

Digitization Delivers for Manufacturers

The Power of Industry 4.0 to Enhance Supply-Chain Operations



Findings from the MPI 2021 Industry 4.0 Study



Introduction

The *MPI 2021 Industry 4.0 Study* examines the extent to which manufacturers are leveraging Industry 4.0 across their organizations. This summary specifically looks at how manufacturers have applied digital technologies to improve supply-chain metrics, enhance supplier and customer collaboration, and boost productivity and profits. It also explores the opportunities and challenges manufacturers encounter when digitizing their supply chains.

Since the *Industry 4.0 Study* was initially fielded more than five years ago, manufacturers have dramatically increased the pace at which they use Industry 4.0 technologies to enhance supply-chain readiness and performance. They've recognized that it's not a question of *if* they should digitize their supply chains, but *when*: digital laggards are falling behind digital leaders, and the gap is widening. This summary highlights how self-described digital Leaders operate and perform vs. other companies.



John Brandt
CEO
The MPI Group



Industry 4.0 Connects to the Supply Chain



Industry 4.0 allows delivery of critical information in real time. The Study finds that 57% of manufacturers already use actionable, real-time, role-based data in supply-chain management for decision-making, with another 26% are planning to do so within one year.

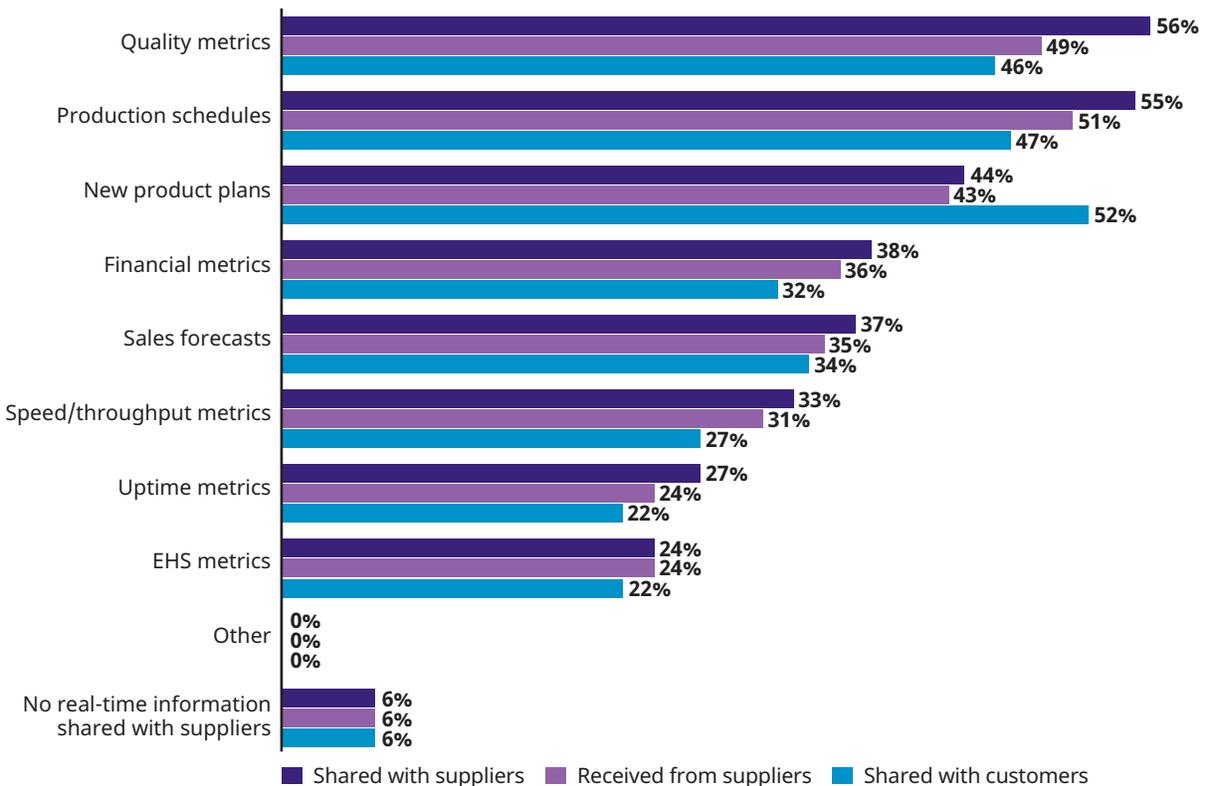
Among the 32% of executives who described their company’s Industry 4.0 capabilities as “Leaders,” 71% are currently using real-time data for supply-chain management vs. just 57% of companies described as “competitive” and 27% of those described as “industry catchup/no Industry 4.0.”

The application of smart devices and/or embedded intelligence into operations has improved coordination with suppliers at 82% of manufacturers (37%

report “significant improvement”). Digital Leaders are more likely to report significant improvement (52% vs. 34% of competitive companies and 20% of catchup companies).

Supply chains function more cohesively when partners are rapidly informed of changing conditions. Manufacturers are most likely to share quality metrics, production schedules, and new product plans across the supply chain — with data flowing to suppliers, from suppliers, and to customers (Figure 1). Sharing information with suppliers and customers is more likely among digital Leaders. For example, 60% of digital Leaders share new product plans with customers vs. just 52% of competitive companies and 33% of catchup companies.

Figure 1. Real-time information shared across the supply chain (% of manufacturers)



Impact from Industry 4.0 Supply Chains



More than a third of manufacturers (38%) report that Industry 4.0 can reduce supply-chain costs. Approximately 42% of digital Leaders report that Industry 4.0 can reduce supply-chain costs vs. 32% of competitive and 24% of catchup companies.

Supply-chain improvements contribute to overall organizational improvements. The application of Industry 4.0 in plants, processes, and supply chains has increased productivity and profitability for nearly all manufacturers, with many reporting sizable increases: 66% report increased *productivity* of more

than 5% over the past year, and 63% report increased *profitability* of more than 5% over the past year. Increases are even more pronounced among digital Leaders (*Figure 2*).

A vast majority of manufacturers expect productivity and profitability improvements to increase over the next five years, with 78% expecting *productivity* increases of more than 5%, and 74% expecting *profitability* increases of more than 5%. Digital Leaders expect even larger increases.

Figure 2. Impact of Industry 4.0 applied to plants, processes, and supply chain on productivity and profitability in past year (% of manufacturers)

	Leaders	Competitive	Catchup	All
Productivity				
Increased more than 10%	30%	17%	5%	19%
Increased 6-10%	53%	48%	32%	47%
Increased 1-5%	13%	30%	44%	27%
No change	3%	5%	11%	5%
Decreased	1%	0%	0%	0%
No Industry 4.0 currently or planned	1%	0%	8%	2%
Profitability				
Increased more than 10%	35%	18%	3%	21%
Increased 6-10%	46%	42%	30%	42%
Increased 1-5%	15%	33%	33%	27%
No change	4%	7%	24%	9%
Decreased	0%	0%	2%	0%
No Industry 4.0 currently or planned	1%	0%	8%	2%

Industry 4.0 Supply-Chain Challenges



Industry 4.0's impact on supply-chain management could be even greater if more partners were digitally connected. In fact, even digital Leaders struggle to connect supply-chain partners.

Only 20% of manufacturers report that all suppliers and customers who require access to Industry 4.0-enabled data have it (Figure 3). Some 28% percent of digital Leaders report that all suppliers who require access to Industry 4.0-enabled data have it (vs. 17% of competitive and 10% of catchup companies), and 28% report that all customers have it (vs. 19% of competitive and 5% of catchup companies).

A major obstacle to connecting suppliers and

customers with the enterprise is the problem of network infrastructures incapable of securely delivering data in actionable formats. Only 32% of manufacturers have network infrastructures capable of accommodating machine-to-supplier IT systems communications. In contrast, 45% of digital Leaders have capable network infrastructures vs. 29% of competitive and 18% of catchup companies.

Only 33% of manufacturers have network infrastructures capable of accommodating machine-to-customer IT systems communications. In contrast, 44% of digital Leaders have capable network infrastructures vs. 33% of competitive and 13% of catchup companies.

Figure 3. Current access to Industry 4.0-enabled data (% of manufacturers)

	All who need it have access	Most who need it have access	Some who need it have access	No one who needs it has access	No Industry 4.0 data to access
Company executives	43%	36%	18%	1%	2%
Suppliers	20%	34%	34%	7%	5%
Customers	20%	34%	29%	11%	6%

Industry 4.0 Takeaways



Industry 4.0 offers significant opportunities to manufacturers to improve supply-chain practices and performances. But the MPI Industry 4.0 Study finds that many are not taking full advantage of digital tools to connect suppliers and customers.

Given the range of opportunities to deliver new customer value via digitally connected supply chains, nearly all manufacturers should aggressively invest in their development by:

- Identifying suppliers and customers open to Industry 4.0-enabled, real-time information-sharing.
- Assessing disparate technologies at supply-chain partners — systems, networks, applications — to determine where connectivity offers significant improvements or mitigates significant risks.
- Deploying new technologies (e.g., Industry 4.0 devices, networks) and talent to leverage real-time data from suppliers and customers, boosting productivity and profits.

Methodology



The *MPI Industry 4.0 Study* was conducted by The MPI Group using an online questionnaire promoted by a panel company to manufacturing plant executives and managers. The MPI Group received 445 valid participants in June and July 2021. Responses were entered into a database, edited, and cleansed to ensure answers were plausible, where necessary. All respondent answers to the survey are anonymous.

MPI 2021 Industry 4.0 Study questions consisted of:

- Directive single-answer questions for which respondents were asked to “check one” answer category
- Directive multiple-answer questions for which respondents were asked to “check all that apply”

- Open-ended numeric questions for which respondents were asked to respond with a number.

For this report, tables and charts for “check one” and “check all” answer categories are presented either in the format presented on the survey or, where more meaningful, in descending order based on the percentage of responses for a particular answer category (i.e., the answer category with the highest percentage is listed first). Data for directive questions is presented with the percentage of responses for each answer category. Tables and charts for open-ended questions are presented with the median and average statistics.

The MPI Group

The MPI Group (MPI) serves leaders with research, advice, and performance-targeted solutions that provide a competitive advantage in today’s fierce marketplace. MPI combines the disciplines of research, strategic advice, knowledge development, and hands-on leadership to create a difference — in performance, in profits, and in the people who make them possible.

In addition to the *Industry 4.0 Study*, MPI conducts other public research studies, exploring strategies,

best practices, operational measures, and profitability across new management opportunities, technologies, and methodologies, including the *MPI Manufacturing Study* and the *MPI Disruptive Technologies Study*.

MPI also offers credible, independent, and private-label research on issues that matter to customers — along with access to associated custom content including infographics, blogs, eBriefs, white papers, keynote presentations, webinars, videos, interactive tools, and social media support.

MPI offers presentations on *Industry 4.0 Study* data and other MPI research. To learn more about the *MPI Industry 4.0 Study*, schedule an *Industry 4.0* presentation, or to find out more about other research conducted by MPI, contact:



The MPI Group
mpi-group.com
+1 (216) 991-8390
jbrandt@mpi-group.com