Elevate and Expand Your Smart Manufacturing Strategy
Introduction: What is smart manufacturing?

Smart manufacturing is the orchestration of physical and digital processes within factories and across other supply chain functions to optimize current and future supply and demand requirements. This is accomplished by transforming and improving ways in which people, process and technology operate to deliver the critical information needed to impact decision quality, efficiency and agility.

While it's encouraging that 91% of supply chain leaders with a smart manufacturing strategy are focused on digitizing their manufacturing operations (see Figure 1), they must contend with two key challenges:

- Despite the broadening range of technologies and the dropping costs of entry, there are concerns related to technology security, commercial availability and data integrity.
- All too often, the supply chain function will present a plan for a two-year ROI, while the factory will request the same return in just six months. The supply chain and factory must align on smart manufacturing benefits and plans.
This white paper is designed to help supply chain leaders overcome these challenges by creating a clear connection between the smart manufacturing strategy and any broader supply chain transformation initiative. Aligning the supply chain and factory is key to elevating and expanding the smart manufacturing strategy.
Aligning the supply chain and factory

Seventy percent of manufacturers in the Gartner Digitization of Manufacturing Operations Survey indicated that they are implementing their smart manufacturing initiatives parallel to and separate from their digital supply chain pursuits. This creates risk of misaligned roadmaps that integrate supply chain and factory performance. Gartner recommends supply chain leaders take these three key actions to extend the benefits of smart manufacturing beyond the factory.

Action No. 1: Segment smart manufacturing technology investments

There is a vast range of technologies available to support the automation of production processes, as well as the data and information supporting them. Some are related to core manufacturing systems (e.g., workflows, dashboards), while others are more innovative and require supply chain teams to test and learn (e.g., cognitive advisors, digital twins). When investment in a technology stalls, it signals that use cases are fully developed or the value of the technology is clearly proven. On the other hand, when investment in a technology increases, it suggests the need for further exploration. Figure 2 provides the results of a Gartner survey on short- and long-term technology investments for smart manufacturing.
Regardless of technology choices, Gartner recommends segmenting technology investments related to smart manufacturing into those that will enhance the core of operations and those that will foster future innovation and process capabilities. You should also prepare to spend on integration: While acquiring an edge device might not cost much, integrating that new data source with incumbent applications and workflows and any associated process change will carry a higher cost.
Action No. 2: Align the smart manufacturing strategy with supply chain performance objectives

There is no doubt that technology will bring about improvements in site-level cost, quality and reliability, and process. What’s missing most often today is governance — how the smart manufacturing strategy matures as the capability set grows. Gartner recommends you consider the initial benefits of smart manufacturing investments at the factory level as a foundation for new efficiencies that will benefit all supply chain functions. Align these outcomes to the broader, top-down-driven supply chain objectives, and use continuous improvement techniques to make progress against them. Figure 3 illustrates how benefits of smart manufacturing build on one another from the bottom up.

Figure 3: Continuum of Factory to Supply Chain Benefits
Action No. 3: Enable smart manufacturing success through supply chain convergence

As automation of data and information flows expands beyond the factory, the need to manage supply chain convergence grows. Gartner defines supply chain convergence as the synchronization of processes, subprocesses and activities across the supply chain. It requires breaking down the departmental or functional barriers that exist between organizations. For smart manufacturing, this means evaluating the processes used in logistics, planning and sourcing, and customer service against those used in manufacturing operations, and designing cross-functional performance metrics to assess total value generated for the customer.
Actionable, objective insight

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

**Activity Map**
Key Manufacturing Activities
Identify the 22 essential activities for managing strategy and operations.

**Report**
Top 8 Supply Chain Technology Trends
Benchmark your investments against emerging supply chain technologies.

**Webinar**
Foster a Digital Supply Chain Ecosystem to Increase Competitiveness
Determine the best digital strategy for achieving new value creation.

**Infographic**
Reshaping the Manufacturing Workforce
See how skills are evolving to meet employers’ shifting expectations.

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**U.S.:** 1 855 811 7593

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