

Gartner[®]

Gartner for Supply Chain Leaders

Operating a Successful Smart Factory

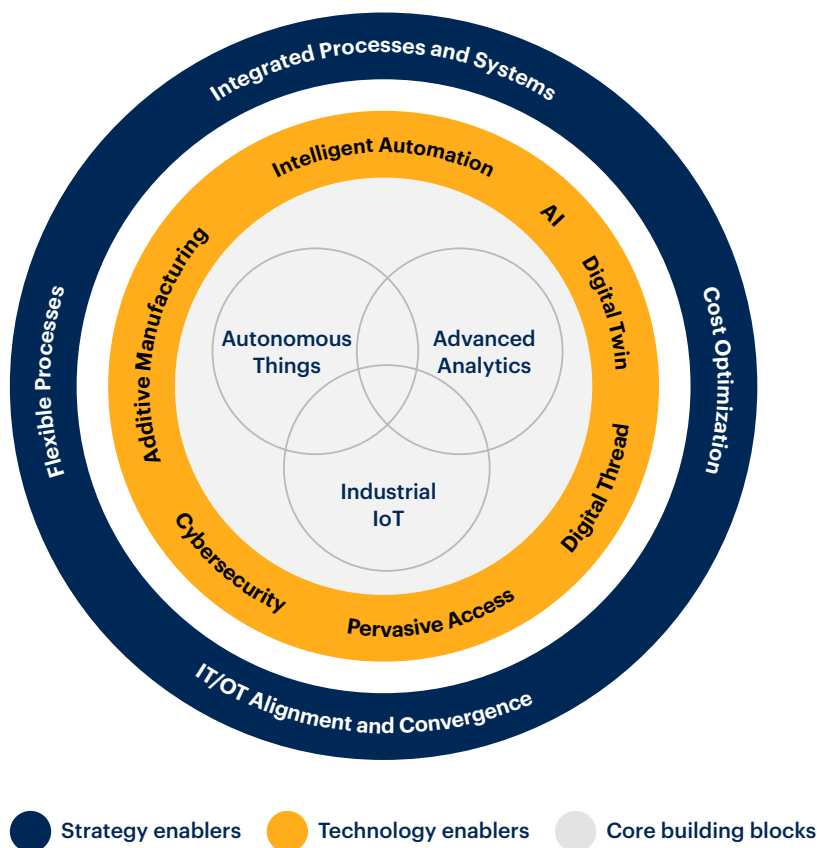
**4 questions from supply chain leaders
about smart factories, answered**



Introduction: What is a smart factory? What are its business benefits?

“Smart factory” describes different combinations of modern technologies (see Figure 1) creating a hyper-flexible, self-adapting manufacturing capability. A smart factory — also called a “digital factory” or an “intelligent factory” — is part of a “smart manufacturing” strategy, or the orchestration of physical and digital processes within factories and across other supply chain functions to optimize current and future supply-and-demand requirements.

Figure 1: Smart Factory Building Blocks and Enablers



Source: Gartner

A smart factory represents an opportunity to create new forms of efficiency and flexibility by connecting different processes, information streams and stakeholders (frontline workers, planners, etc.) in a streamlined fashion. Such efficiency and flexibility gains may improve competitiveness and the customer experience. To realize these benefits, supply chain leaders must transform and improve the ways in which people, processes and technologies operate — specifically the delivery of information critical to decision quality, cost management and agility.

This white paper addresses four questions supply chain leaders are asking about the development of smart factories:

- How do companies measure the value of their smart factories?
- What digital technologies are commonly used in a smart factory?
- What are the lessons learned from companies that have established smart factories?
- How do companies ensure the success of their smart factories?



How do companies measure the value of their smart factories?

Smart factories appeal to all manufacturers, and approaches will differ by industry and manufacturing style. No specific technology or combination of technologies is right for everyone.

But no matter the approach, a smart factory is designed to generate improvements in cost, quality and service levels — through improved asset reliability and recaptured capacity.

Gartner has also observed multiple examples of smart factories helping to shorten training cycles and reduce manual labor, though these companies had to take care to avoid compromising productivity or quality levels.

At the same time, many companies are simply satisfied with removing paper from the supply chain process via their smart factories.



What digital technologies are commonly used in a smart factory?

Smart factories can leverage a variety of technology combinations to dynamically coordinate people, production processes and other aspects of their surroundings (e.g., equipment, products) in an immersive, interactive, flexible and automated fashion.

Technology alignments include:

- Autonomous things that supplement existing workers and processes
- Augmented analytics that use machine learning (ML)
- Digital twins powered by the Internet of Things (IoT)
- Empowered edge
- Immersive experiences



What are the lessons learned from companies that have established smart factories?

The smart factory concept is at the vanguard of manufacturing innovation, yet technology is its greatest risk.

Using sensors, immersive experiences and flexible automation could provide return on investment by providing accurate information to improve decision making, shorten changeover times or reduce costs. However, characterizing the smart factory as a technology project to drive manufacturing capabilities at a site or line level devolves away from its potential to support agility, order to cash, or new product introduction.

Smart factories must be orchestrated and synchronized with the planning, logistics and customer fulfillment functions in order to eliminate compromising perfect order performance.



How do companies ensure the success of their smart factories?

Gartner recommends taking the following actions to maximize the value of the smart factory:

- Combine and align information and operational technologies.
- Prepare for the big cultural changes that smart factories will create globally and locally.
- Drive consistent engagement across different functions and geographies by using standards and reference models to create a baseline and common lexicon for the smart factory.
- Develop implementation and upgrade plans that integrate existing and new capabilities, helping to bridge any potential technology and business process gaps the smart factory creates.
- Collaborate across factory and functional leaders to identify which technologies (or combinations thereof) have the greatest potential.
- Incorporate the smart factory into the digital supply chain roadmap to ensure alignment with customer-facing outcomes, end-to-end supply chain processes and metrics, and organizational designs.

Actionable, objective insight

Position your supply chain organization for success. Explore these additional complimentary resources and tools:



Roadmap

Key Manufacturing Activities

Identify the 22 essential activities for managing strategy and operations.

[Download Roadmap](#)



Report

Top 8 Supply Chain Technology Trends

Benchmark your investments against emerging technologies.

[Download Report](#)



Playbook

How to Build a Supply Chain Ecosystem

Widen your trading networks to enhance business value.

[Download Playbook](#)



Infographic

Reshaping the Manufacturing Workforce

Employers' shifting expectations demand evolving skills.

[Download Infographic](#)

Already a client?

Get access to even more resources in your client portal. [Log In](#)

Connect With Us

Get actionable, objective insight to deliver on your mission-critical priorities. Our expert guidance and tools enable faster, smarter decisions and stronger performance. Contact us to become a client:

U.S.: 1 855 811 7593

International: +44 (0) 3330 607 044

[Become a Client](#)

Learn more about **Gartner for Supply Chain Leaders**
gartner.com/en/supply-chain

Stay connected to the latest insights

