

# Supply Chain Technology Strategy and Selection Primer for 2022

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By Analyst(s): Christian Titze

Initiatives: [Supply Chain Technology Strategy and Selection](#)

Leading companies progressively use technology to accelerate performance. Supply chain organizations must prepare to leverage the opportunity strategic technologies offer while managing the implications these decisions have within the broader business ecosystem.

## Scope

Use our supply chain research to make informed technology acquisition and enhancement decisions, improve supply chain performance, foster sustainability, and support digital transformation.

Topics in this initiative include:

- **Supply Chain Technology Strategy:** Use proven frameworks to develop a strategy enabling the business to be more profitable and resilient.
- **Supply Chain Planning Technologies:** Use proven techniques to identify, evaluate, select, adopt and maintain supply chain planning technologies that foster competitive advantage.
- **Sourcing and Procurement Technologies:** Use proven techniques to identify, evaluate, select, adopt and maintain sourcing and procurement technologies that foster competitive advantage.
- **Manufacturing Technologies:** Use proven techniques to identify, evaluate, select, adopt and maintain manufacturing technologies that foster competitive advantage.

- **Logistics and Fulfillment Technologies:** Use proven techniques to identify, evaluate, select, adopt and maintain logistics and fulfillment technologies that foster competitive advantage.
- **End-to-End Supply Chain Technologies:** Use proven techniques to identify, evaluate, select, adopt and maintain end-to-end supply chain technologies that foster competitive advantage.

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## Analysis

Figure 1. Supply Chain Technology Strategy and Selection Overview

### Supply Chain Technology Strategy and Selection



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Postpandemic, the spotlight is bright on how supply chains can help businesses stay ahead, move beyond transactional relationships, and focus on innovation and collaboration. Supply chain technology and solutions are becoming more important than ever, acting as a source and differentiating factor for organizations to optimize, grow and transform.

Innovative supply chain technologies have high potential for positive impacts on people, performance and industries, even digital supply chain ecosystems. This presents the challenge of how to build a digital foundation, supporting not only business optimization but also business transformation. The utilization of strategic technologies plays an important role in supporting the evolution toward a more autonomous and sustainable supply chain, which will happen over the next decade and beyond (see [Supply Chain Executive Report: Pursuing an Autonomous Supply Chain With Hyperautomation](#)).

Supply chain technology leaders must create a phased, multiyear (mainly five to 10 years out), integrated digital supply chain strategy and roadmap to discover, experiment, pilot and roll out innovative technologies. Despite being a multiyear journey, this transformation should start now, as many of these technologies are deeply transformational for supply chain strategies.

One of the latest advancements in enterprise architecture is the theme of composability. A composable technology stack will redefine application architecture, allowing it to be more agile to rapidly deliver value to the business. Supply chain technology leaders are advised to start learning now to avoid being caught unprepared for when these technologies mature. Technology is developing fast, and there is no time to wait and see. Critical steps for the successful execution of a company's overall business and technology transformation journey include:

1. Identifying supply chain's objectives for rebuilding resilient supply chains for an uncertain world. Leading themes include the strategy and operating model; risk appetite and management; digital transformation; the future of work; and sustainability and environmental, social and corporate governance (ESG).
2. Determining the changes in supply chain's capabilities and processes.
3. Rationalizing and prioritizing investments in technology.
4. Creating a plan to address supply chain's digital talent gaps.
5. Determining a governance framework and finalizing supply chain's roadmap for supporting digital business optimization and transformation.

Our 2022 research will provide relevant, unbiased and practical insights and advice that will inform decisions on technology acquisitions and enhancements to advance in the digital journey. Our guidance will help you improve supply chain performance, foster sustainability and support further transformation.

## Topics

Organizations that address questions on how to best identify technology investment can use this research to further transform their supply chain, become purpose-driven, pursue autonomy with hyperautomation and act within broader supply chain business ecosystems. They will be able to apply agile, fast and viable techniques to explore, adopt and adapt to new supply chain opportunities. In addition, they will run stable, mission-critical supply chain systems throughout this period of change.

Our research in this area addresses the following topics:

### Supply Chain Technology Strategy

CEOs and chief supply chain officers (CSCOs) are increasingly looking to invest in the digitalization of their supply chains in response to the multitude of recent supply chain disruptions (see [Predicts 2022: Supply Chain Technology](#)). Designing a digital supply chain strategy must be done hand-in-hand with a digital technology strategy. In this process of alignment, two types of digitalization emerge. In the first, organizations exploit the digital enhancements of myriad mainstream supply chain applications. In the second, they explore and align potential use cases for the many emerging digital technologies. Supply chain technology leaders need to create a continuous process to align the technology strategy with supply chain design and transformation initiatives.

### Questions Your Peers Are Asking

- How can I develop a strategy to enable the business to be more profitable and more resilient using technology?
- How do I develop, implement and manage a supply chain application strategy?
- How can I better align my supply chain technology strategy toward the company's overall enterprise IT and business strategy?
- How can I balance process, organization and technology investments?
- How can I optimize the supply chain technology organization across different business units and regions?

### Recommended Content

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

- [SCM Application Architecture Scenarios, 2025: 3 Ways to Win](#)

- [Supply Chain Management Software Market Overview, 2021](#)
- [The 2021 Supply Chain Technology Themes](#)
- [The STREET Supply Chain Innovation Playbook](#)

## Planned Research

- Top supply chain technology themes
- The supply chain technology heat map
- Analyses of supply chain technology strategy
- SCM software market emerging models
- Supply chain trends and innovations (user wants and needs study, Predicts 2023)

## Supply Chain Planning Technologies

This domain offers new concepts, such as digital supply chain twins, integrated business planning, autonomous planning and resilient planning. In fact, the whole nature of planning will change during the digitization journey. There is an increasing need for end-to-end (E2E) support across all time horizons and for different data granularities. Acting on these in the planning domain means getting the right balance across the different horizons is important. Overall, companies will change their mindset by approaching this convergence of planning and execution, from E2E visibility as a foundation, toward E2E process orchestration and, ultimately, E2E intelligent decision making.

## Questions Your Peers Are Asking

- How should I identify, evaluate, select, implement and maintain supply chain planning technologies?
- Which technologies provide differentiation, innovation and support for digital transformation for requirements specific to supply chain planning?
- How do I best manage the integration of supply chain planning technologies within my application portfolio?
- How can I optimize the supply chain planning technology portfolio across different business units and regions?

## Recommended Content

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

- [Hype Cycle for Supply Chain Planning Technologies, 2020](#)
- [Tool: Vendor Guide for Supply Chain Planning Technology](#)
- [Critical Capabilities for Supply Chain Planning Solutions](#)
- [Supply Chain Brief: For Resilience, Think Like a Formula 1 Team](#)
- [Quick Answer: Will I Need Both a Digital Supply Chain Twin and a Supply Chain Control Tower?](#)

## Planned Research

- Market and vendor evaluations (Magic Quadrant, Critical Capabilities, Market Guide and Cool Vendors reports)
- Trends and innovation analyses (Hype Cycle, Innovation Insight and research briefs)
- Diagnostics and tools (Ignition Guides, toolkits and tools/templates)
- Best practices and case studies on supply chain planning technologies
- Outlook: The future of supply chain planning/Stage 5, the evolution of digital supply chain twins, and the myths and reality of autonomous planning

## Sourcing and Procurement Technologies

General-purpose solutions for sourcing, procure-to-pay and contract life cycle management are being used for all types of spend. They leverage big data, artificial intelligence and analytics, and they support multienterprise processes. We also see further advancements in the utilization of emerging technologies such as data science, robotic process automation and conversational systems. Companies will radically change their mindset by using such solutions and capabilities, moving from an inside-out to an outside-in approach.

## Questions Your Peers Are Asking

- How should I identify, evaluate, select, implement and maintain sourcing and procurement technologies?
- Which technologies provide differentiation, innovation and support for digital transformation for requirements specific to sourcing and procurement?
- How do I best manage the integration of sourcing and procurement technologies within my application portfolio?
- How can I optimize the sourcing and procurement technology portfolio across different business units and regions?

## Recommended Content

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

- [How to Use Technology to Optimize Your Transportation Procurement](#)
- [Innovate With Emerging Supplier Risk Management Technologies to Fuel COVID-19 Recovery](#)
- [Market Guide for Supplier Risk Management Solutions](#)
- [Quick Answer: 3 Options When Deploying a Supplier Portal](#)
- [How to Navigate the Fragmented Supplier Management Solutions Market](#)

## Planned Research

- Market and vendor evaluations (Magic Quadrant, Critical Capabilities, Market Guide and Cool Vendors reports)
- Trends and innovation analyses (Hype Cycle, Innovation Insight, research briefs)
- Diagnostics and tools (Ignition Guides, toolkits and tools/templates)
- Best practices in sourcing and procurement technologies
- Outlook: Automation in procurement and status responsible sourcing



## Manufacturing Technologies

Breakthrough technologies, hardware and techniques can create new value for manufacturers. In particular, digital business, edge ecosystem, the Internet of Things and Industrie 4.0 will enable companies to adapt production quickly to meet changing and increasingly complex demands rather than having to retool product by product. There are many challenges with information access, usage and management. This includes how to best leverage analytics and automate decision making.

### Questions Your Peers Are Asking

- How should I identify, evaluate, select, implement and maintain manufacturing technologies?
- Which technologies provide differentiation, innovation and support for digital transformation for manufacturing-specific requirements?
- How do I best manage the integration of manufacturing technologies within my application portfolio?
- How can I optimize the manufacturing technology portfolio across different business units and regions?

### Recommended Content

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

- [Ignition Guide to Selecting a Manufacturing Operations Software Vendor](#)
- [Magic Quadrant for Manufacturing Execution Systems](#)
- [Critical Capabilities for Manufacturing Execution Systems](#)
- [The Pivotal Role of 5G in Manufacturing Operations](#)
- [Understand the Need for Supply Chain Execution and Manufacturing Operations Management Convergence](#)

## Planned Research

- Market and vendor evaluations (Magic Quadrant, Critical Capabilities, Market Guide and Cool Vendors reports)
- Trends and innovation analyses (Hype Cycle, Innovation Insight and research briefs)
- Diagnostics and tools (Ignition Guides, toolkits and tools/templates)
- Best practices in manufacturing technologies
- Outlook: Edge ecosystem and hyperautomation in manufacturing operations, Industrie 4.0 and beyond

## Logistics and Fulfillment Technologies

When business processes, customer demand or industry specifics change, logistics and fulfillment take on new capabilities. Supply chain organizations need to improve the maturity of the existing supply chain. At the same time, supply chain organizations must prepare for emerging disruptive technologies in logistics and fulfillment. Process improvement and optimization can be achieved by leveraging technology within the functions across transportation, yard and warehouse management. Examples include autonomous vehicles or drones and robots in the warehouse or emerging and maturing technologies in transportation.

## Questions Your Peers Are Asking

- How should I identify, evaluate, select, implement, and maintain logistics and fulfillment technologies?
- Which technologies provide differentiation, innovation and support for digital transformation for logistics- and fulfillment-specific requirements?
- How do I best manage the integration of logistics and fulfillment technologies within my application portfolio?
- How can I optimize the logistics and fulfillment technology portfolio across different business units and regions?
- How do I extend my technology footprint to expand the distribution network from traditional B2B to B2C and omnichannel?
- How do I secure, control and ensure the full integrity of a product or asset across its logistics and distribution journey?

## Recommended Content

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

- [Cool Vendors in Supply Chain Execution Technologies, 2021](#)
- [Use Gartner's Model to Understand the 10 Dimensions of Warehouse Complexity Before Evaluating WMS Solutions](#)
- [Smart Insights for the Real-Time Transportation Visibility Platforms Market](#)
- [Infographic: AI Use-Case Prism for Transportation](#)
- [Market Guide for Global Trade Management](#)

## Planned Research

- Market and vendor evaluations (Magic Quadrant, Critical Capabilities, Market Guide and Cool Vendors reports)
- Trends and innovation analyses (Hype Cycle, Innovation Insight, research brief)
- Diagnostics and tools (Ignition Guides, toolkits and tools/templates)
- Best practices in logistics and fulfillment technologies
- Outlook: Executional convergence, hyperautomation in fulfillment and robotics everywhere

## End-to-End Supply Chain Technologies

Digital business covers how the blurring of the physical and virtual worlds is transforming business/supply chain designs, industries, markets and organizations. Companies need to put increased attention on cross-functional (enterprise-centric) and multienterprise (network-centric) processes and supporting technologies, becoming a matter of course for succeeding in broader supply chain business ecosystems. Such technologies include risk and security management, quality management, product life cycle management, and data management, as well as visibility and collaboration, analytics, and intelligence — all spanning traditional supply chain domains.

## Questions Your Peers Are Asking

- How should I identify, evaluate, select, implement and maintain cross-functional, end-to-end supply chain technologies?
- Which technologies provide differentiation, innovation and support for digital transformation for cross-functional, end-to-end-specific requirements?
- How do I best manage the integration of end-to-end supply chain technologies within my application portfolio?
- How can I optimize the end-to-end supply chain technology portfolio across different business units and regions?

## Recommended Content

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

- [Market Guide for Data Analytics and Intelligence Platforms in Supply Chain](#)
- [Magic Quadrant for Multienterprise Supply Chain Business Networks](#)
- [Market Guide for Labeling and Artwork Management](#)
- [The Importance of Identifying and Classifying Assets Across the Supply Chain Post-COVID-19](#)
- [The Advancement of Supply Chain Control Towers](#)

## Planned Research

- Market and vendor evaluations (Magic Quadrant, Critical Capabilities, Market Guide and Cool Vendors reports)
- Trends and innovation analyses (Hype Cycle, Innovation Insight, research briefs)
- Diagnostics and tools (Ignition Guides, toolkits and tools/templates)
- Best practices in end-to-end supply chain technologies
- Outlook: Microservices architecture and ecosystem enablement, risk convergence, synthetic data, and sustainability and ESG

## Suggested First Steps

- [Predicts 2022: Supply Chain Technology](#)
- [Supply Chain Executive Report: Fostering a Digital Supply Chain Ecosystem](#)

## Essential Reading

- [Critical Capabilities for Supply Chain Planning Solutions](#)
- [Critical Capabilities for Manufacturing Execution Systems](#)
- [Critical Capabilities for Warehouse Management Systems](#)
- [Critical Capabilities for Transportation Management Systems](#)
- [Critical Capabilities for Multienterprise Supply Chain Business Networks](#)

## Tools and Toolkits

- [Tool: RFP for Supply Chain Planning Solutions](#)
- [Tool: RACI Matrix for TMS Implementation](#)
- [Tool: Identify Real-Time Transportation Visibility Platform Vendor Candidates](#)
- [Toolkit: RFP for Real-Time Transportation Visibility Platforms](#)
- [Tool: Vendor Demonstration Scorecard for Transportation Visibility Platforms](#)
- [Toolkit: RFP for Transportation Management Systems](#)
- [Tool: Identify Transportation Management System Vendor Candidates](#)
- [Toolkit: RFP for Vehicle Routing and Scheduling](#)
- [Toolkit: RFP Template for Freight Audit and Payment Providers](#)
- [Tool: TMS Vendor Demonstration Evaluation Scorecard](#)

## Document Revision History

[Supply Chain Technology Strategy and Selection Primer for 2021 - 4 February 2021](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2020 - 24 January 2020](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2019 - 18 January 2019](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2019 - 18 January 2019](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2018 - 11 January 2018](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2017 - 9 January 2017](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2016 - 22 January 2016](#)

[Technology and Solutions for Supply Chain and Operations Primer for 2015 - 14 July 2015](#)

## Related Priorities

Initiative Name	Description
<a href="#">Supply Chain Planning</a>	Create forward-looking processes to optimize delivery of goods, services and information from supplier to customer while balancing supply, demand and financial plans in the short term and medium term.

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