

Technology Innovation Primer for 2022

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Initiatives: [Technology Innovation](#)

Leaders count on technology innovation to prepare their organizations to achieve resilient growth amid ongoing and frequent disruption. Gartner's 2022 initiative provides insights to help them meet the demands of the evolving and resilient organization.

Additional Perspectives

- [Summary Translation + Localization: Technology Innovation Primer for 2022](#)
(11 January 2022)

Scope

Technology innovation teams must continuously monitor emerging technologies and trends, while applying combinatorial innovation to discover, assess and prioritize them, to achieve resilient growth.

In addition to enterprise architecture and technology innovation (TI) leaders, including CTOs and business leaders, other IT roles involved in this initiative are:

- Chief information officers
- Infrastructure and operations leaders
- Application and software engineering leaders

Topics in this initiative include:

- **Discovery and Analysis of Strategic and Emerging Trends:** Identify relevant emerging and strategic technology and business trends that will maximize value for an organization's strategy.

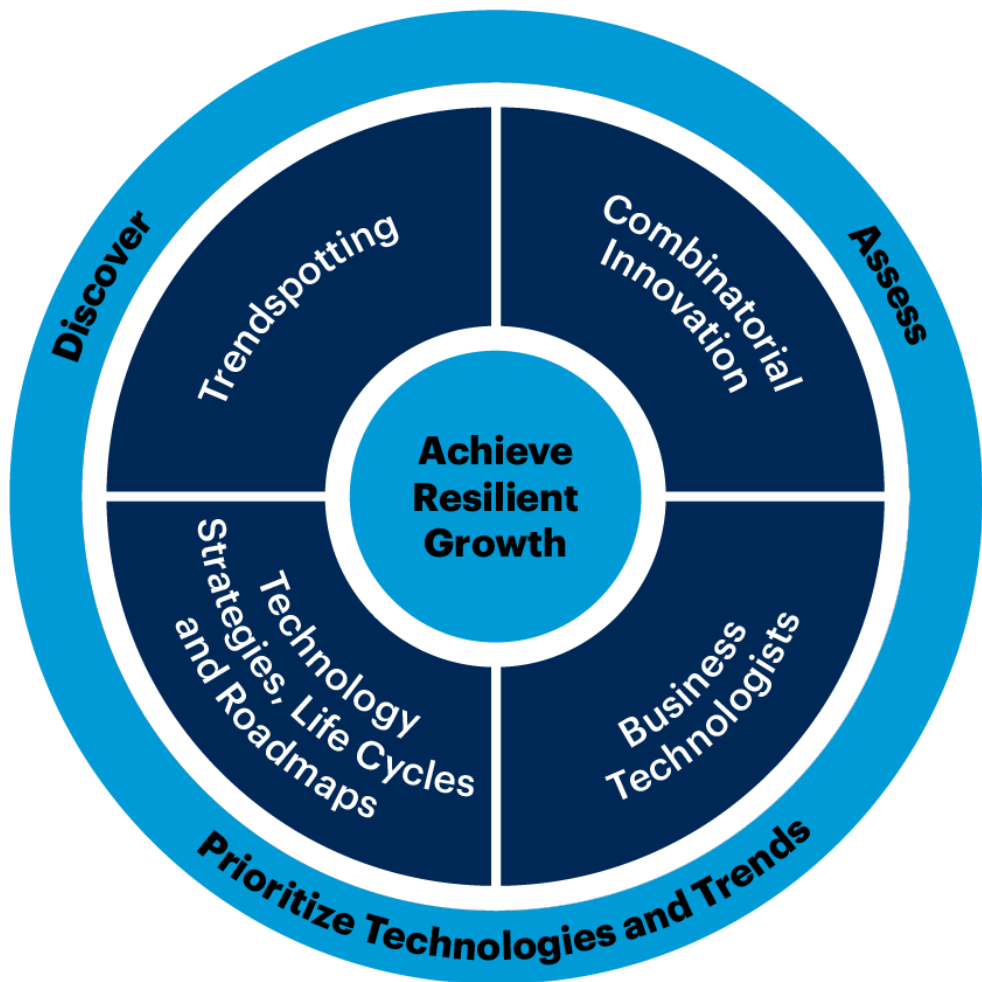
- **Develop and Implement the Technology Strategy:** Develop and implement technology strategies that optimize business operations, socialized and realized through technology roadmaps.
- **Enabling Digital Business:** Identify and deploy technologies that will optimize or enable new digital products and services.

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Analysis

Figure 1: Technology Innovation Overview

Technology Innovation



Source: Gartner
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Gartner

Business leaders count on TI to realize operational resilience amid ongoing and frequent disruption, while investing in growth and transformation of the business.

This need for resilient growth has never been greater. CEOs are prioritizing revenue growth and technology investments as their top priorities, which is leading to an increase in funding for digital innovations. Furthermore, technology work is democratizing rapidly, characterized by a steady and growing shift of digital capabilities out of the IT organization and into the business.

There are four main areas that TI leaders should focus on to facilitate resilient growth:

- Operationalize trendspotting to analyze potential future technology and nontechnology trends in the context of the business to generate, evaluate and deliver innovation (see [Ignition Guide to Operationalizing Trendspotting](#)).
- Create a culture that enables combinatorial innovation, and explore and exploit how multiple technologies and nontechnology events interact to create disruptions, drive trends or enable innovative opportunities to generate business value.
- Create effective and relevant technology strategies, life cycles and roadmaps, to guide the prioritization of competing technology investments.
- Enable business technologists who report outside of IT departments to create technology or analytics capabilities for internal or external business use.

Topics

To support the demands of TI in organizations, our research in this area addresses the following topics:

Discovery and Analysis of Strategic and Emerging Trends

Trendspotting requires the intentional tracking of trends and explaining them to the organization. However, trendspotting activities cannot be limited to technologies only. A continuous foresight mindset must be adopted, and TAPESTRY analysis must be used to identify relevant accelerators and inhibitors, including technological, political, economical, social/cultural, trust/ethics, regulatory/legal and environmental trends.

Questions Your Peers Are Asking

- What are the most important emerging technologies and strategic trends?
- What are the frameworks and tools used to enable trendspotting?
- What will the world look like 10 years from now?
- How can you fuse the assessment of emerging technologies within the broader context of political, economic, social, legal and environmental trends?
- How can organizations best identify, evaluate and recommend candidate technologies and trends in support of innovative business and operating models?

Recommended Content

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- [A Tapestry \(TPESTRE\) of Trends for Strategic Planning](#)
- [Tool: Template for Developing Impactful Trend Cards](#)
- [Ignition Guide to Operationalizing Trendspotting](#)
- [Quick Answer: How Can I Use Science Fiction Storytelling to Communicate Our Vision of the Future?](#)
- [Maverick* Research: 23 Stories From Planet B](#)

Planned Research

- The business case for trendspotting
- Combinatorial trend exploration and analysis
- Use case prism for generative AI
- Building a digital future: The metaverse
- Building a digital future: Emergent AI
- Building a digital future: Autonomic business
- Building a digital future: Next-gen computing
- Privacy-enhanced computing techniques and use cases
- Innovation insight for synthetic data
- Innovation insight for edge AI
- Sustainability technologies

Develop and Implement the Technology Strategy

Technology strategies address the role and life span of one or more technologies. Ideally, the technology strategy supports the business strategy, which answers two fundamental questions: “Where do we play?” and “How do we win?” The technology strategy (for example a cloud strategy) is then visualized and communicated with the use of technology roadmaps.

Questions Your Peers Are Asking

- What are the best practices for developing and implementing a technology strategy to optimize business operations?
- What are the methodologies, tools and frameworks to develop technology roadmaps broadened to drive and communicate a technology strategy?
- How should technology innovation leaders prioritize sustainability strategies that cross multiple business units and address both business models and technologies?

Recommended Content

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- [Tool: Templates for CTOs to Create Effective Technology Roadmaps](#)
- [Quick Answer: 3 Reasons to Be Cautious About Investing in Environmentally Sustainable Software](#)

Planned Research

- A CTO guide to trends, strategy, architecture and roadmaps
- 4 steps to build better roadmaps
- Tool: Roadmap samples and templates
- The 7 rules of effective roadmapping
- Communicating the technology story
- Driving technology strategy to action

Enabling Digital Business

Leveraging innovative technologies is becoming increasingly critical to transform the business model, products and services to ensure sustainable digital business. To leverage such innovative technologies — like autonomic systems and a metaverse — a deep understanding of technology and technology trends is required. Insight into the organization can leverage these technologies to innovate the business and operating models and solutions.

Questions Your Peers Are Asking

- What are technologies that will optimize existing, or enable new, digital products and services, and how to deploy them?
- What are the ways in which technology innovation leaders should participate in digital business product projects to deploy technologies and skills that provide a foundation for future digital business.
- What are the best practices that CTOs should adopt to enhance customer and/or employee experiences?

Recommended Content

🔒 Some recommended content may not be available as part of your current Gartner subscription.

- [Quick Answer: What Is a Digital Twin of an Organization?](#)
- [How to Industrialize and Reuse Core Product Capabilities and Processes With DigitalOps Initiatives](#)
- [Assessing Emerging Technology Adoption Readiness](#)
- [Quick Answer: How Business Process Analysis Facilitates Successful Hyperautomation](#)
- [A CTO's Guide to Top Practices for Open-Source Software](#)

Planned Research

- Demand-driven innovation techniques
- Assessing the business value of TI opportunities
- Innovation case studies
- 5 practices for successful innovation management
- A CTO's guide to serverless computing
- A CTO's guide to top practices for DevOps
- A CTO's guide to cloud native
- A CTO's guide to IoT
- A CTO's guide to digital twins
- A CTO's guide to containers and Kubernetes

Suggested First Steps

- [Top Strategic Technology Trends for 2022](#)
- [Top-Down Innovation Is Overrated, and Other Lessons on Innovation](#)
- [Quick Answer: How to Use Combinatorial Innovation to Identify Opportunities From Trends and Emerging Technologies](#)
- [2021 Hype Cycles: Innovating Delivery Through Trust, Growth and Change](#)

Essential Reading

- [Predicts 2022: 4 Technology Bets for Building the Digital Future](#)
- [Top Strategic Technology Trends for 2022: Autonomic Systems](#)
- [A CTO's Guide to Top Artificial Intelligence Engineering Practices](#)
- [Maverick* Research: Push Yourself to Think Beyond Conventional Wisdom](#)
- [Market Guide for Technologies Supporting a Digital Twin of an Organization](#)
- [Quick Answer: An Executive View of the Innovation Portfolio](#)

Tools and Toolkits

- [Tool: Data Extraction Checklist for Process Mining Readiness](#)
- [Tool: Template for Developing Impactful Trend Cards](#)
- [Ignition Guide to Operationalizing Trendspotting](#)
- [The Innovation Leader's Guide to Navigating the Cloud-Native Container Ecosystem](#)

Document Revision History

[Technology Innovation Primer for 2021 - 4 February 2021](#)

[Technology Innovation Primer for 2020 - 24 January 2020](#)

[Technology Innovation Primer for 2019 - 5 February 2019](#)

[Technology Innovation Primer for 2019 - 5 February 2019](#)

[Driving Business Transformation Through Technology Innovation Primer for 2018 - 19 April 2018](#)

[Using EA to Master Emerging and Strategic Trends Primer for 2017 - 18 January 2017](#)

[Using EA to Master Emerging and Strategic Trends Primer for 2016 - 28 March 2016](#)

[Using EA to Master Emerging and Strategic Trends Primer for 2016 - 21 January 2016](#)

Related Priorities

Initiative Name	Description
Enterprise Architecture	This initiative covers enterprise architecture (EA) practices that support targeted business outcomes and critical business priorities, such as digital acceleration and organizational resilience.
CIO: Innovation, Disruption, Emerging Practices	Gartner guides enterprises through changing market conditions, helping them understand disruptive trends and master emerging management practices focused on sustainable innovation and value creation.

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