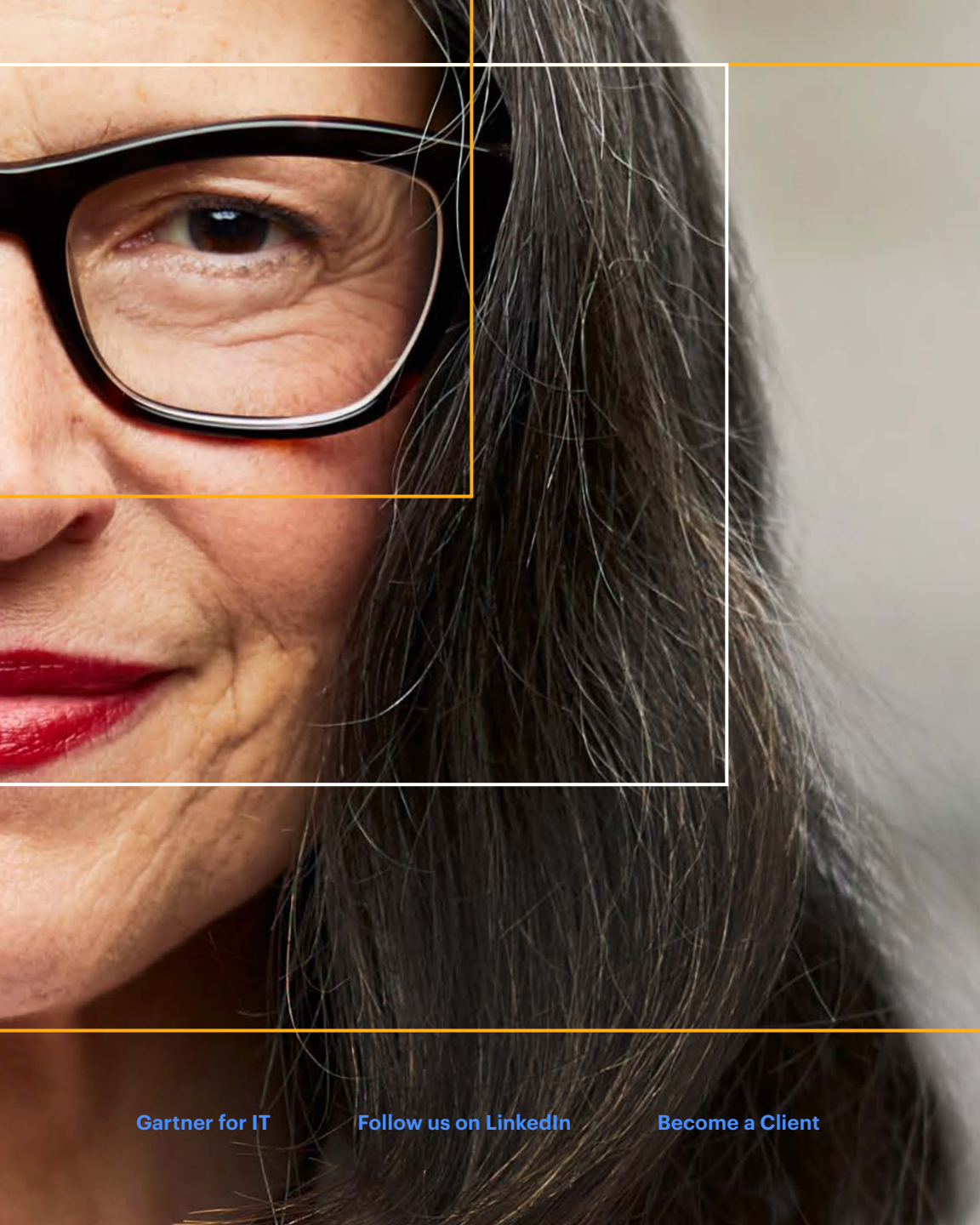
Percentage of Respondents Indicating High Effectiveness (6 or 7 on a 7-Point Scale)



of high-composability organizations surpassed their business goals

Source: Gartner





# CIOs

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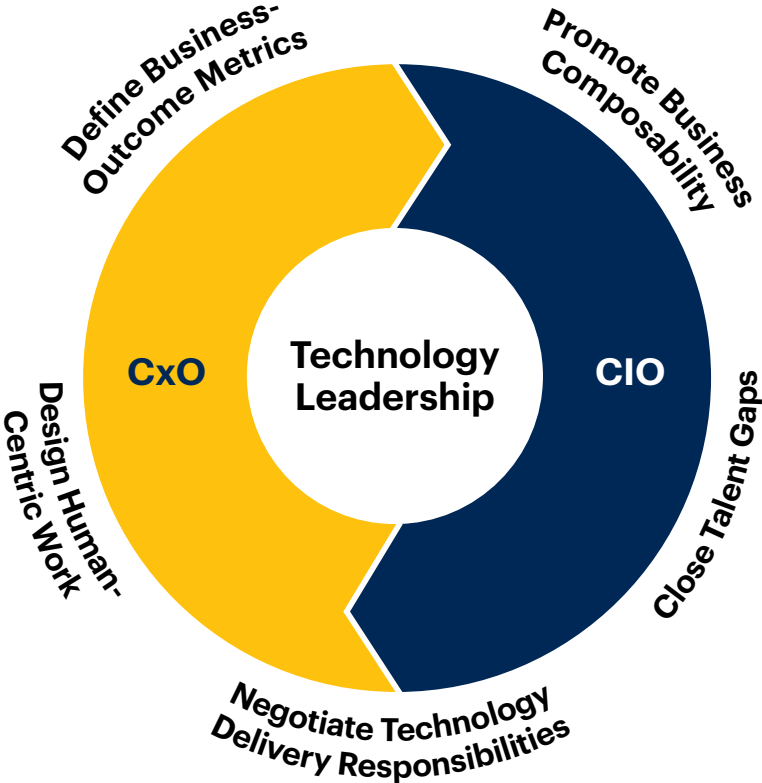


# CIOs and CxOs Share Democratized Technology Leadership Responsibilities

**Technology delivery has been democratized across the enterprise.**

Organizations increasingly need digital information and technology not only to run the day-to-day operations but also to grow and differentiate the business.

The result is that technology leadership responsibilities and accountability for business and technology outcomes driven by digital initiatives will be shared by the CIO with their CxO peers. CIOs will need to work closely with business leaders to develop digital-enabled business capabilities that generate revenue, improve profit margin or advance the mission and constituent satisfaction.



Source: Gartner

# Three Challenges and Actions for the CIO



## Enabling multiple and competing business priorities

As the world recovers from COVID-19, CIOs are now responsible for simultaneously enabling the conflicting goals of efficiency, growth and resilience.



### Actions for the CIO

Evangelize business composability to more easily address competing imperatives.



## Scarcity of talent and digital dexterity

Successful digital organizations require high digital dexterity. Since the pace of change in a digital organization is faster and more fluid than within a traditional, industrialized entity, organizations are likely to need versatilists, specialists and generalists.



Capitalize on force multipliers to advance digital dexterity and close the talent and skills gaps.



## Redesigning work for a hybrid model

Organizations have a unique opportunity to break from a location-centric model of work designed around industrial-era constraints — and to redesign work around a human-centric model to secure digital-era talent and deliver business outcomes.



Work with the CHRO to redesign work for the hybrid world using a human-centric design.

# Utilize Composability to Address Competing Imperatives



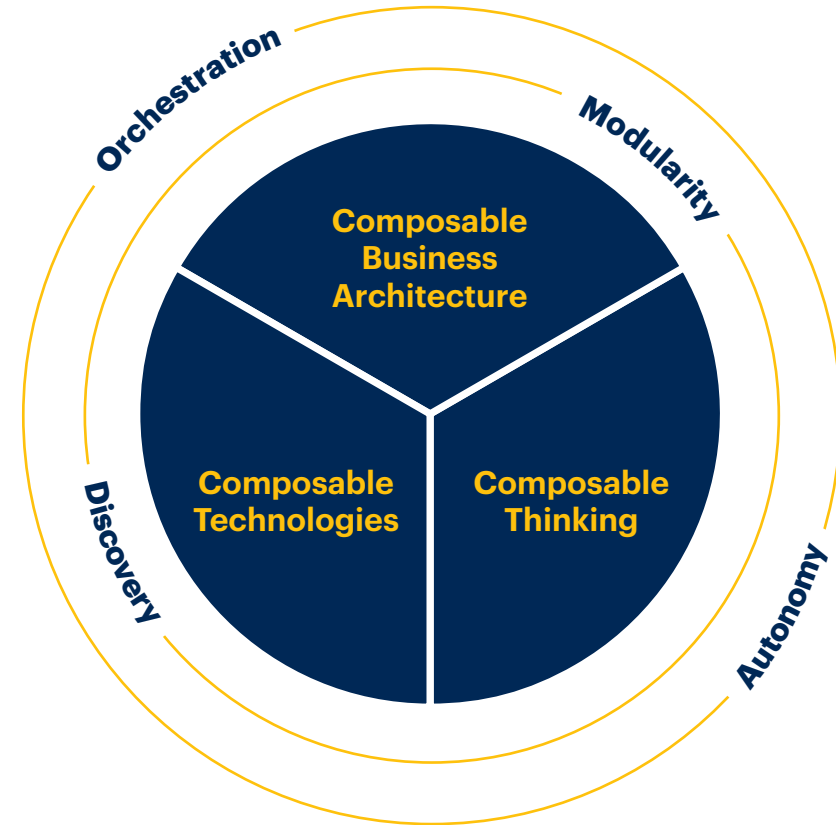
Rearchitect key business capabilities, value streams and processes for composability to enable your enterprise to easily adapt to shifting priorities.



Guide fusion teams and business technologists to use composable technologies when designing and delivering their business solutions.



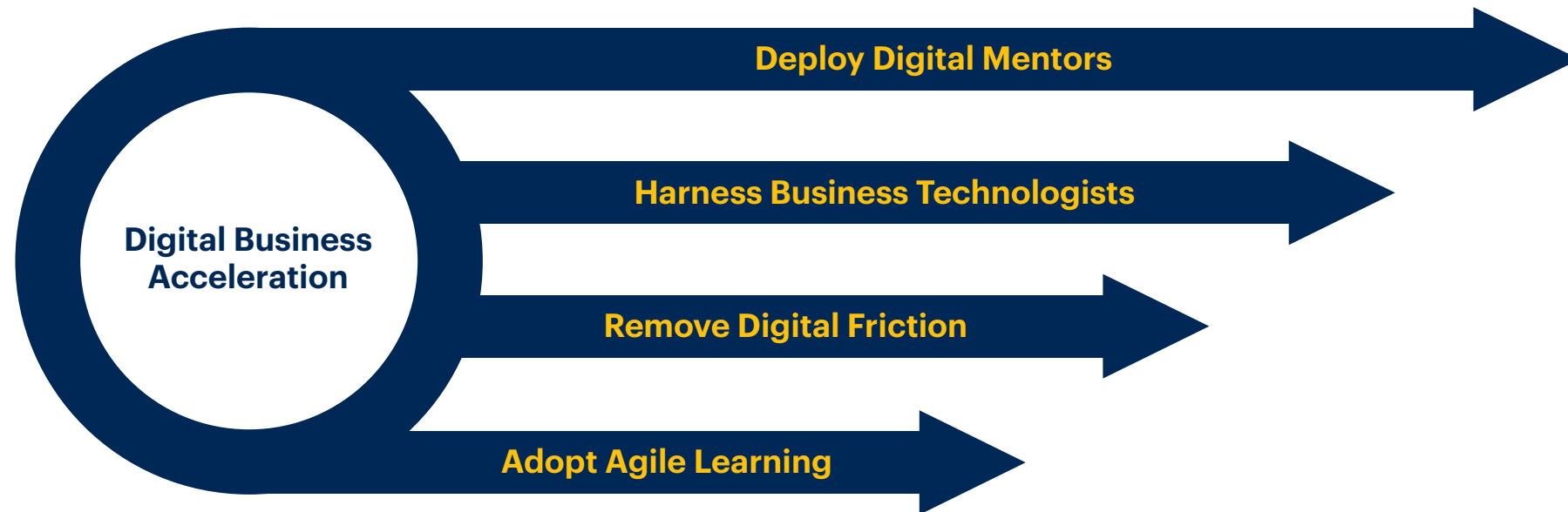
Articulate a business narrative on composable thinking. Educate business peers on how to apply composable principles — modularity, autonomy, orchestration and discovery — to their functional domains.



Source: Seize the Moment to Compose a Resilient Future: Key Insights From the 2020 Gartner IT Symposium/Xpo™ Keynote

# Encourage Digital Dexterity and Close the Talent and Skills Gaps

**CIOs can harness four force multipliers to complement their own resources and more quickly reduce talent and skills gaps. This can help build digital dexterity, especially among leaders throughout the business.**



Source: Gartner

# Focus on a Human-Centric Design for the Workplace

**New technologies, new ways of working and even new management approaches are needed to support healthy, productive and innovative employees.**



## Office-Centric Design

An on-site model for an on-site world: “Location is the stable pillar we design work around.”

### Provide Consistent Work Experiences

Work design principle: Equality of experiences

### Enable Serendipitous Collaboration

Work design principle: Innovation by chance

### Drive Visibility-Based Management

Work design principle: Performance by inputs



## Human-Centric Design

A hybrid model for a hybrid world: “The individual is the stable pillar we design work around.”

### Provide Flexible Work Experiences

Work design principle: Equality of opportunity

### Enable Intentional Collaboration

Work design principle: Innovation by design

### Drive Empathy-Based Management





Work design principle: Performance by outcome



Source: Gartner

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