

# TRENDS IN GLOBAL MANUFACTURING

Implementing Industry 4.0 & Building  
the Digital Factory

400 C-level Executives | January 2022



**PLATAINE**<sup>®</sup>  
people-smart automation

sme<sup>®</sup>



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# Executive Summary //

Digital transformation takes a strategic part in any manufacturing enterprise's plan to translate investments in production line modernization efforts on the factory floor into tangible business outcome improvements at the enterprise level. The COVID-19 pandemic further accelerated fundamental changes in how manufacturers interact with enterprise legacy systems to maintain business continuity and improve agility and responsiveness to market fluctuations and disruptions.

During this unique industry survey, we learned that factory floors generate a great amount of data. As more and more companies collect this data and apply advanced analytics methods to improve operational efficiencies. Companies that can drive insights from the collected data will increase profits and growth.

## **ABOUT THIS SURVEY**

Conducted jointly by SME.org, a Manufacturing Community that promotes advanced manufacturing technology, and Plataine, an Industrial IoT and AI software solution provider, this survey report is designed to provide recent, vital information of the industry and assist manufacturing decision-makers to best prepare for and embark on their journey to digital manufacturing.

Today, the shift towards digitalization and automation is progressively taking hold to improve products and processes, increase efficiency and productivity, reduce costs, and increase customer satisfaction. The survey demonstrates that more than 70% of advanced manufacturers pointed out the overall importance is to improve on-time delivery, lower production costs and delays and reduce quality risks.

Smart manufacturing can offer manufacturers a great return on investment (ROI). Around 30% of respondents answered that they received 1x return on their investment, over 70% responded 2x or higher return on investment in the first six months. We see from the chart that the return on investment is much higher 12 months after deployment.

This survey presents the 2021 business objectives, smart factory strategies and technology trends within advanced manufacturing enterprises.

# INDUSTRY SPLIT OF SURVEY PARTICIPANTS

58%



Engineering &  
Construction

12%



Medical  
Equipment

10%



Oil & Gas

10%



Automotive

3%



Aerospace  
& Defense

3%



Electronics

4%



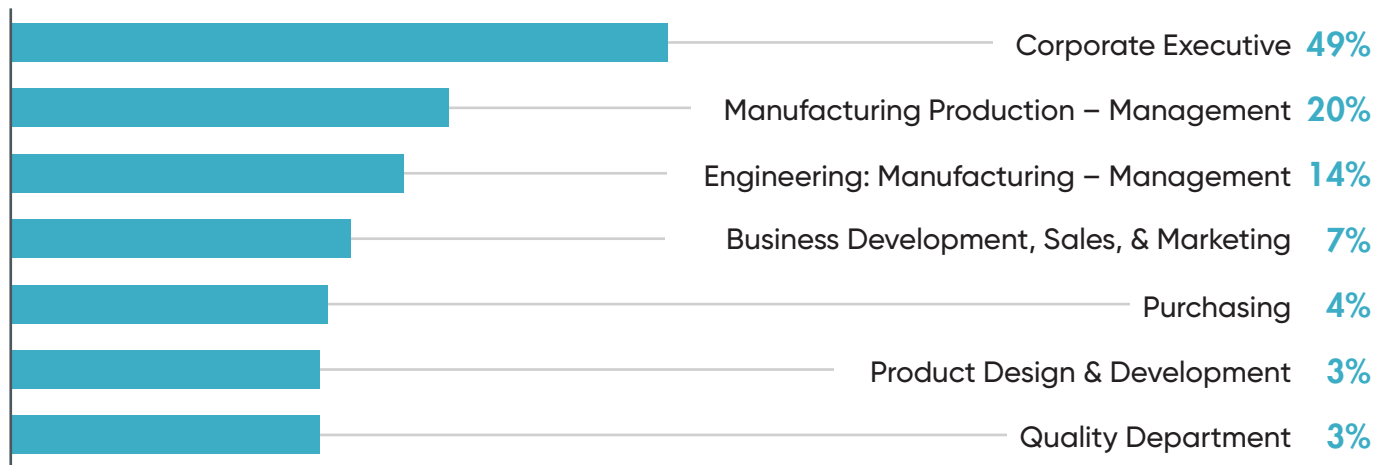
Others

# Demographics //

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## FUNCTIONAL RESPONSIBILITY

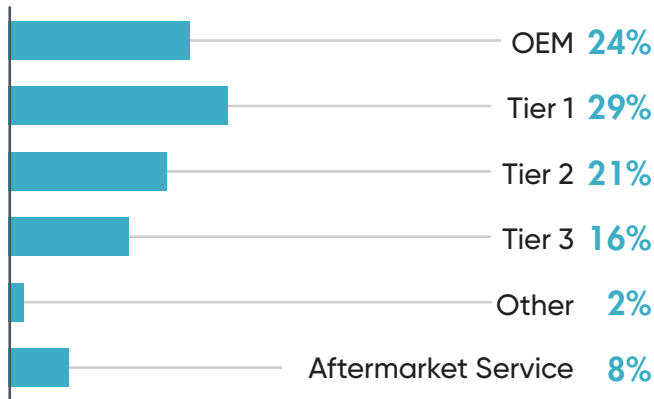
Most of the respondents hold senior roles: 49% are owners or corporate executives and 34% hold other management positions at manufacturing and engineering departments. 7% of the participants are in Business Development, Sales and Marketing.



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## DISTRIBUTION BY TIER SEGMENT

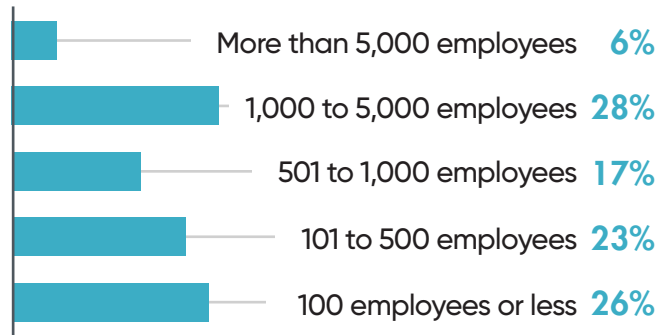
Respondents were asked to select the tier segment of their company within its industry's value chain. A third of the respondents are Tier 1 from Engineering and Construction. 24% of respondents are OEMs from industries such as Automotive, Medical Equipment and Oil & Gas. 21% are Tier 2 and 16% are Tier 3 suppliers. Additionally, 8% are in aftermarket services such as Maintenance, Repair and Overhaul (MRO).



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## NUMBER OF EMPLOYEES

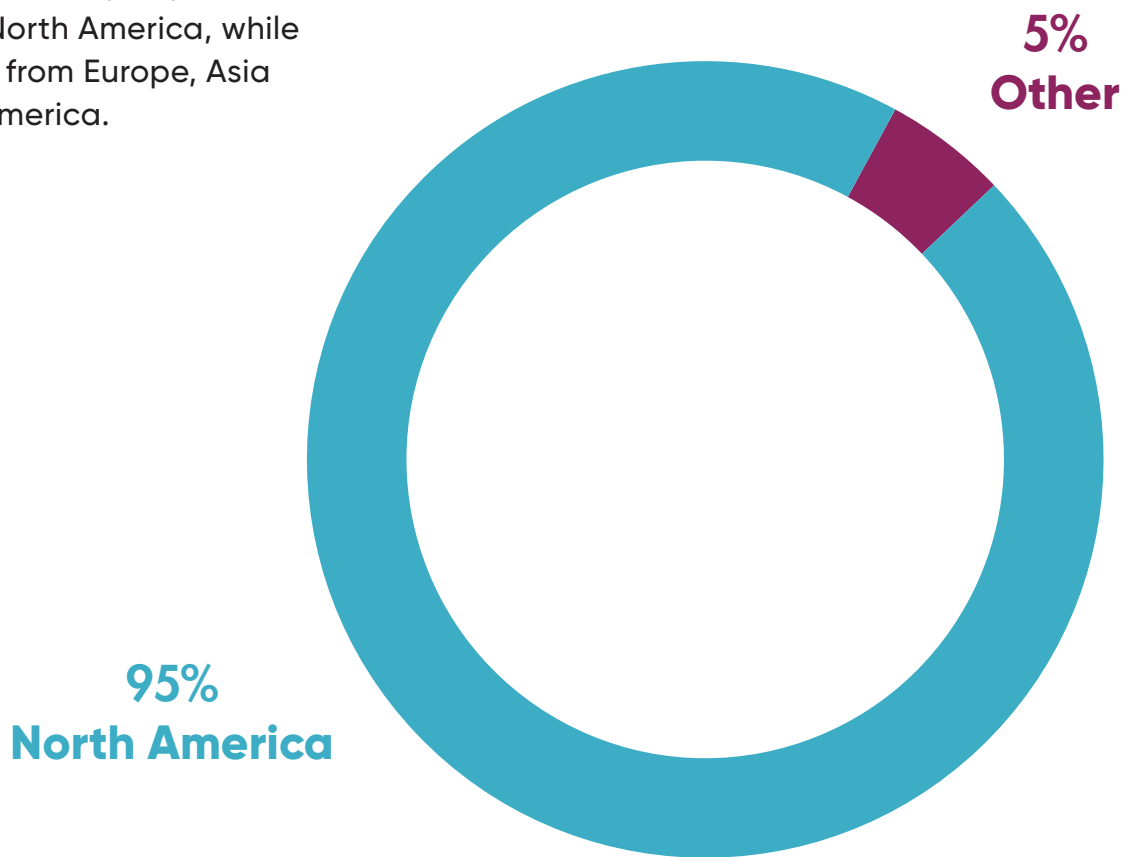
34% respondents are from mid-to large companies while 66% respondents are from the SMB market.



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### **GEOGRAPHIC SPREAD**

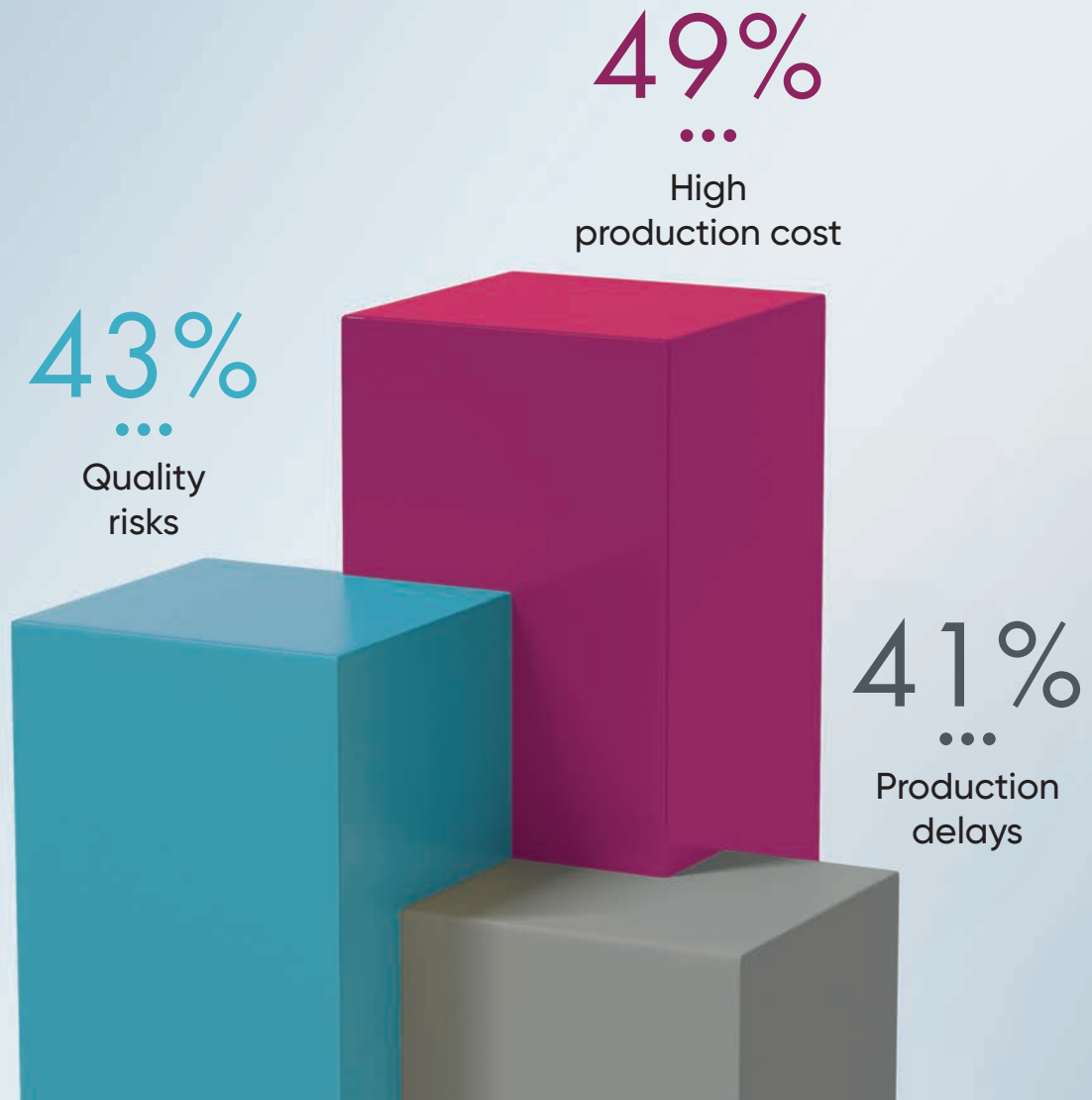
Most respondents (95%) are located in North America, while the rest are from Europe, Asia and Latin America.





# Factory floor's three top challenges

in 2021

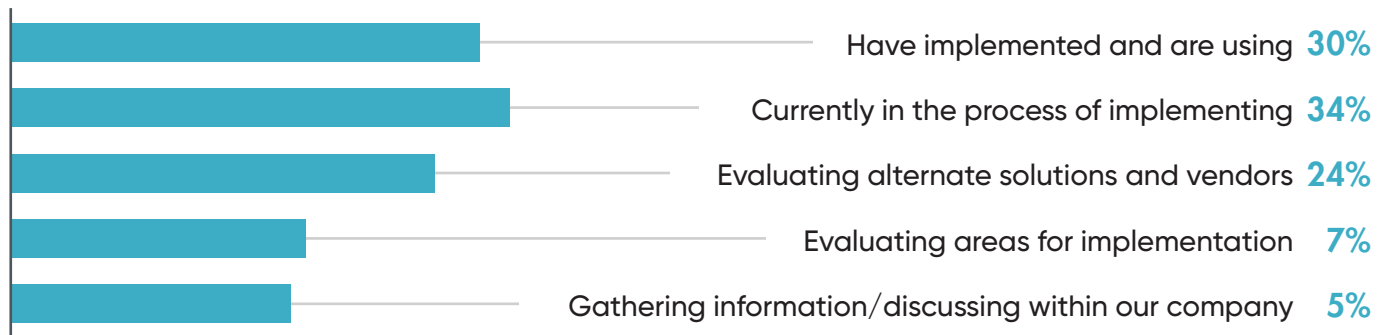


# Smart Manufacturing Initiatives //

## INDUSTRY ADOPTION STAGE

According to the Survey's respondents, 64% have already implemented or are in the process of implementing smart manufacturing initiatives while less than 36% reported that the company is evaluating and discussing the desired solution.

## HOW FAR ALONG IS YOUR COMPANY IN TERMS OF ADOPTING SMART MANUFACTURING INITIATIVES?

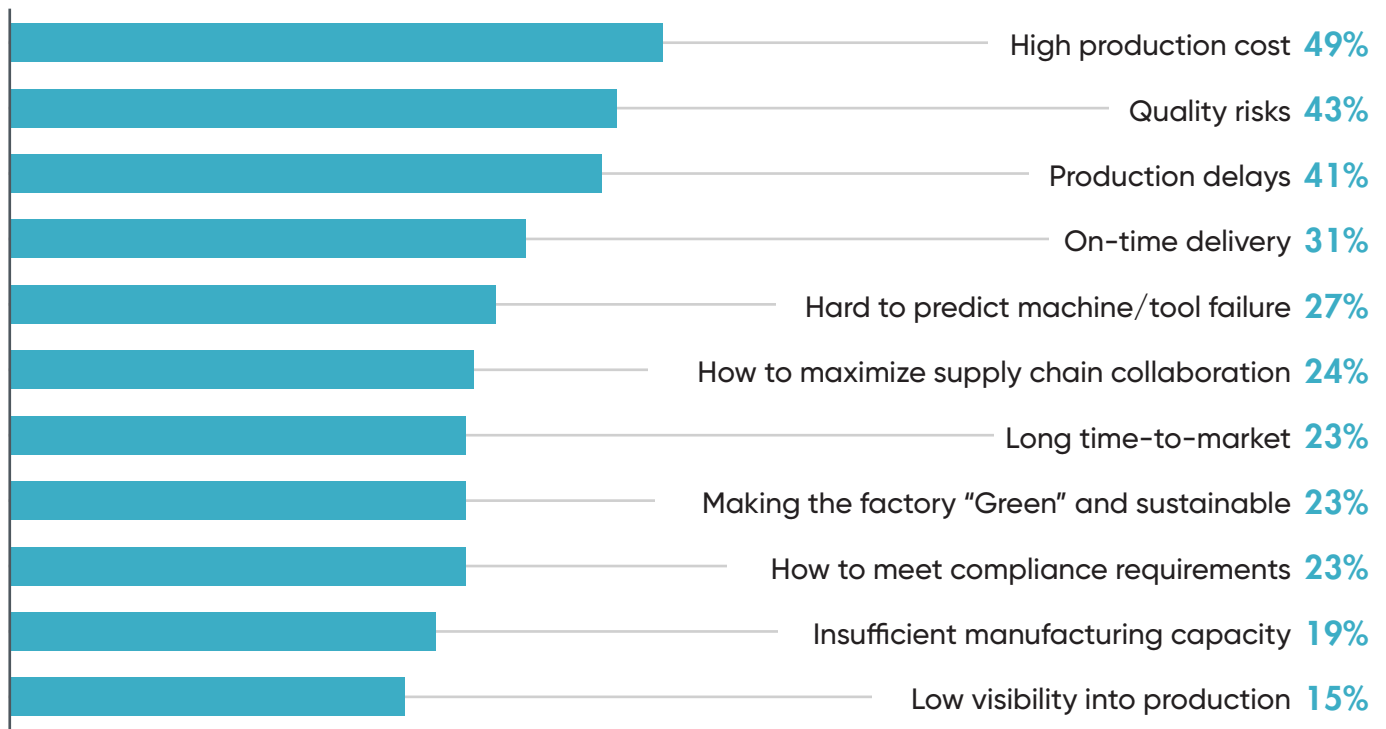




**MAIN CHALLENGES COMPANIES FACE ON THE FACTORY FLOOR**

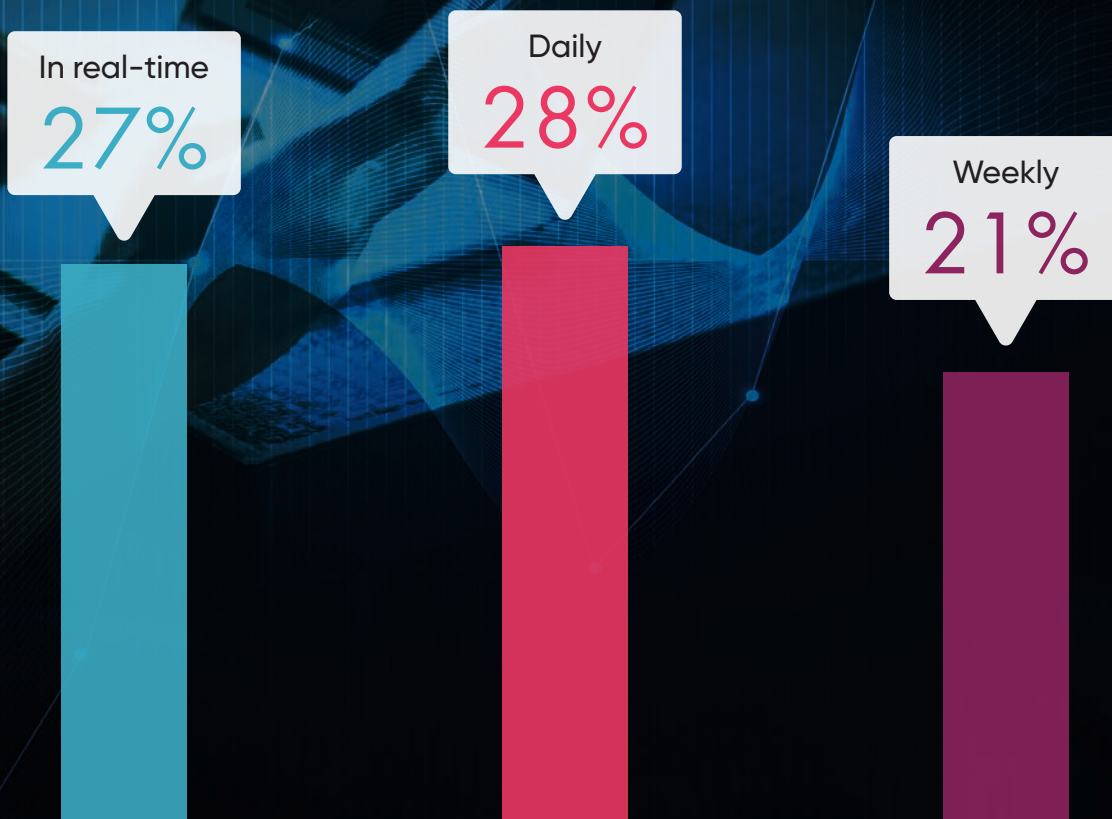
The survey finds that the top 5 main pain points for 2021 are: (1) high production costs, (2) quality risks, (3) production delays, (4) on-time delivery, and (5) tool failure.

**IN GENERAL, WHAT ARE THE “PAIN POINTS” OR DIFFICULTIES THAT YOUR COMPANY FACES ON THE FACTORY FLOOR?**



\* The total responses add up to more than 100% as some respondents marked multiple options.

Repetitive, time-consuming tasks that lead to human error when collecting data and an overhead on the workforce. 27% of advanced manufacturers pointed out that they collect data in real-time from the factory floor while 28% collect data daily and 21% weekly. There is a big opportunity for real-time analytics; the industry's goal should be to close this gap allowing manufacturers to improve their operations, boost productivity and increase quality.



## INDUSTRY 4.0 INITIATIVE PRIORITIES

Manufacturers face numerous challenges at any given time. It's becoming increasingly clear that we will come out the other end significantly different since COVID19 is, clearly, a game-changing event. It is obvious that now more than ever, implementing industry 4.0 tools is crucial for the shorter- and longer-run.

Today, the shift towards digitalization and automation is progressively taking hold to improve products and processes, increase efficiency and productivity, reduce the costs, and increase customer satisfaction. The survey shows that more than 70% of advanced manufacturers pointed out that importance of overall is to improve on-time delivery, lower production costs, production delays and reduce quality risks. If we compare it with the survey we conducted before the pandemic, we can clearly see that manufacturers shift from increasing production capacity into agility, efficiency and cost savings.

### PLEASE RANK THE FOLLOWING ATTRIBUTES IN TERMS OF OVERALL IMPORTANCE TO YOUR COMPANY'S SMART MANUFACTURING INITIATIVES

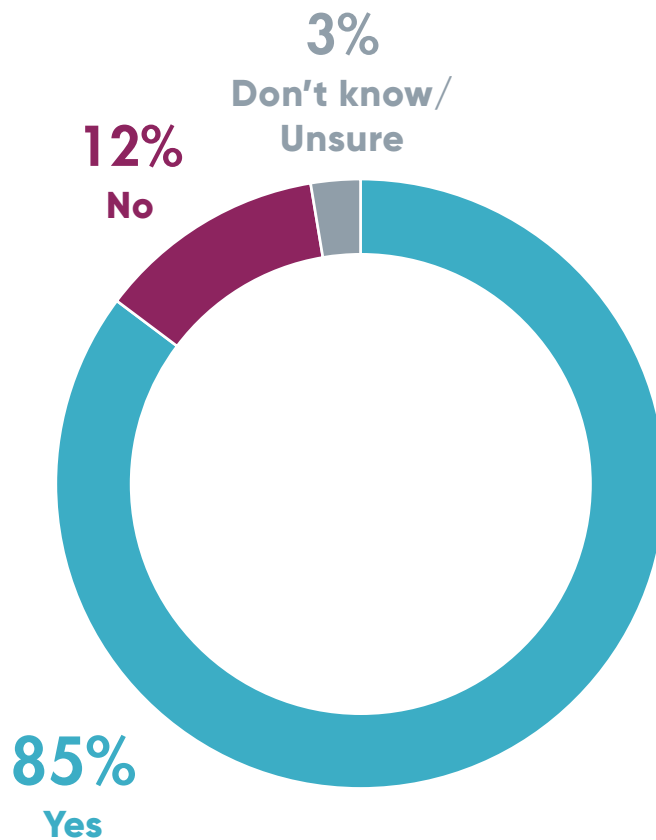




# Data Collection & Analytics //

By collecting data, manufacturers are better able to measure, understand, and optimize production. Most respondents (85%) says that their company is collecting data from the factory floor while the rest are not collecting data or unsure.

DOES YOUR COMPANY COLLECT DATA FROM THE MACHINES ON YOUR FACTORY FLOOR?

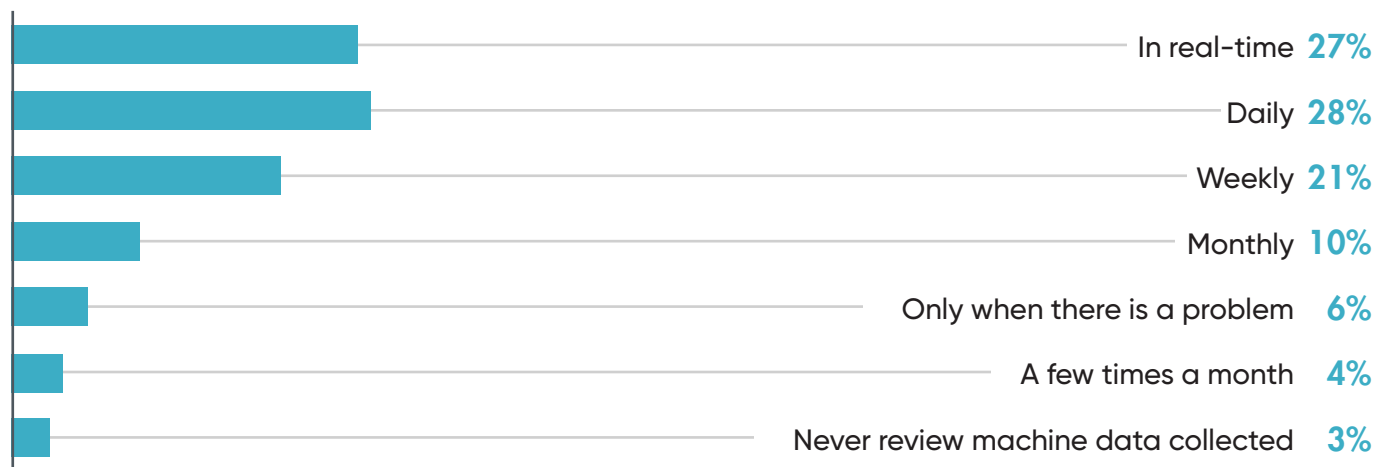




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76% of advanced manufacturers pointed out that they review data from the factory floor although only 27% review the data in real-time, this number can and should still be improved. 6% collect data if there is a problem and less than 4% collect a few times a month or not at all. There is a big opportunity for real-time analytics; the industry's goal should be to close this gap allowing manufacturers to improve their operations , boost productivity and increase quality.

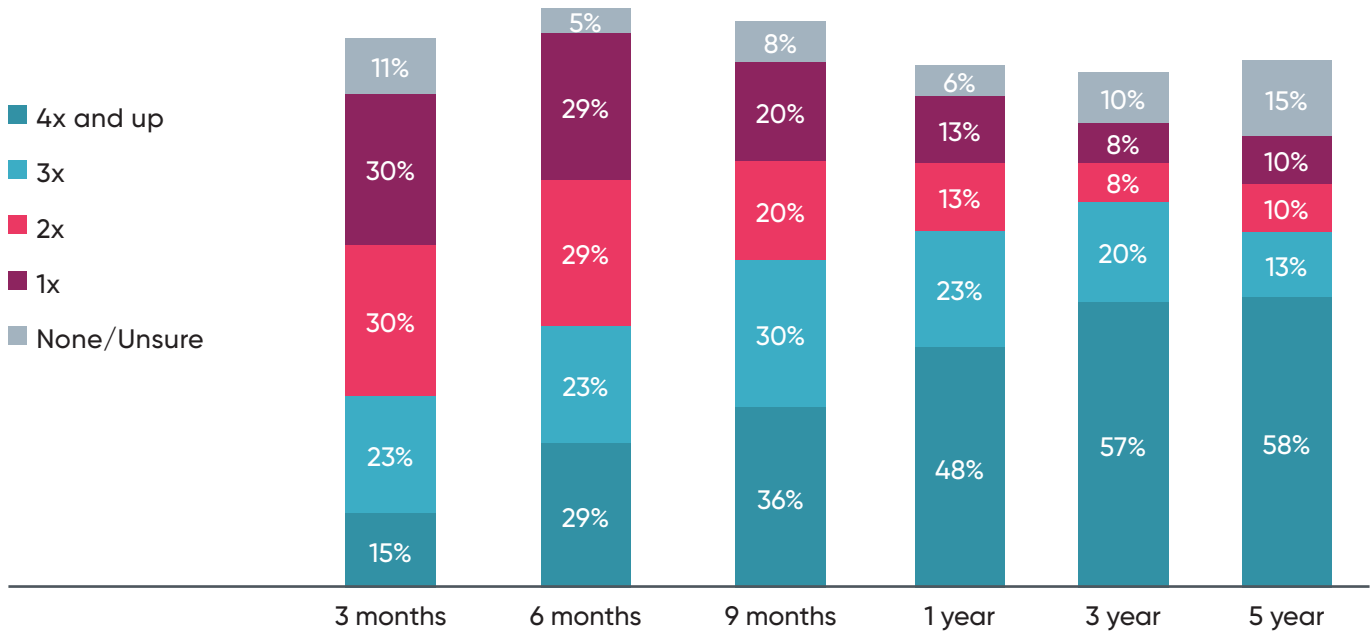
#### HOW OFTEN IS THE MACHINE DATA COLLECTED ON YOUR FACTORY FLOOR REVIEWED?



# Smart Manufacturing ROI//

Smart manufacturing can offer manufacturers a great return on investment (ROI). Around 30% of respondents answered that they received 1x return on their investment, over 70% responded 2x or higher return on investment in the first six months. We see from the chart a much higher return on investment after 12 months after deployment.

WHEN A SMART MANUFACTURING INITIATIVE IS IMPLEMENTED ON YOUR COMPANY'S FACTORY FLOOR, WHAT IS THE EXPECTED ROI WITHIN EACH OF THE FOLLOWING TIMEFRAMES?







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## About SME

SME promotes advanced manufacturing technology and develops a skilled workforce. Our company's purpose is to advance manufacturing and attract future generations. SME has been supporting the manufacturing industry for the last 85 years. Working closely with manufacturing professionals, companies, educators, schools and communities, we share knowledge and resources that generate solutions for manufacturing industry challenges. Through SME'S members and industry experts they collaborate, aggregate and disseminate technical information and expertise. Manufacturers rely on a skilled, technical and professional workforce to drive innovation, increase productivity and remain globally competitive. SME is a leading resource for manufacturing knowledge and training.

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## About Plataine

Plataine is the leading provider of Industrial IoT and AI-based optimization solutions for advanced manufacturing. Plataine's intelligent, connected Digital Assistants take manufacturing to the next level by automating and optimizing decision flows on the production floor. Combining state-of-the-art AI with extensive manufacturing knowledge, Plataine's cloud-based solutions continually assess current status and predict future events on the production floor, to provide actionable insights, alerts and recommendations, empowering production management and staff to make optimized decisions in real-time, every time. Plataine advances the 'Factory of the Future' worldwide and enables global manufacturers such as Airbus, GE, IAI, Triumph, Stelia North America, Alestis, Enercon, TPI, Kineco-Kaman, IFS, Light & Strong and Ethan Allen to drive digital transformation and further increase their business value.

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