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The Gartner 2021-2023 Emerging Technology Roadmap Findings

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Principal, Research

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Principal, Research

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Key Questions Addressed in This Webinar

(?)   What are the **high-level trends** in terms of technology adoption this year?
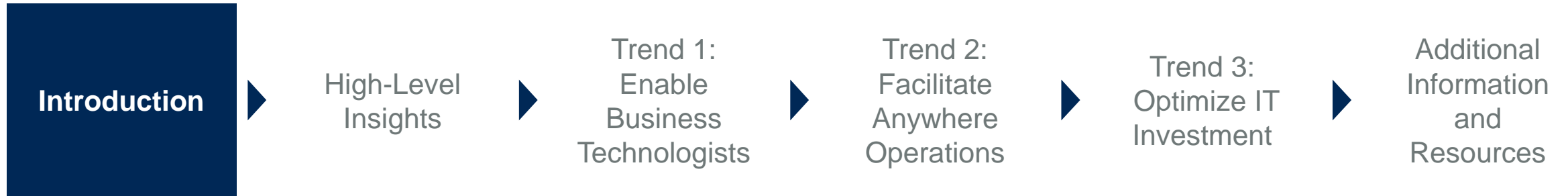
(?)   Which technologies do my peers think are the **most promising** in terms of value & risk?
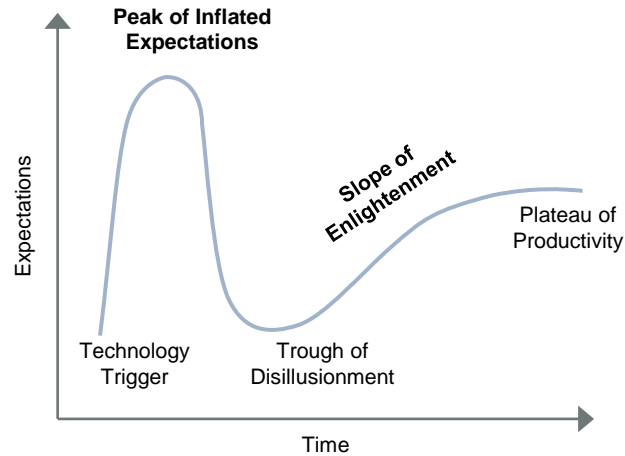
(?)   Which emerging technologies are my **peers cautiously deploying?**

Roadmap

Introduction ▶ High-Level Insights ▶ Trend 1: Enable Business Technologists ▶ Trend 2: Facilitate Anywhere Operations ▶ Trend 3: Optimize IT Investment ▶ Additional Information and Resources

Gartner's Suite of Complementary Products
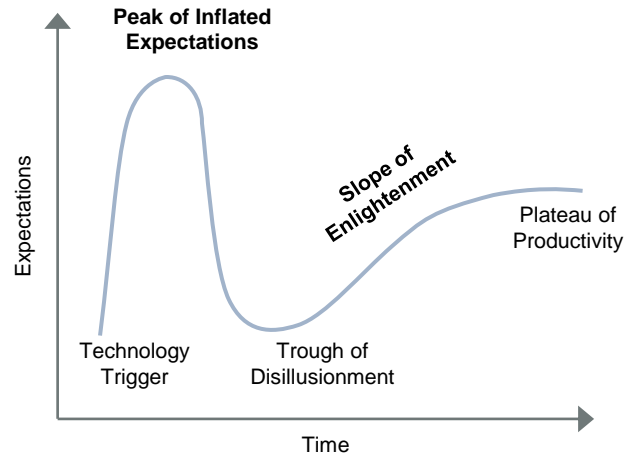
Overview of Three Different Methodologies

Hype Cycle

- Longer time horizons
- Technology landscape assessment
- Gartner analysts

Gartner's Suite of Complementary Products

Overview of Three Different Methodologies

Hype Cycle

- Longer time horizons
- Technology landscape assessment
- Gartner analysts

Magic Quadrant and Critical Capabilities

- Key vendors and products
- Enables vendor selection decisions
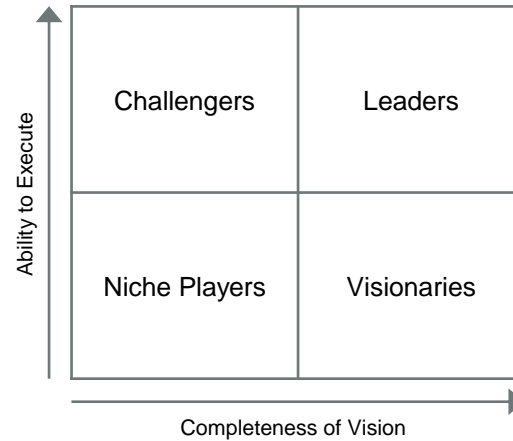- Gartner analysts

Source: Gartner

Gartner's Suite of Complementary Products

Overview of Three Different Methodologies

Hype Cycle

- Longer time horizons
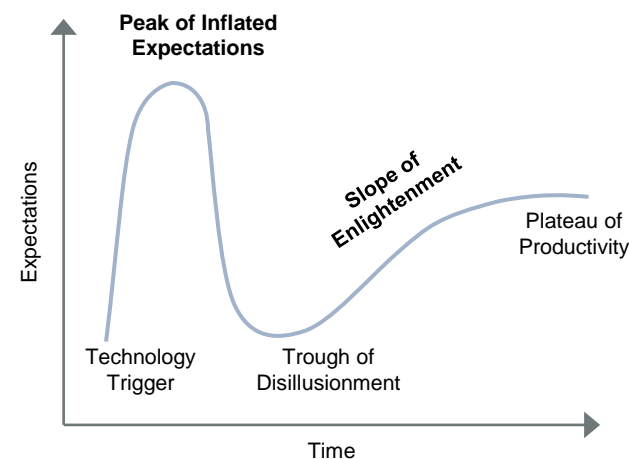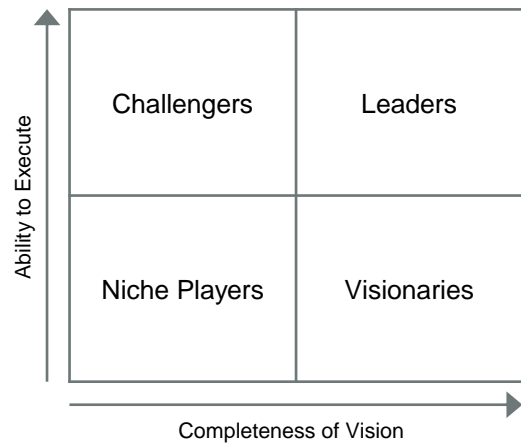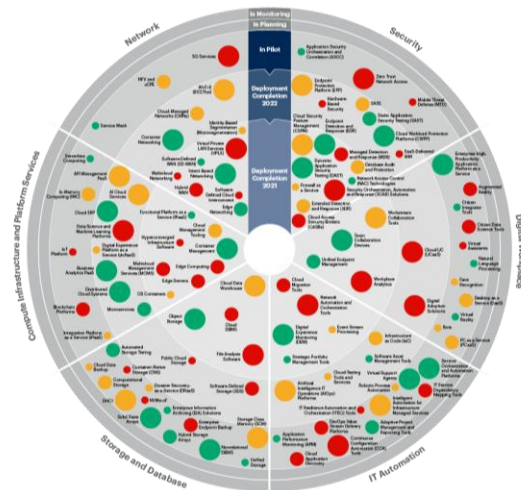- Technology landscape assessment
- Gartner analysts

Magic Quadrant and Critical Capabilities

- Key vendors and products
- Enables vendor selection decisions
- Gartner analysts

Emerging Technology Roadmap (ETR)

- 12-18 months time horizon
- Benchmarks adoption plans
- Enterprise users

Source: Gartner

Scope of the Emerging Technology Roadmap

Details of the 2021-2023 Emerging Technology Roadmap for Large Enterprises
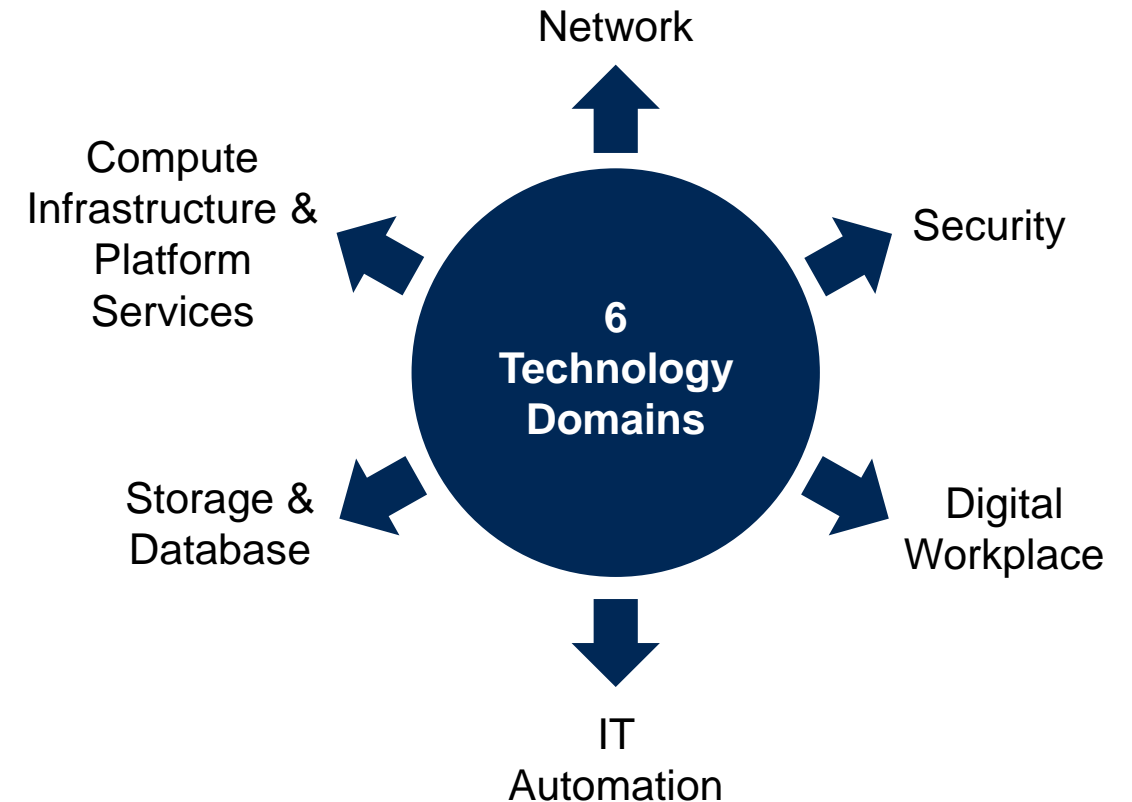
437 Large Enterprises

111 Emerging Technologies

6 Technology Domains

Network

Security

Digital Workplace

IT Automation

Storage & Database

Compute Infrastructure & Platform Services

How Do I Read the Roadmap?

Security Wedge From 2021-2023 Emerging Technology Roadmap
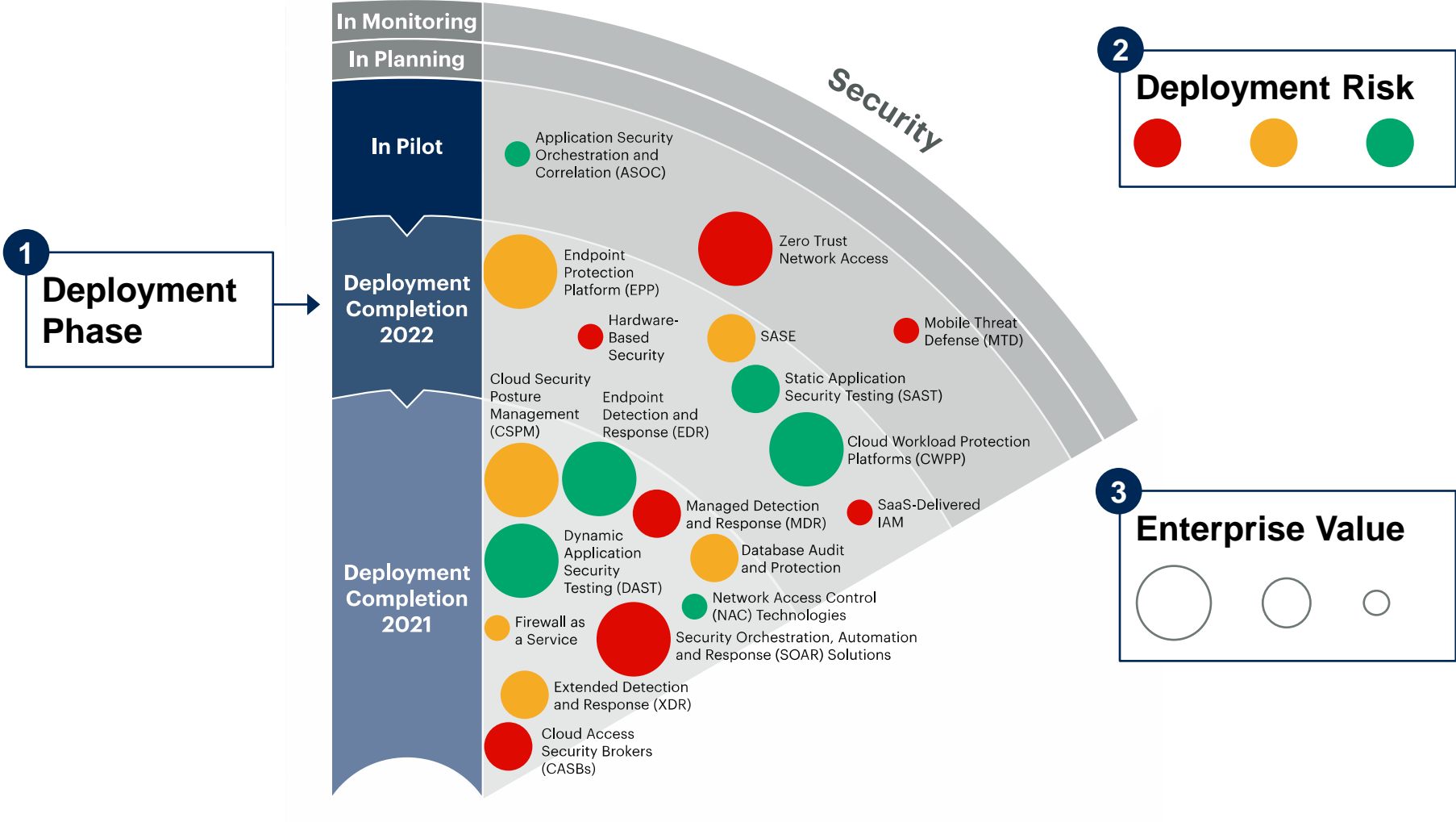
2021-2023 Emerging Technology Roadmap for Large Enterprises

Technologies by Deployment Phase, Value and Risk
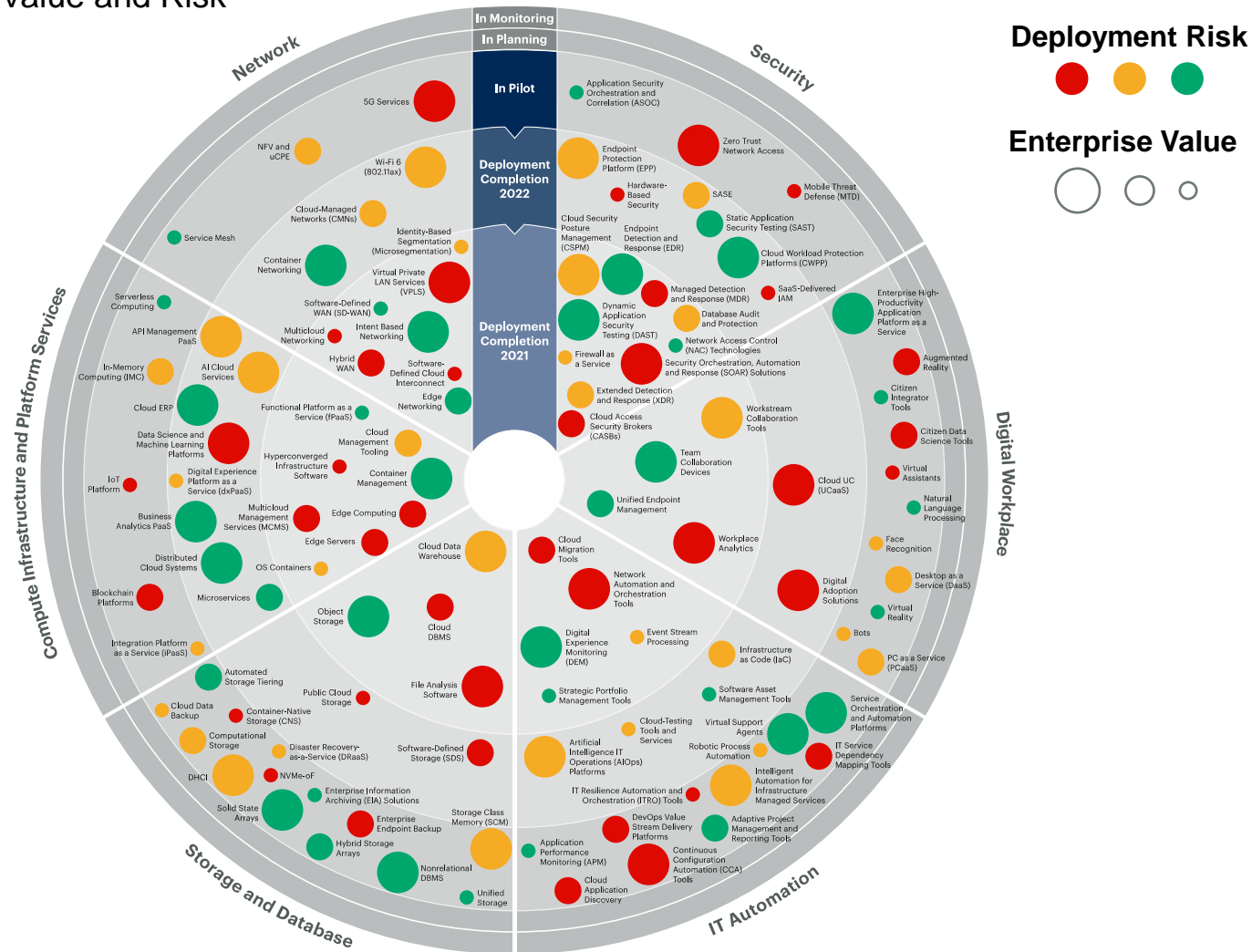
n (global organizations) = 437(2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Roadmap

Introduction ▶ **High-Level Insights** ▶ Trend 1: Enable Business Technologists ▶ Trend 2: Facilitate Anywhere Operations ▶ Trend 3: Optimize IT Investment ▶ Additional Information and Resources
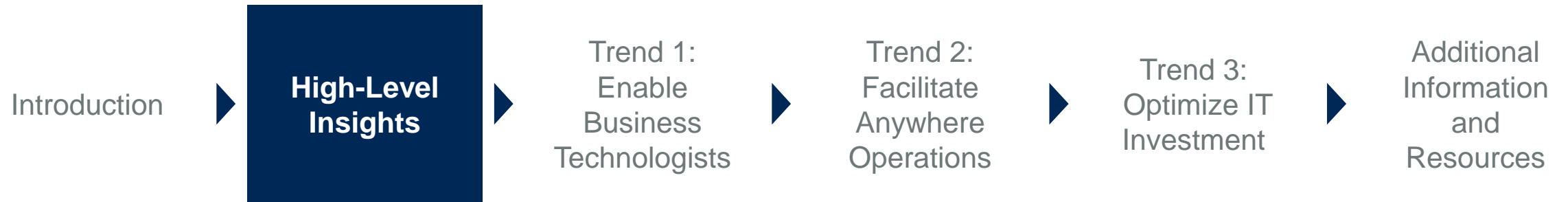
Timelines to Adopt Emerging Technologies Have Shortened

Emerging Technologies by Adoption Stage Since 2020
Percentage of Emerging Technologies
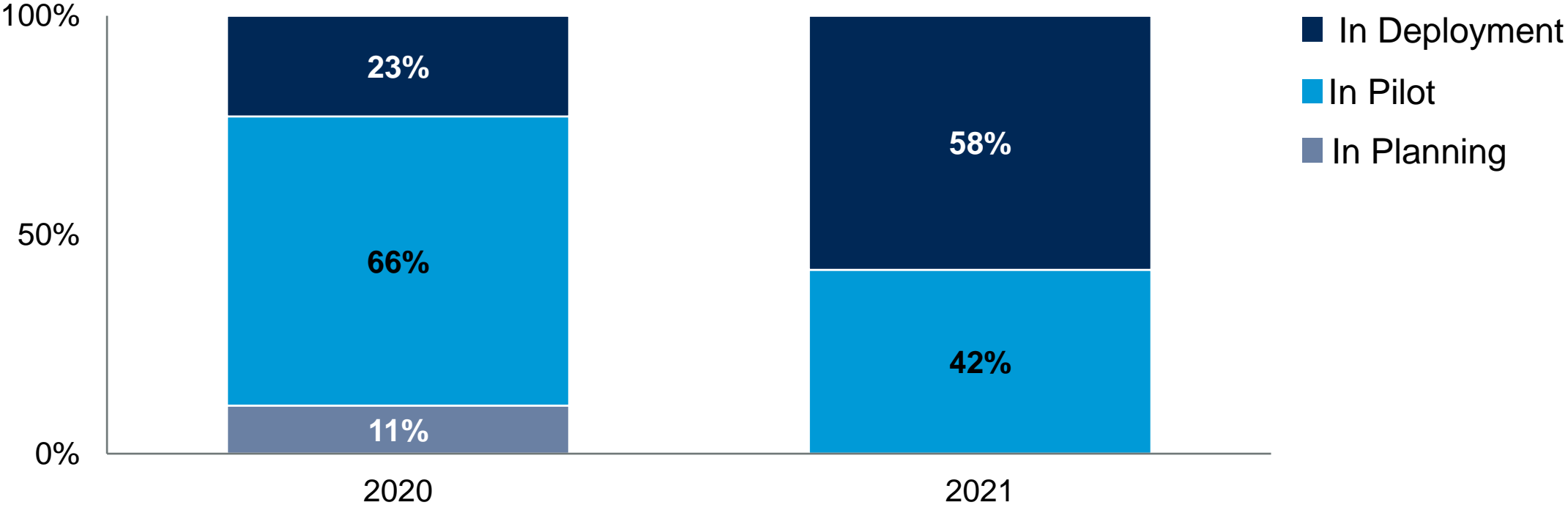
Legend:
- In Deployment
- In Pilot
- In Planning

2020:
- In Deployment: 23%
- In Pilot: 66%
- In Planning: 11%

2021:
- In Deployment: 58%
- In Pilot: 42%

n (global organizations)= 438(2020), 437(2021); n (technologies)= 111(2020), 111(2021)

Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Q: Please indicate the stage that best reflects your organization's adoption plan for each of the technologies: In Monitoring, Planning, Pilot, Deployment and Mainstream.

Creating a Resilient Foundation Is the Primary Business Driver

Primary Value Driver of Technologies in 2021
Percentage of Emerging Technologies

Enables Resilience 64%

Enhances Employee Productivity 23%

Improves Speed and Agility 13%

Others* 0%

n (global organizations) = 437(2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Q: What is/was the primary enterprise value factor associated with the deployment of each technology?

Note: Values may not add up to 100% due to rounding errors.

* "Others" includes increasing cost-efficiency and increases revenue through improved products and/or services.

Talent Shortage Is the #1 Risk for Technology Adoption

Talent Availability as a Risk Factor for Emerging Technologies in 2020 and 2021
Percentage of Emerging Technologies

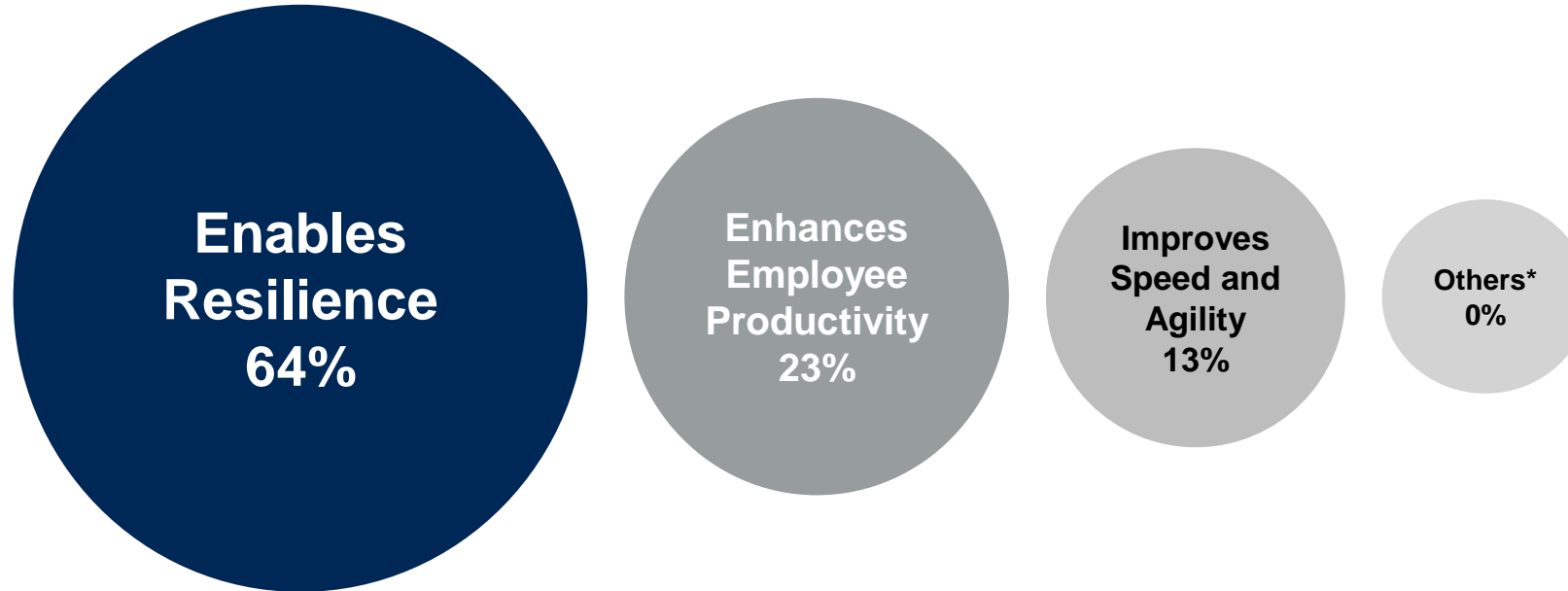n (global organizations)= 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)

Source: Gartner 2020-2022 and Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Q: What is/was the primary enterprise risk factor associated with the deployment of each technology that would act as a barrier to implementation based on the following options: Marketplace/ vendor maturity, Architecture fit/ complexity, Security risk, Talent availability, Implementation cost, Regulatory compliance challenges, and Disruption to existing processes and service.

Emerging Technology Adoption Trends

Analysis of Key Trends From the 2021-2023 Emerging Technology Roadmap
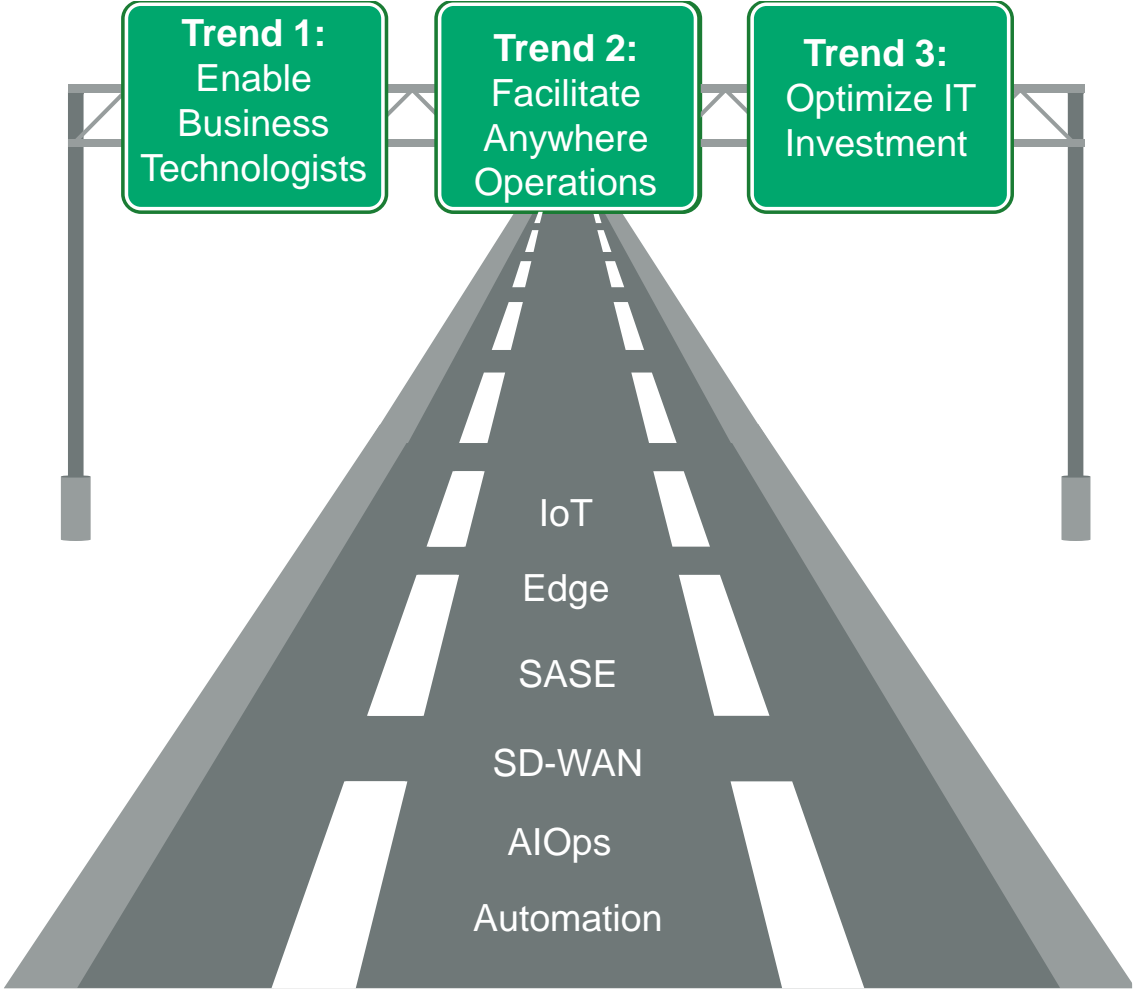
Trend 1: Enable Business Technologists

Trend 2: Facilitate Anywhere Operations

Trend 3: Optimize IT Investment

IoT

Edge

SASE

SD-WAN

AIOps

Automation

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

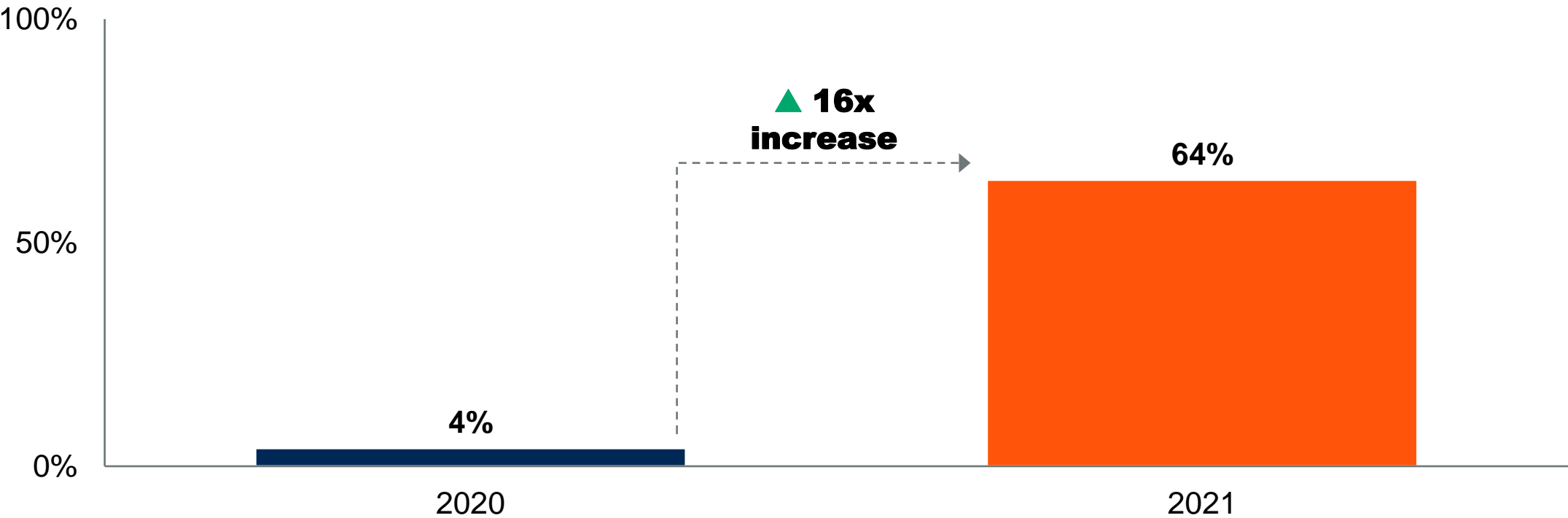Source: Gartner 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Roadmap

Introduction ▶ High-Level Insights ▶ **Trend 1: Enable Business Technologists** ▶ Trend 2: Facilitate Anywhere Operations ▶ Trend 3: Optimize IT Investment ▶ Additional Information and Resources

Most Technologists Now Work Outside of IT

Breakdown of Technology Workers Across the Organization

6%
Business
Unit IT Staff[a]

4%
IT Staff Reporting
to CIO[b]

49%
Technology
"End Users"

41%
Business
Technologists

Business technologists:
Employees who report
outside of IT departments
and create technology or
analytics capabilities for
work.
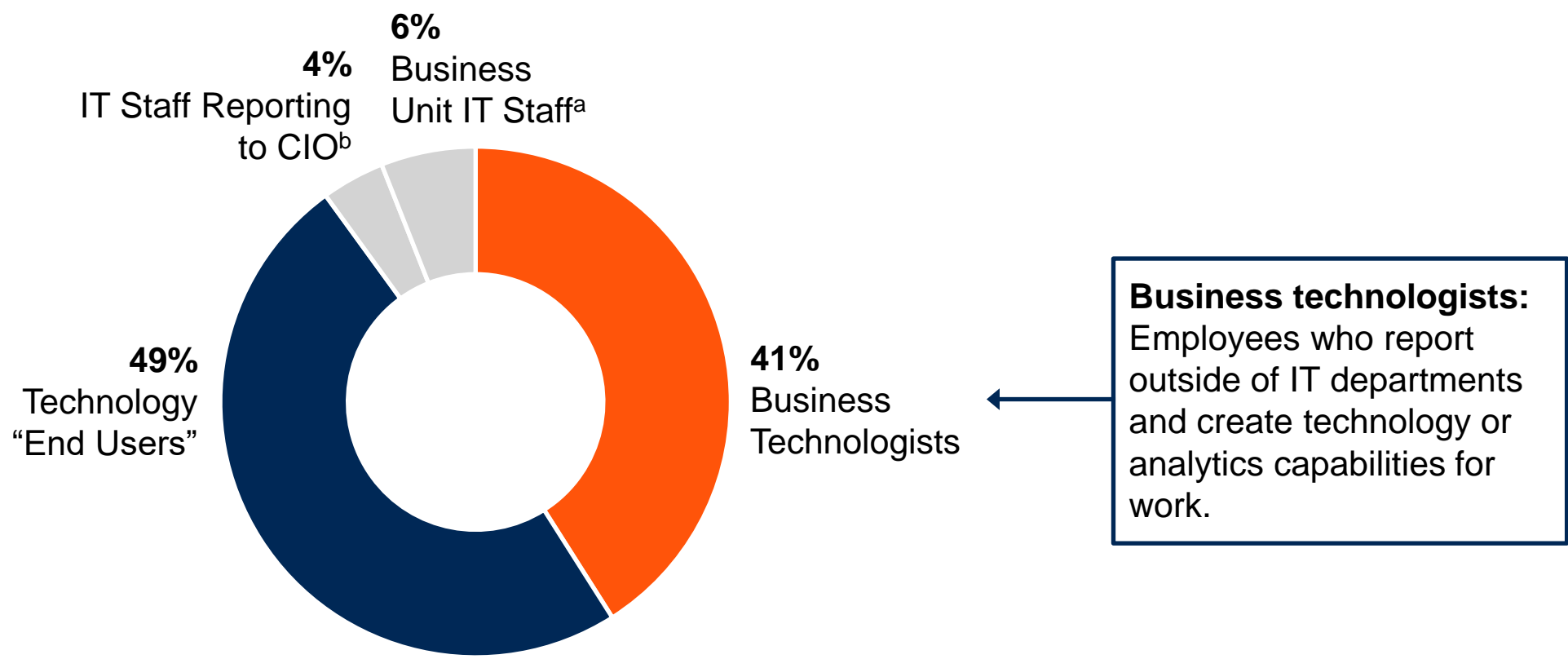
n = 11,848 employees across the entire workforce

Self-Service Delivery is in Focus (Continued)

Select Emerging Technologies From the 2021-2023 Emerging Technology Roadmap for Large Enterprises

Self-Service Delivery Using…	Platform as a Service
In Deployment	• API Management PaaS • Digital Experience Platform as a Service • Functional Platform as a Service

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Self-Service Delivery is in Focus

Select Emerging Technologies From the 2021-2023 Emerging Technology Roadmap for Large Enterprises

Self-Service Delivery Using…	Platform as a Service	Software as a Service
In Deployment	• API Management PaaS • Digital Experience Platform as a Service • Functional Platform as a Service	• Firewall as a Service • SaaS-delivered IAM • Cloud Unified Communications

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Data and Analytics Technologies Deployed for Business and IT

Select Data and Analytics Technologies From the 2021-2023 Emerging Technology Roadmap For Large Enterprises
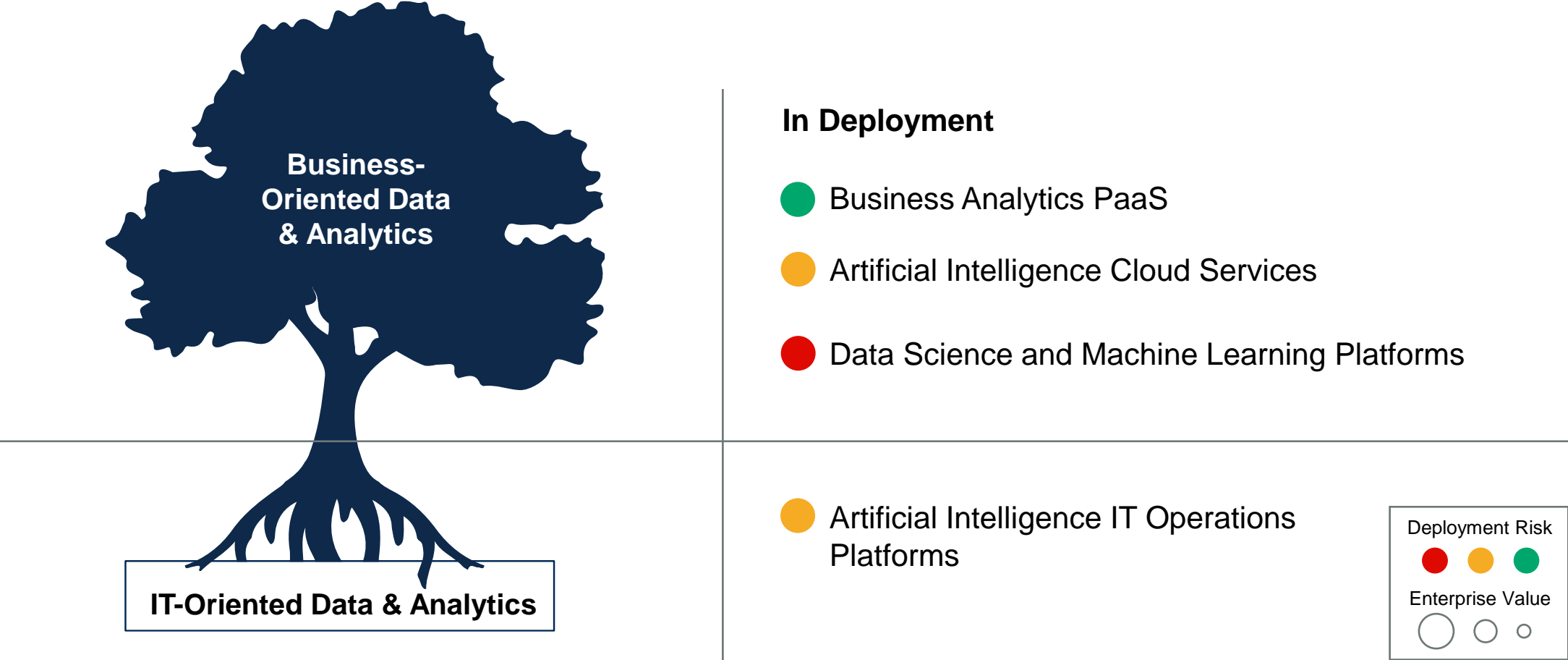
Business-Oriented Data & Analytics

IT-Oriented Data & Analytics

In Deployment

🟢 Business Analytics PaaS

🟡 Artificial Intelligence Cloud Services

🔴 Data Science and Machine Learning Platforms

🟡 Artificial Intelligence IT Operations Platforms

Deployment Risk
🔴 🟡 🟢

Enterprise Value
⬤ ◯ ○

n (global organizations) = 437 (2021); n (technologies) = 111(2021)
Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Cloud Management Technologies to Support a Complex Environment

Deployment Phases of Select Cloud Technologies in 2020-2022 and 2021-2023 Emerging Technology Roadmaps
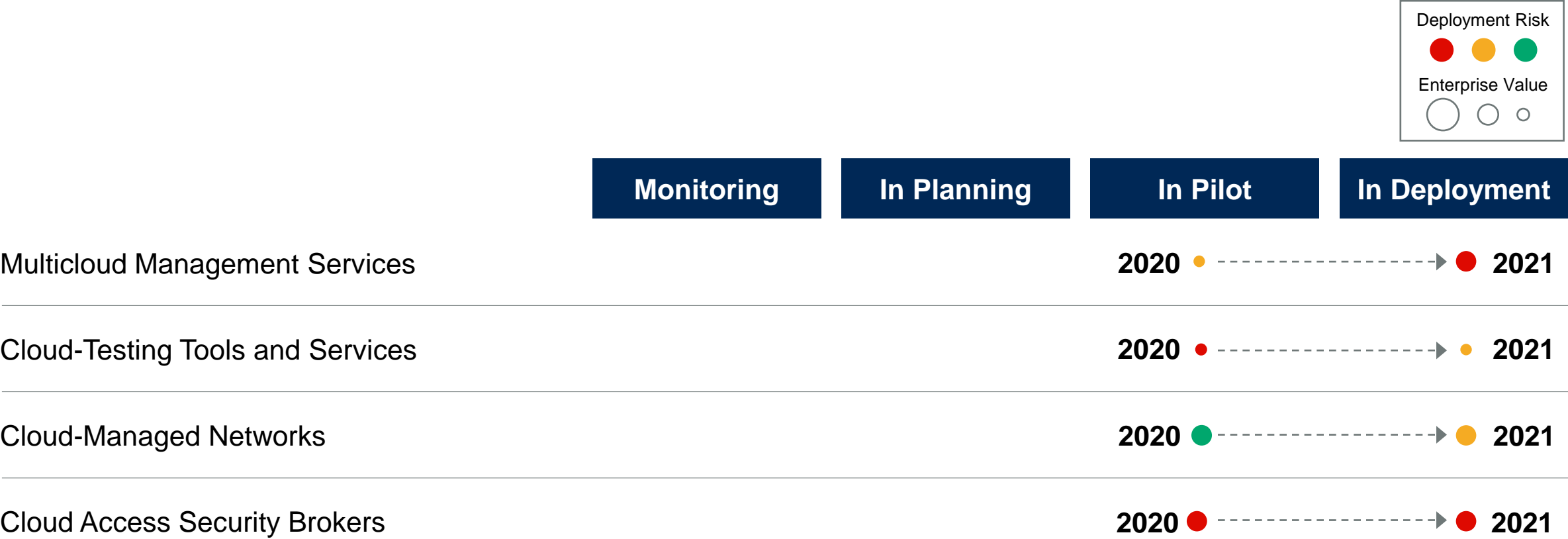
Deployment Risk
🔴 🟡 🟢

Enterprise Value
⚪ ⚪ ⚪

	Monitoring	**In Planning**	**In Pilot**	**In Deployment**
Multicloud Management Services			**2020** 🟡 ┈┈┈→	🔴 **2021**
Cloud-Testing Tools and Services			**2020** 🔴 ┈┈┈→	🟡 **2021**
Cloud-Managed Networks			**2020** 🟢 ┈┈┈→	🟡 **2021**
Cloud Access Security Brokers			**2020** 🔴 ┈┈┈→	🔴 **2021**

n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)
Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Enable Business Technologists: Three Key Trends

**Trend 1:
Enable Business Technologists**

Increase Self-Service Delivery	Enable Data & Analytics Capabilities	Invest in Cloud Management to Support a Complex Environment

Source: Gartner

Roadmap

Introduction ▶ High-Level Insights ▶ Trend 1: Enable Business Technologists ▶ **Trend 2: Facilitate Anywhere Operations** ▶ Trend 3: Optimize IT Investment ▶ Additional Information and Resources

Enterprises Expect Resilient and Secure Anywhere Operations
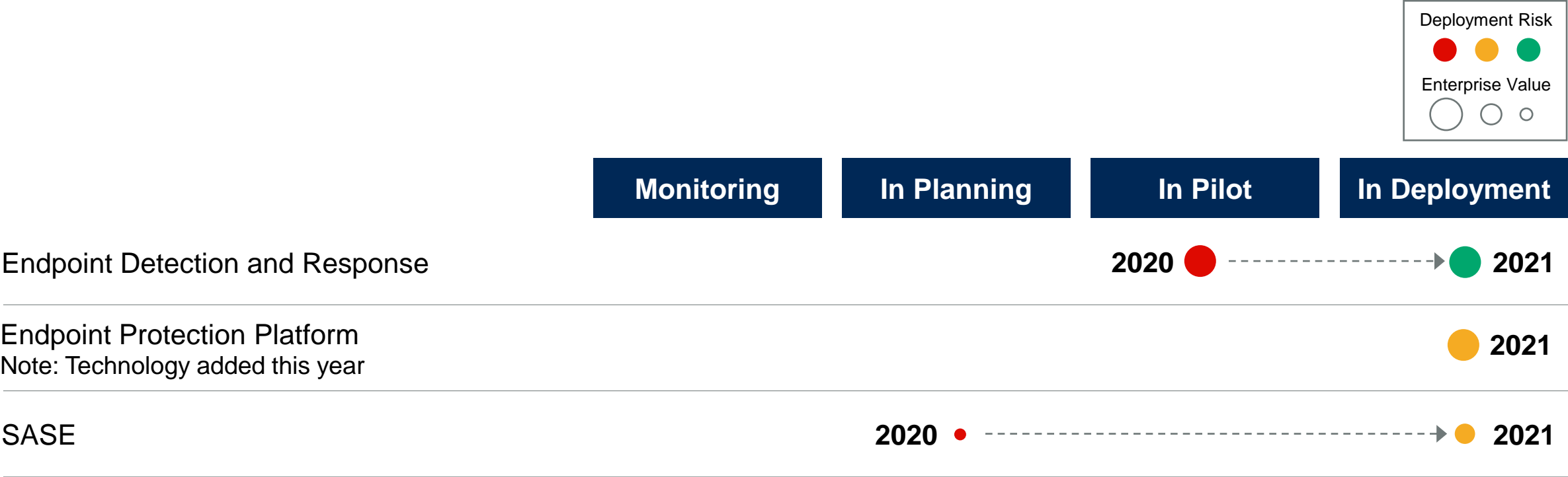
Anywhere Operations Model for the Enterprise
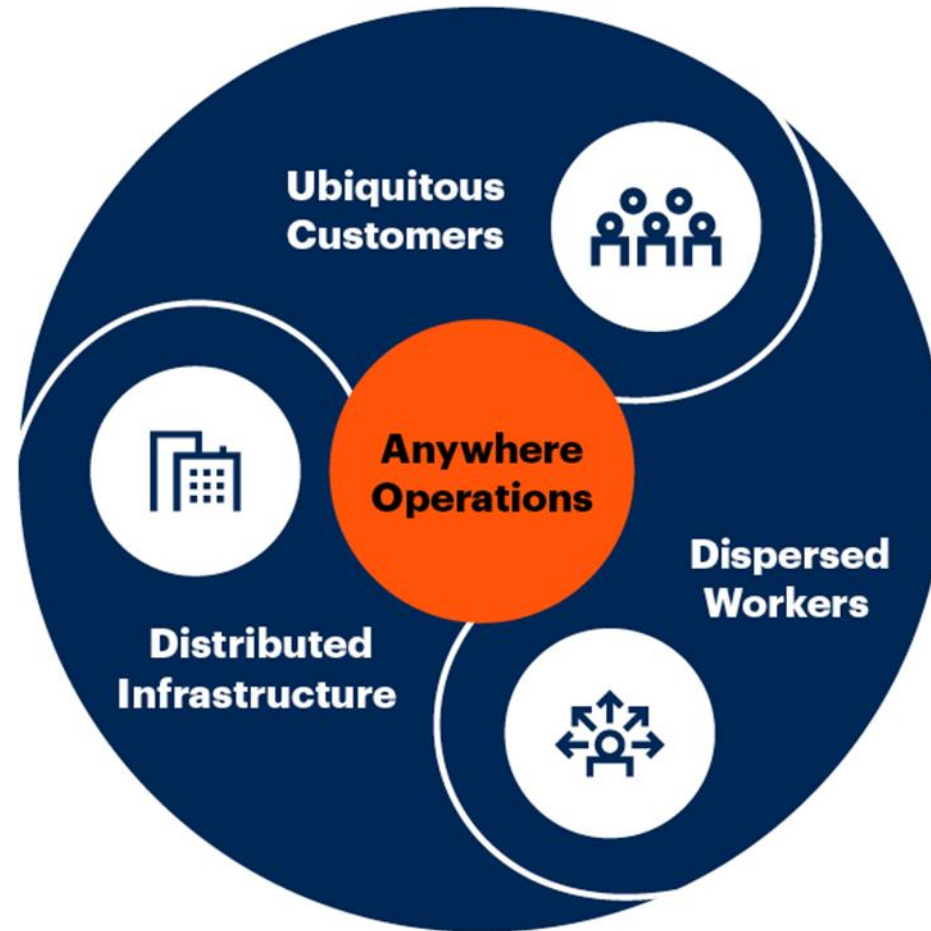
Focus on Securing Access Points Across Service Boundaries

Deployment Phases of Select Security Technologies in 2020-2022 and 2021-2023 Emerging Technology Roadmaps

Deployment Risk
🔴 🟡 🟢

Enterprise Value
⭕ ⭕ ◦

	Monitoring	In Planning	In Pilot	In Deployment
Endpoint Detection and Response			2020 🔴 - - - →	🟢 2021
Endpoint Protection Platform Note: Technology added this year				🟡 2021
SASE	2020 🔴 - - -	- - - - - - - →		🟡 2021

n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)

Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Swift Deployment of Emerging Network Technologies

Deployment Phases of Network Emerging Technologies in the 2021-2023 Emerging Technology Roadmap

In Monitoring

In Planning

In Pilot

Deployment Completion 2022

Deployment Completion 2021

Network

5G Services

NFV and uCPE

Wi-Fi 6 (802.11ax)

Cloud-Managed Networks (CMNs)

Identity-Based Segmentation (Microsegmentation)

Service Mesh

Container Networking

Virtual Private LAN Services (VPLS)

Software-Defined WAN (SD-WAN)

Multicloud Networking

Intent Based Networking

Hybrid WAN

Software-Defined Cloud Interconnect

Edge Networking

Organizations expect to **fully adopt 57%** of all emerging technologies in the network domain by 2021, **the highest deployment rate in 2021** among the six technology modules.

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

An Edge Infrastructure Base Created in 2021

Edge Technologies Included in the 2021-2023 Emerging Technology Roadmap
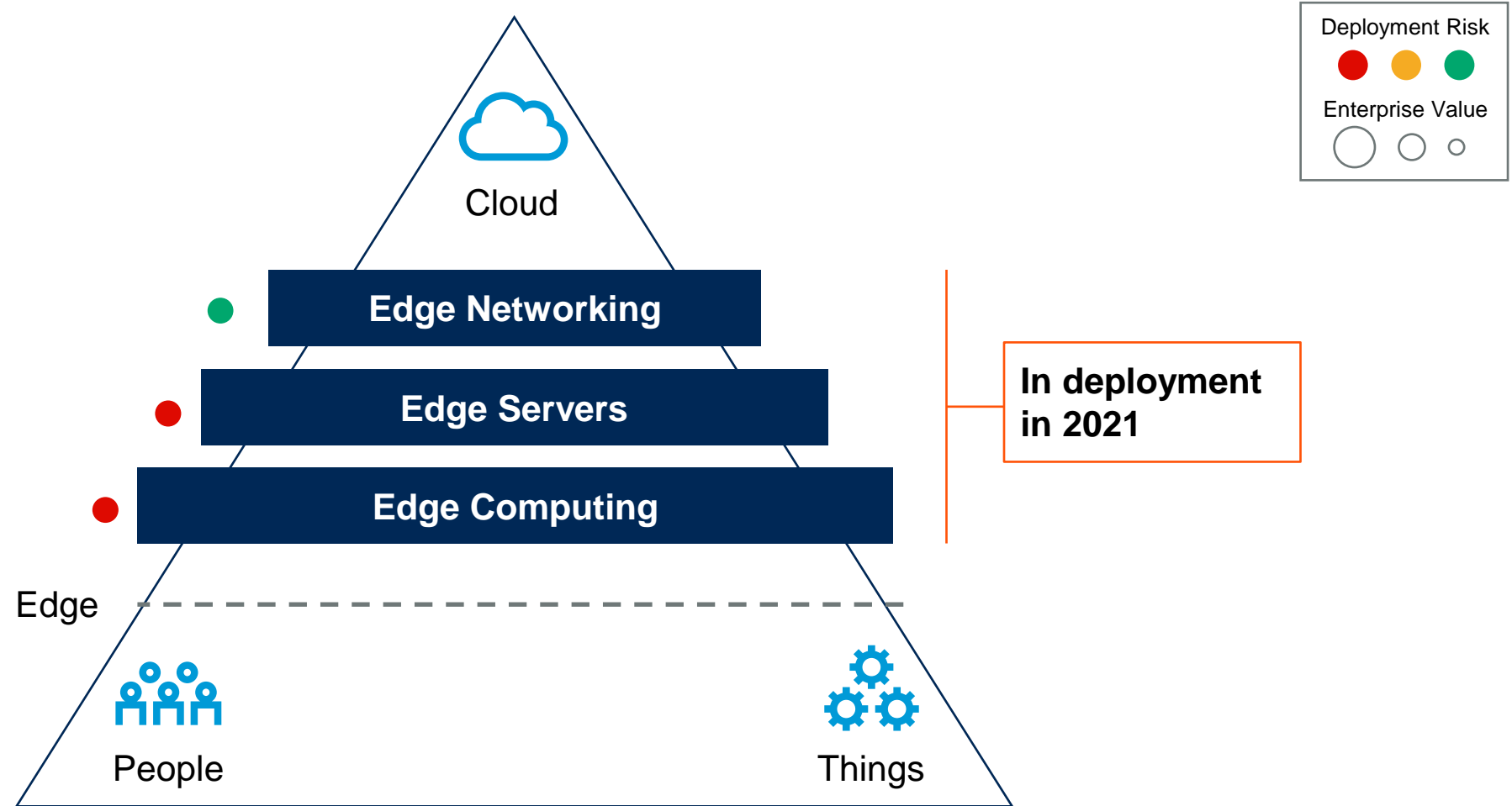
n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises
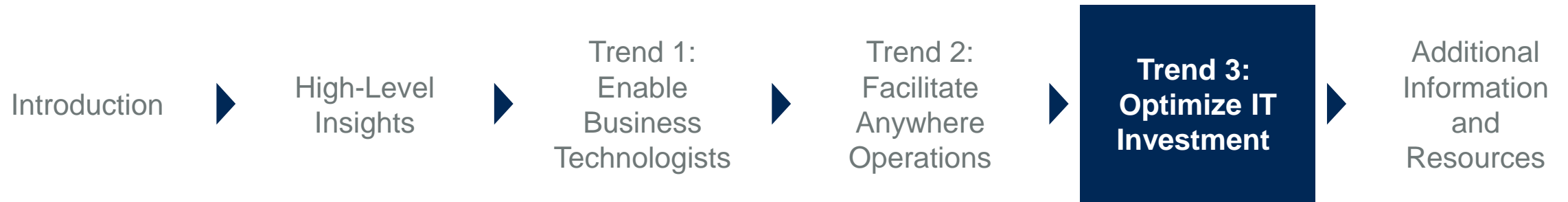
Anywhere Operations: Three Key Trends

**Trend 2:
Facilitate Anywhere Operations**
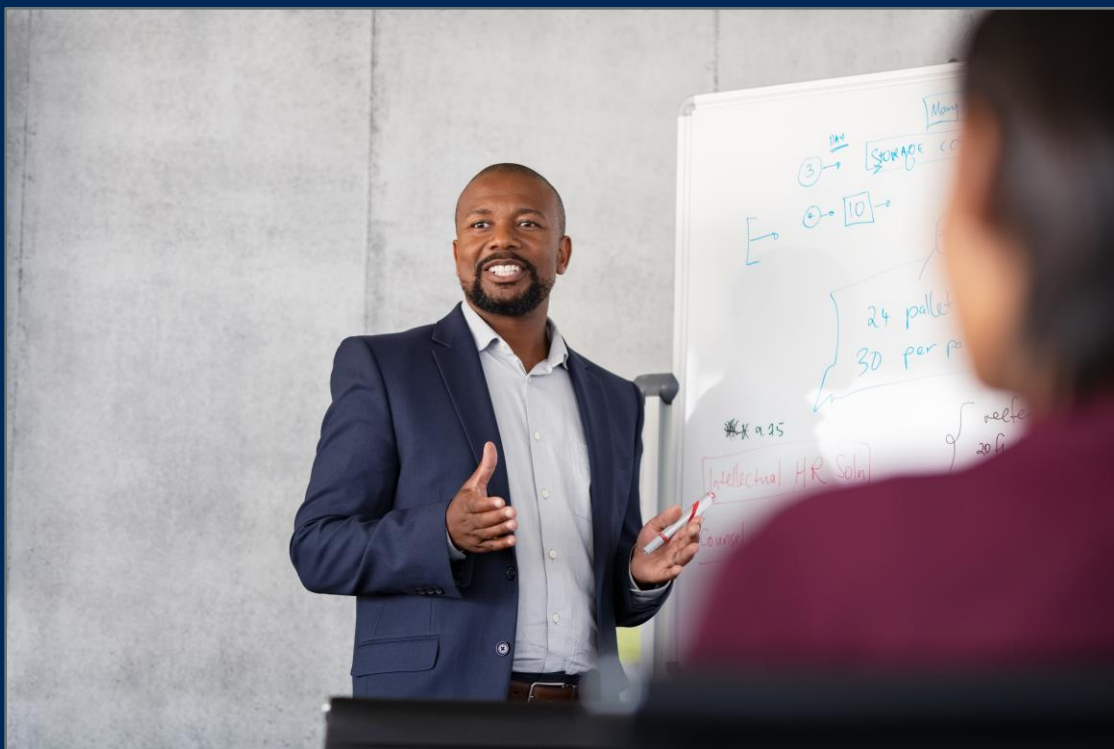
Focus on Securing Access Points

Reshape Networks for a distributed environment

Focus on Edge Infrastructure

Roadmap

Introduction ▶ High-Level Insights ▶ Trend 1: Enable Business Technologists ▶ Trend 2: Facilitate Anywhere Operations ▶ **Trend 3: Optimize IT Investment** ▶ Additional Information and Resources
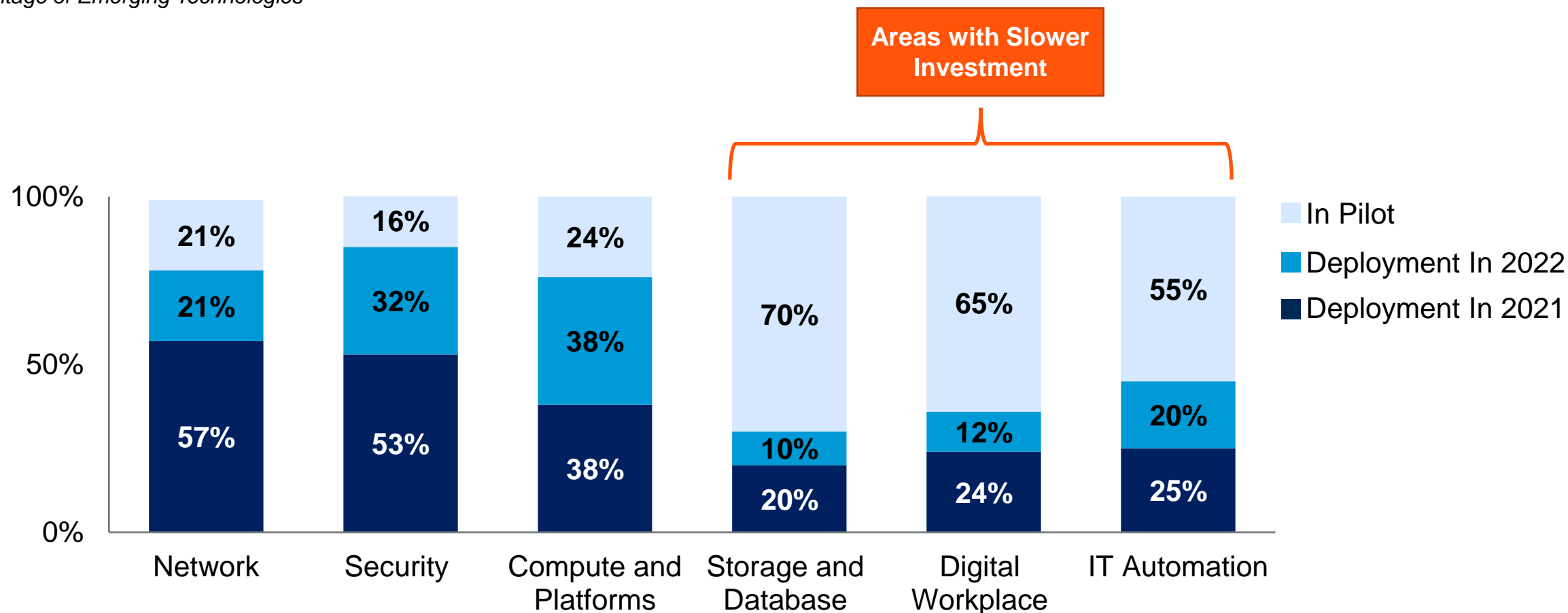
"You have to be smart about the technologies you bring in. **Not all of them are ready for prime time.**"

Vice President, Architecture, Engineering and Operations at a Financial Services corporation

Source: Gartner

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Areas of Slower Emerging Technology Adoption in 2021

Deployment Phases of Emerging Technologies in 2021
Percentage of Emerging Technologies

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Note: Values may not add up to 100% due to rounding errors.

Storage and Database Technology Adoption Slows in 2021

Deployment Phases for Storage and Database Emerging Technologies in the 2021-2023 Emerging Technology Roadmap

70% of all the emerging technologies in the storage and database domain are in pilot in 2021, the highest proportion of emerging technologies in pilot across all six domains.

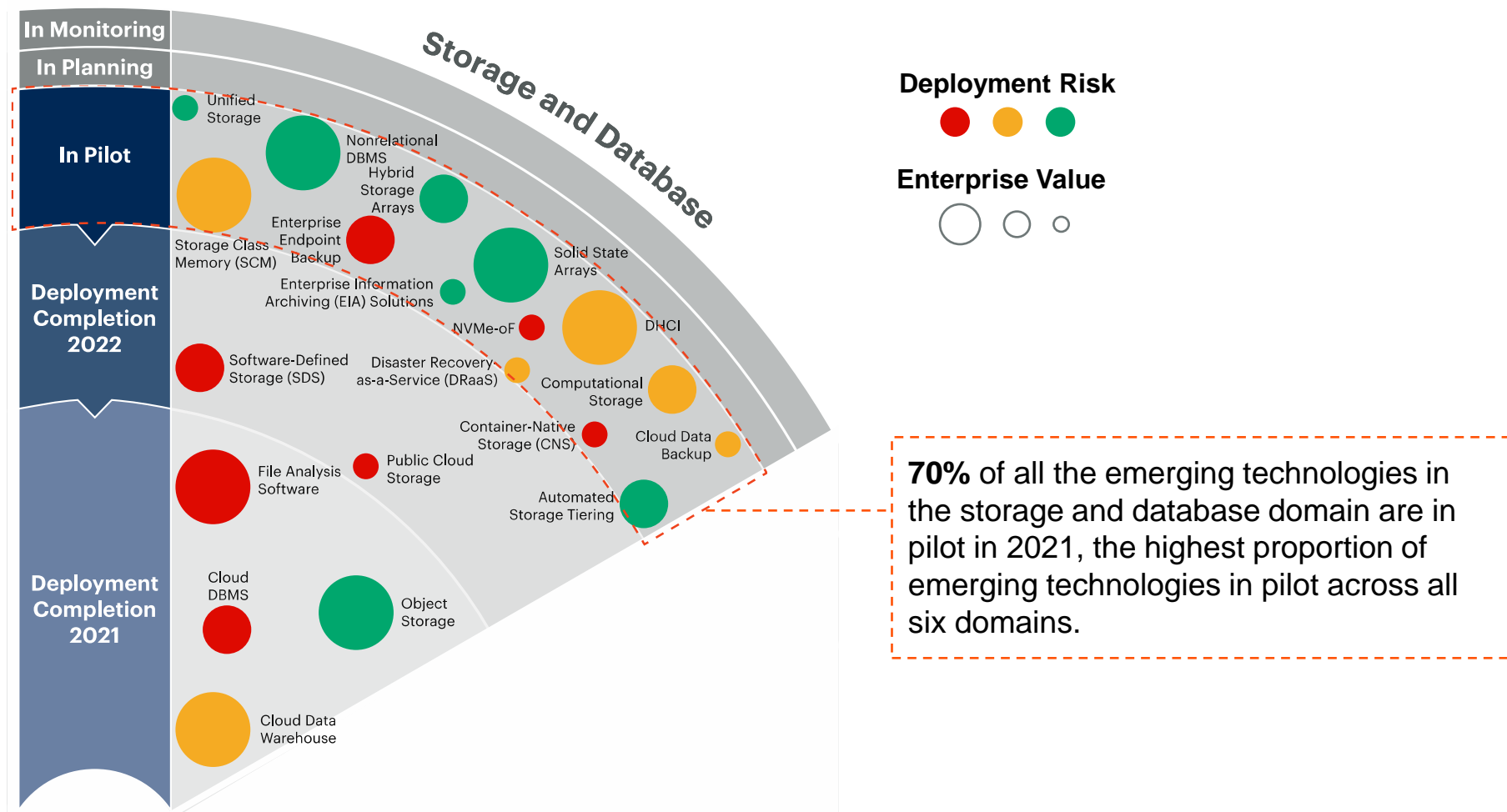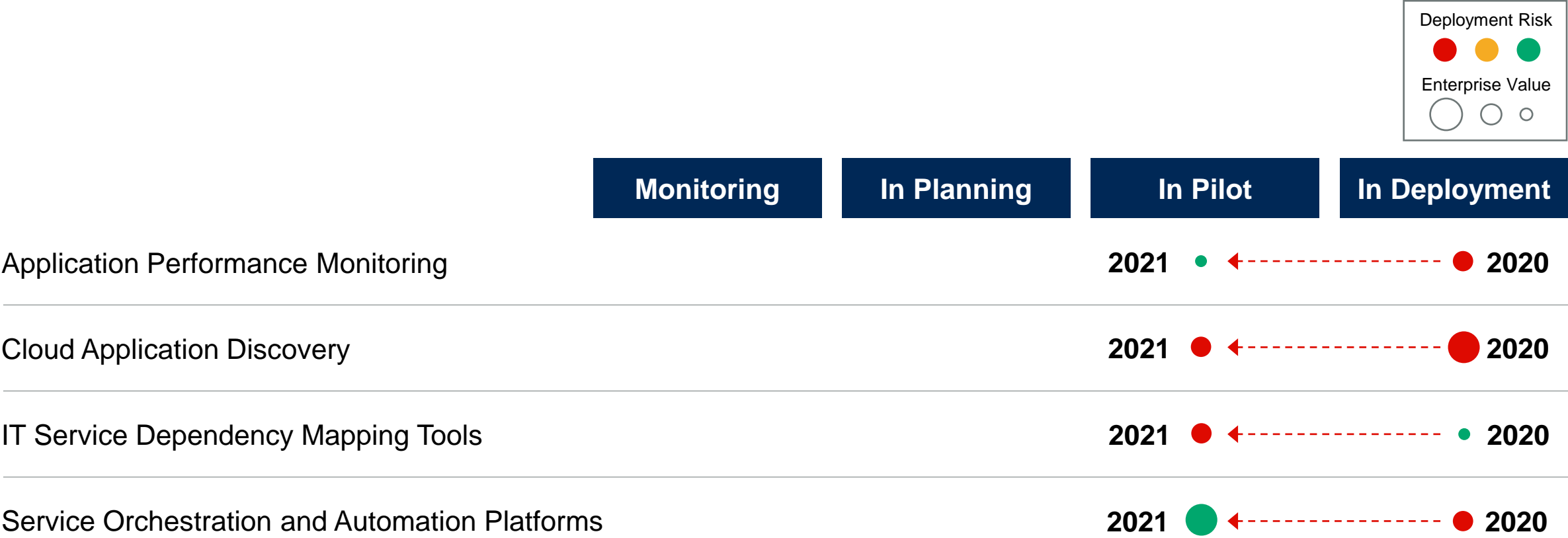n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

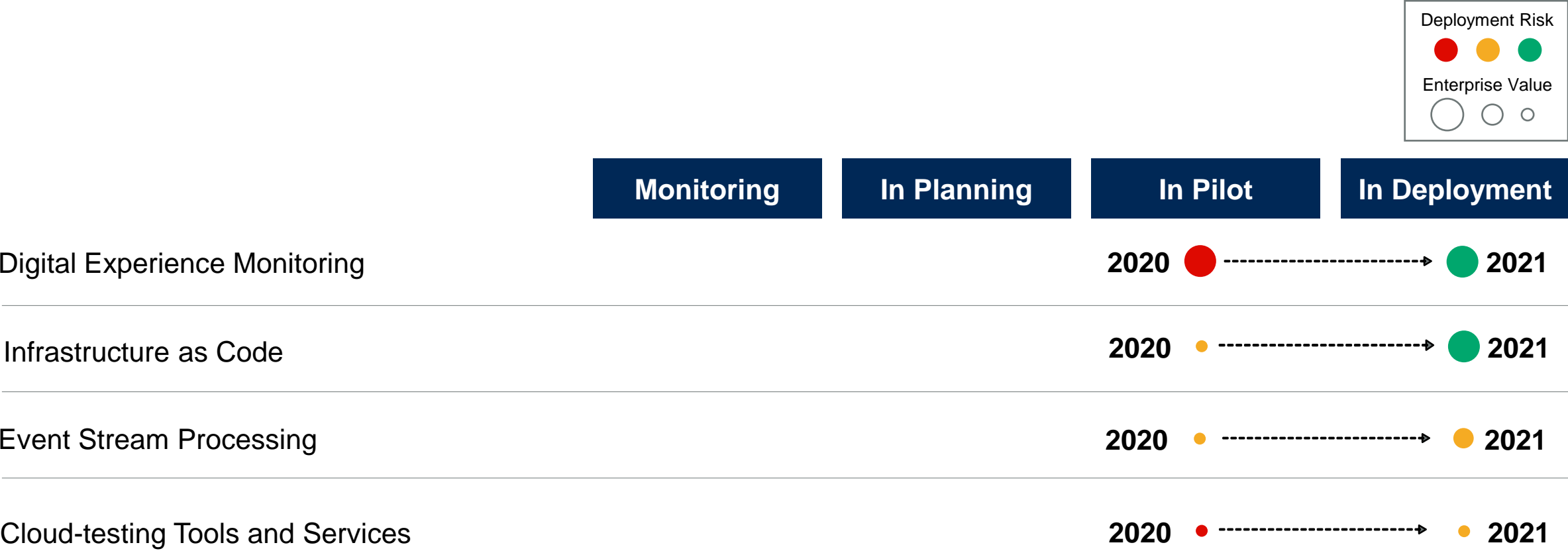# Certain IT Automation Emerging Technologies Move Back in Adoption

Deployment Phases for IT Automation Technologies on the Roadmap That Moved Back a Stage Since 2020

Deployment Risk
🔴 🟡 🟢

Enterprise Value
◯ ◯ ◦

	Monitoring	In Planning	In Pilot	In Deployment
Application Performance Monitoring			**2021** 🟢 ←------------ 🔴 **2020**	
Cloud Application Discovery			**2021** 🔴 ←------------ 🔴 **2020**	
IT Service Dependency Mapping Tools			**2021** 🔴 ←------------ 🟢 **2020**	
Service Orchestration and Automation Platforms			**2021** 🟢 ←------------ 🔴 **2020**	

n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)
Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Deployment of IT Automation Technologies Focused on Customer Experience

Deployment Phases for IT Automation Technologies on the Roadmap That Moved Forward a Stage Since 2020

Deployment Risk
🔴 🟡 🟢

Enterprise Value
◯ ◯ ◦

	Monitoring	In Planning	In Pilot	In Deployment
Digital Experience Monitoring			**2020** 🔴 --------→	🟢 **2021**
Infrastructure as Code			**2020** 🟡 --------→	🟢 **2021**
Event Stream Processing			**2020** 🟡 --------→	🟡 **2021**
Cloud-testing Tools and Services			**2020** 🔴 --------→	🟡 **2021**

n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)
Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises
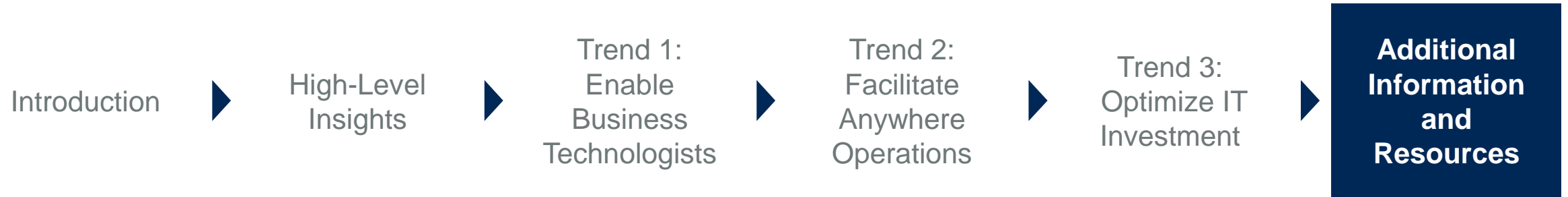
Optimize IT Investment: Two Key Trends

**Trend 3:
Optimize IT Investment**
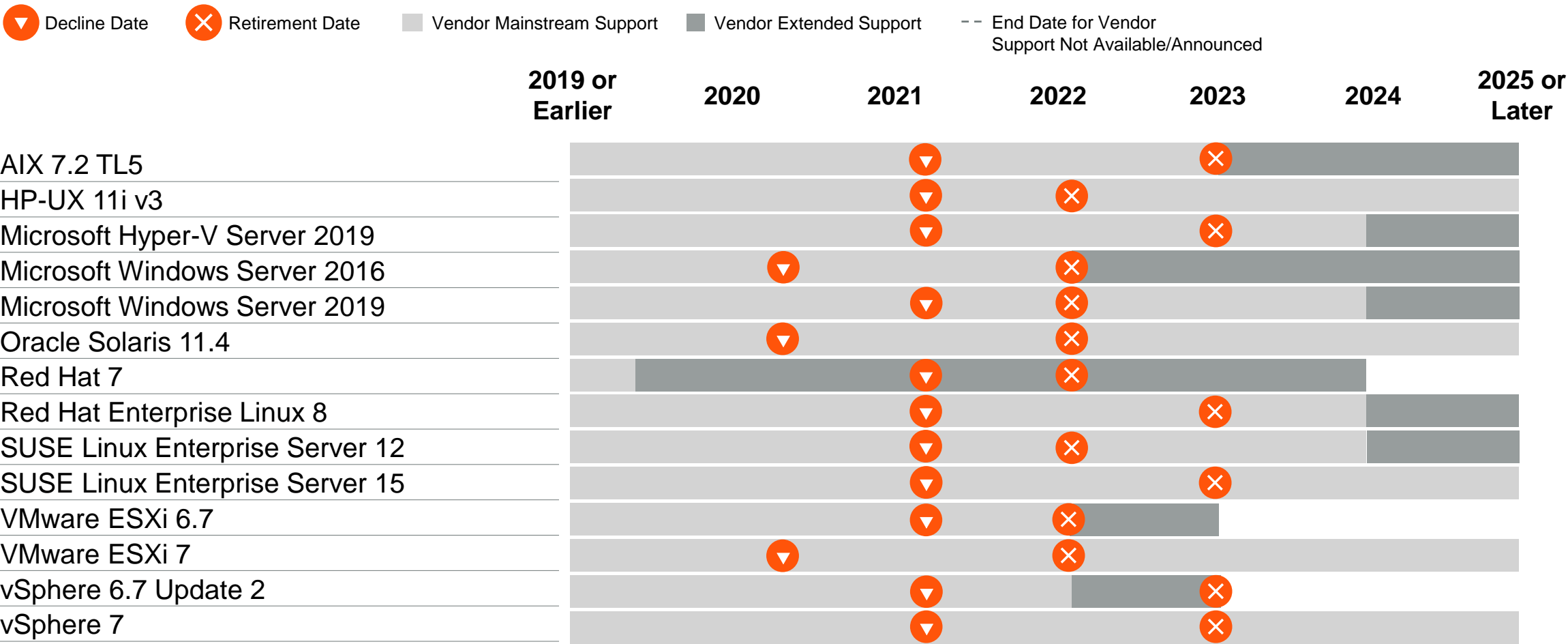
Rationalize Current Storage and Database Technologies

Selectively Adopt IT Automation Technologies

Source: Gartner

Roadmap

Introduction ▶ High-Level Insights ▶ Trend 1: Enable Business Technologists ▶ Trend 2: Facilitate Anywhere Operations ▶ Trend 3: Optimize IT Investment ▶ **Additional Information and Resources**

2021 Technical Debt Reduction Roadmap

The 2021 Technical Debt Reduction Roadmap Shows Retirement Plans for 63 Key Technologies Across 6 Domains

▽ Decline Date   ✕ Retirement Date   ▢ Vendor Mainstream Support   ▢ Vendor Extended Support   - - End Date for Vendor Support Not Available/Announced

	2019 or Earlier	2020	2021	2022	2023	2024	2025 or Later
AIX 7.2 TL5			▽		✕		
HP-UX 11i v3			▽	✕			
Microsoft Hyper-V Server 2019			▽		✕		
Microsoft Windows Server 2016		▽		✕			
Microsoft Windows Server 2019			▽	✕			
Oracle Solaris 11.4		▽		✕			
Red Hat 7			▽	✕			
Red Hat Enterprise Linux 8			▽		✕		
SUSE Linux Enterprise Server 12			▽	✕			
SUSE Linux Enterprise Server 15			▽		✕		
VMware ESXi 6.7			▽	✕			
VMware ESXi 7		▽		✕			
vSphere 6.7 Update 2			▽		✕		
vSphere 7			▽		✕		

n = 109 organizations

Source: 2021-2023 Gartner Emerging Technology Roadmap for Large Enterprises and Vendor Websites

Note: I&O leaders can use this report to benchmark their organization's technology retirement plans with that of their peers.

2021 IT Skills Roadmap

IT Talent Quadrant
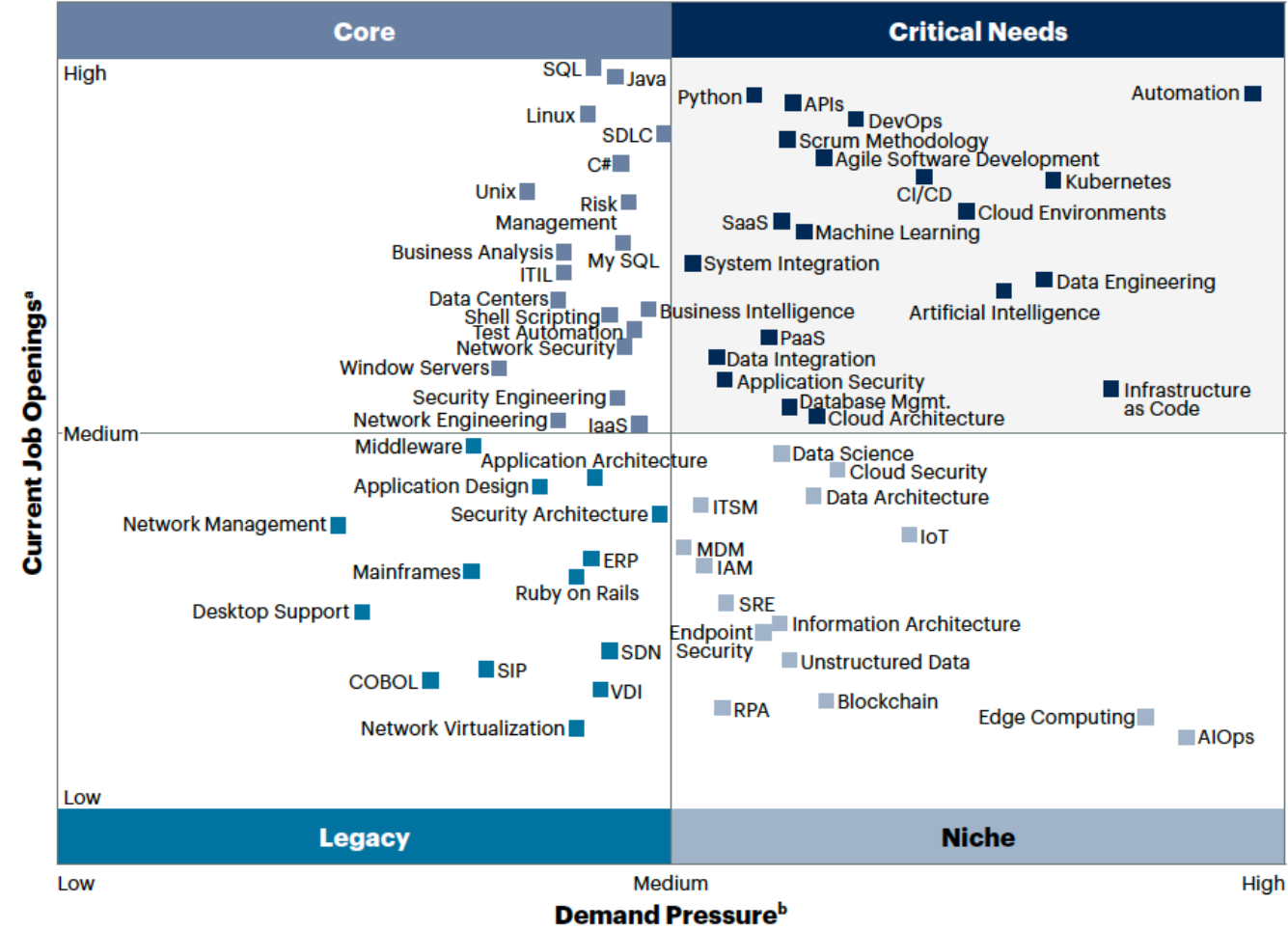
Key Takeaways From the 2021-2023 Emerging Technology Roadmap

Emerging Technology Adoption Trends in 2021

Enable Business Technologists

- Increase Self-Service Delivery
- Enable Data & Analytics Capabilities
- Invest in Cloud Management

Facilitate Everywhere Operations

- Focus on Securing Access Points
- Reshape Networks for a distributed environments
- Focus on Edge Infrastructure

Optimize IT Investment

- Rationalize Current Storage and Database Technologies
- Selectively Adopt IT Automation Technologies

n (global organizations) = 437(2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

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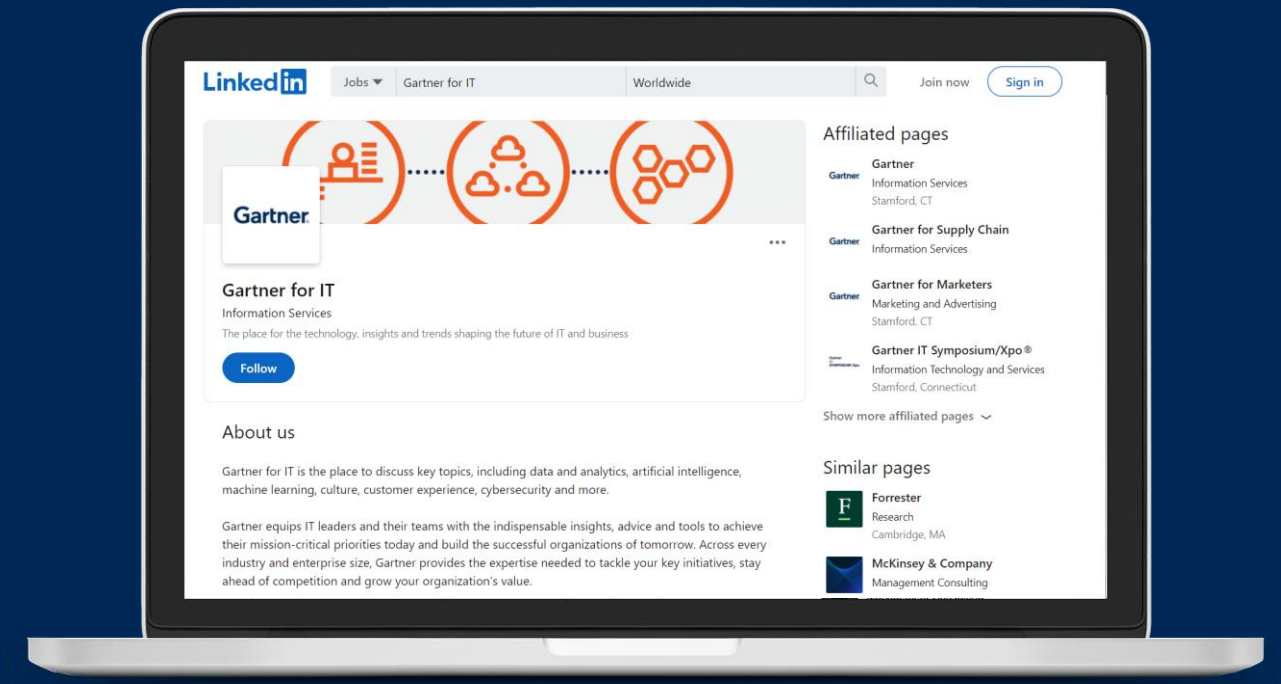**View the global Gartner conference calendar at:**
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2021-2023 Emerging Technology Roadmap

Benchmark your postpandemic emerging technology adoption plans across organizations

Download the Roadmap

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Russell Morris
CIO, TransGrid

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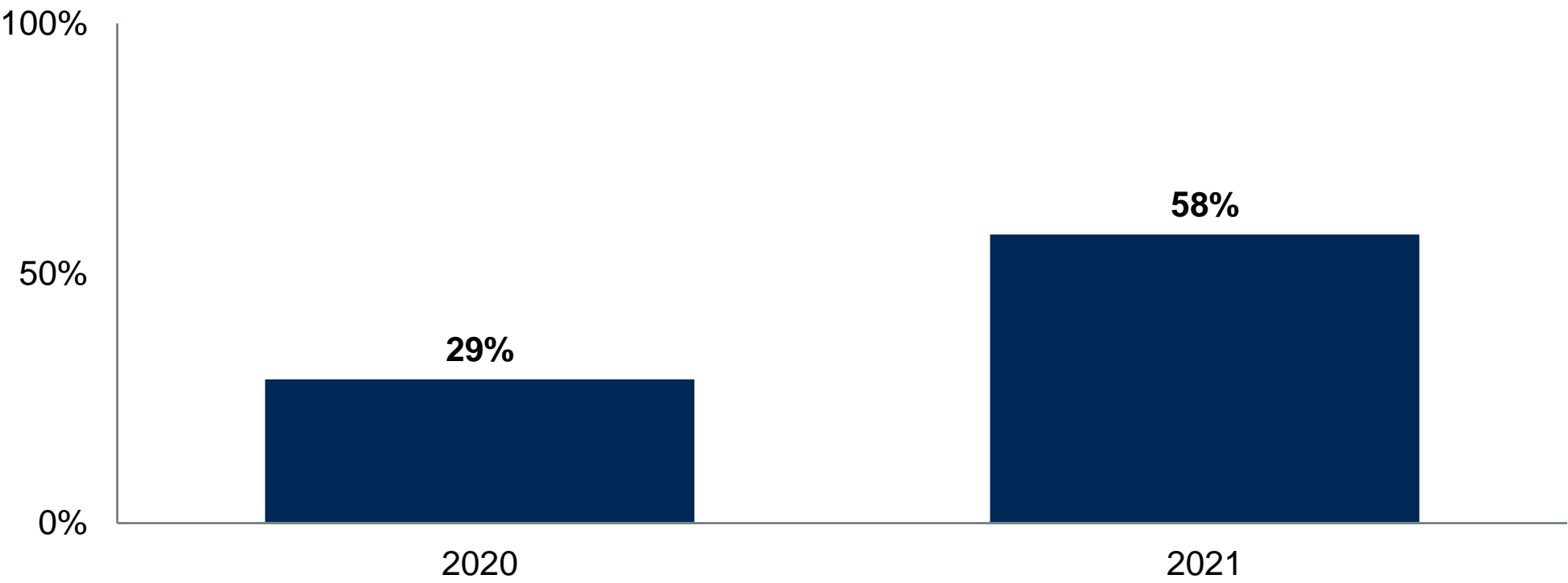
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Appendix

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Emerging Technology Investment Accelerated in 2021

Investment Plans of Organizations Across the Six Modules in the 2020-2022 and 2021-2023 Emerging Technology Roadmaps

Percentage of Respondents Increasing Investments / Planning to Increase Investments

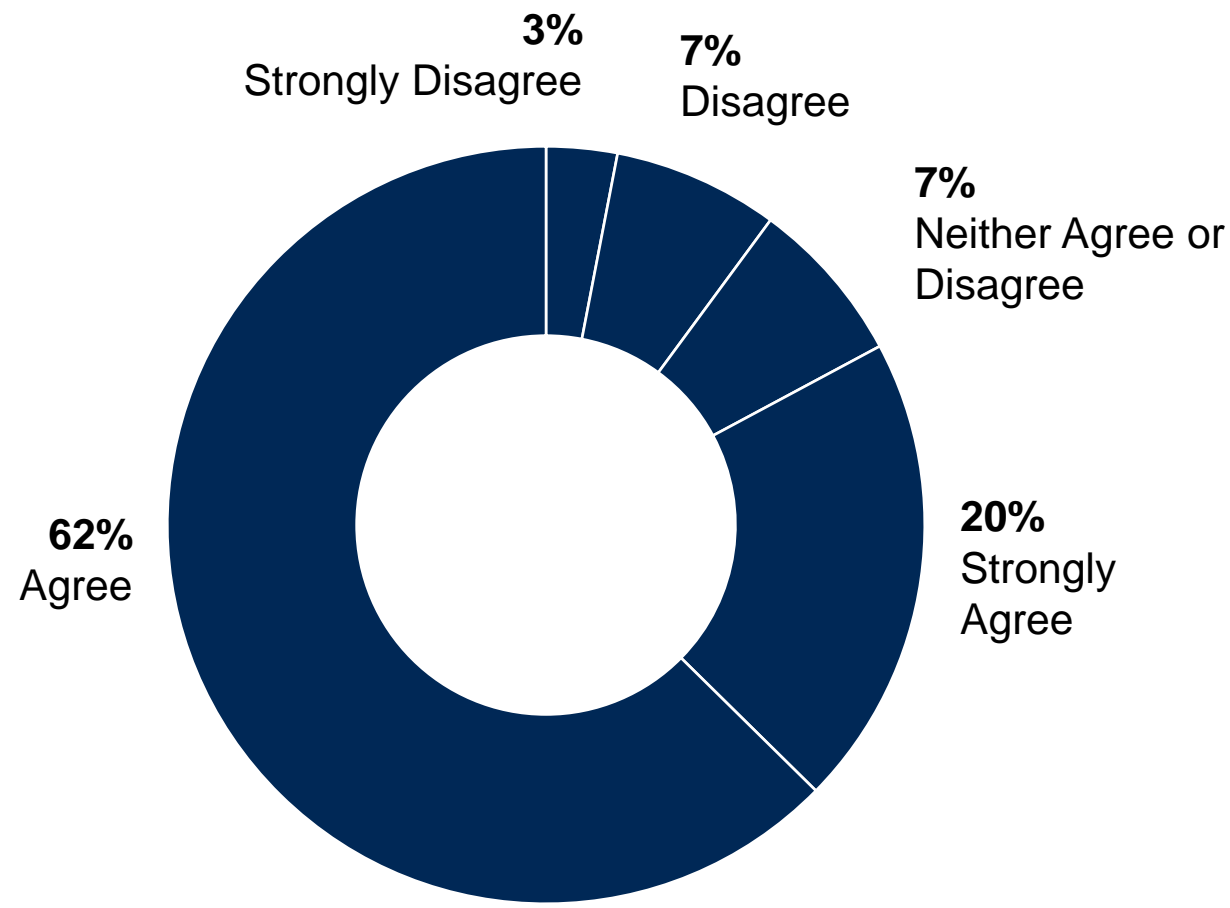n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)

Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises

Q (2020): How have your company's technology investment plans changed in 2020 in response to COVID-19 and the economic impact?; Q.(2021): How has your organization's technology investment plans changed or will change in Y2021 as compared to Y2020?

I&O's Customers Outside of IT Majorly Own Emerging Technology Adoption

Technology Adoption Decisions Across the Six Modules Being Owned or Influenced by Decision Makers Outside of IT
*Percentage of Respondents*

3%
Strongly Disagree

7%
Disagree

7%
Neither Agree or Disagree

20%
Strongly Agree

62%
Agree

n (global organizations) = 437 (2021); n (technologies) = 111(2021)

Source: Gartner 2021-2023 Emerging Technology Roadmap for Large Enterprises

Q: To what extent do you disagree or agree with the following statement: Technology adoption decisions related to the 6 Domains are increasingly being owned or influenced by decision makers outside IT

Strong Rise in the Deployment of Security Emerging Technologies

Deployment Stages of Security Technologies since 2019
Percentage of Technologies
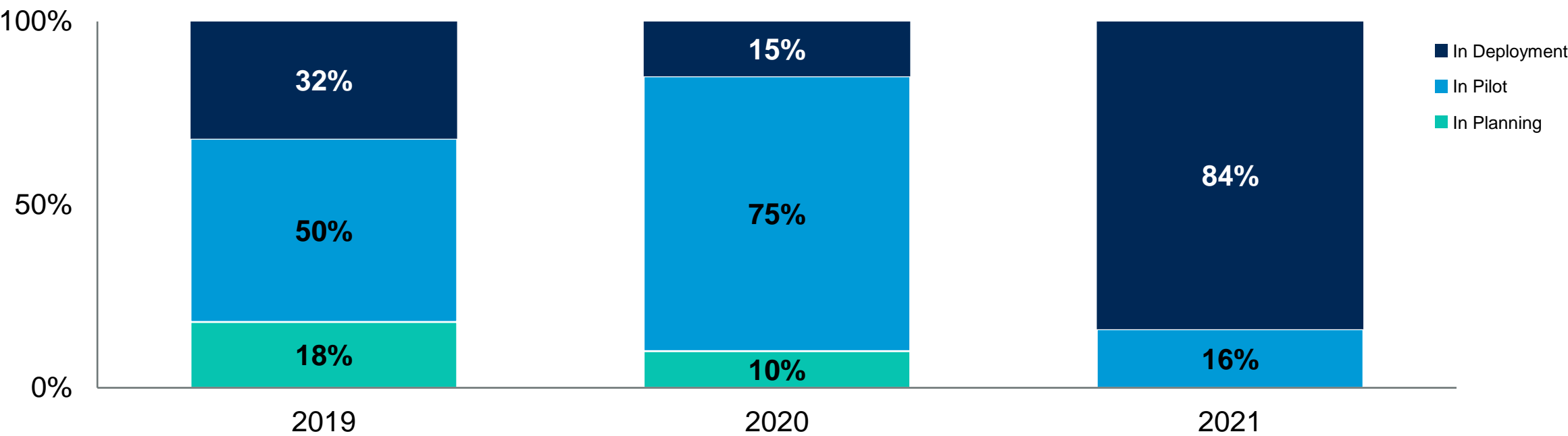
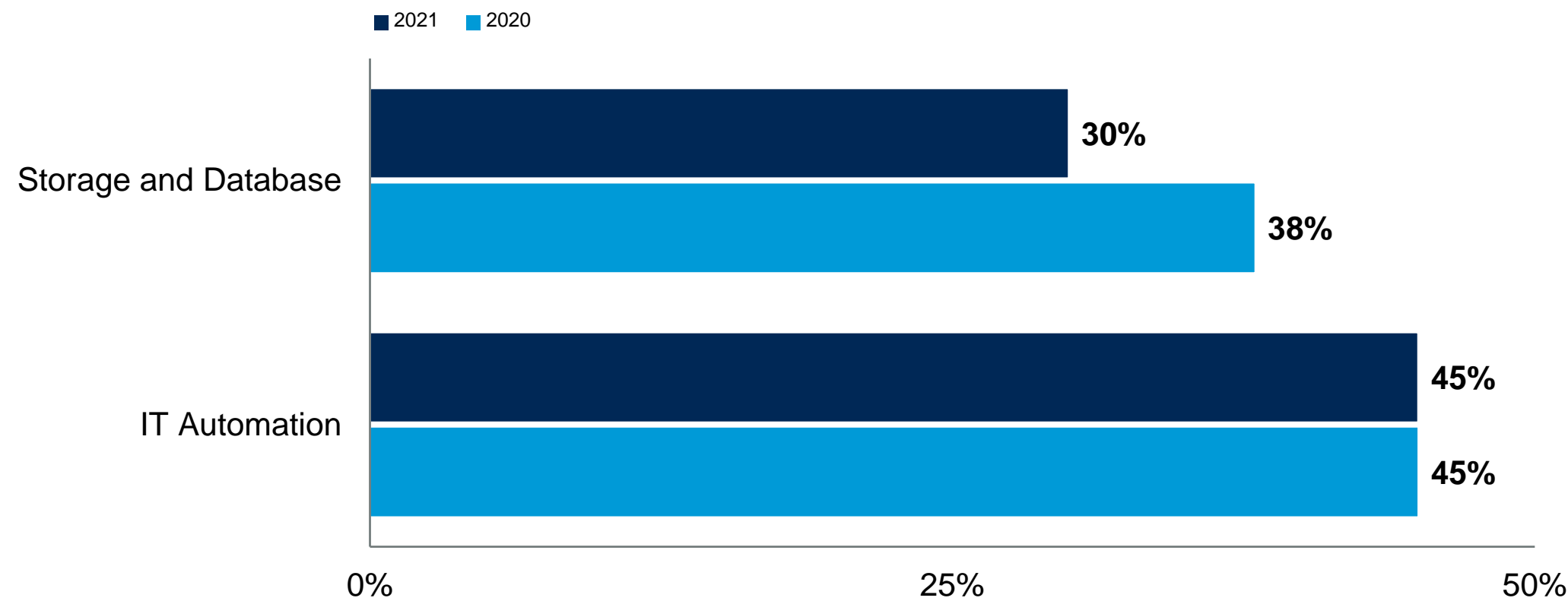n (global organizations)= 198(2019), 438(2020), 437(2021); n (technologies)= 108(2019), 111(2020), 111(2021)
Source: Gartner 2019-2021 , 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises
Note: Values may not add up to 100% due to rounding errors.

Automation and Storage and Database Technologies Deployed Cautiously

IT Automation and Storage and Database Technologies in Deployment Since 2020

Percentage of IT Automation and Storage and Database Technologies in Deployment

Legend: ■ 2021 ■ 2020

Storage and Database
- 2021: 30%
- 2020: 38%

IT Automation
- 2021: 45%
- 2020: 45%

n (global organizations) = 438(2020), 437(2021); n (technologies) = 111(2020),111(2021)

Source: Gartner 2020-2022 and 2021-2023 Emerging Technology Roadmaps for Large Enterprises