Jitterbit EPICOR

2019

IndustryWeek

STATE OF THE MARKET

INDUSTRY 4.0 TECHNOLOGY REACHES ITS TIPPING POINT

The Current State of Technology Adoption and Future Outlook

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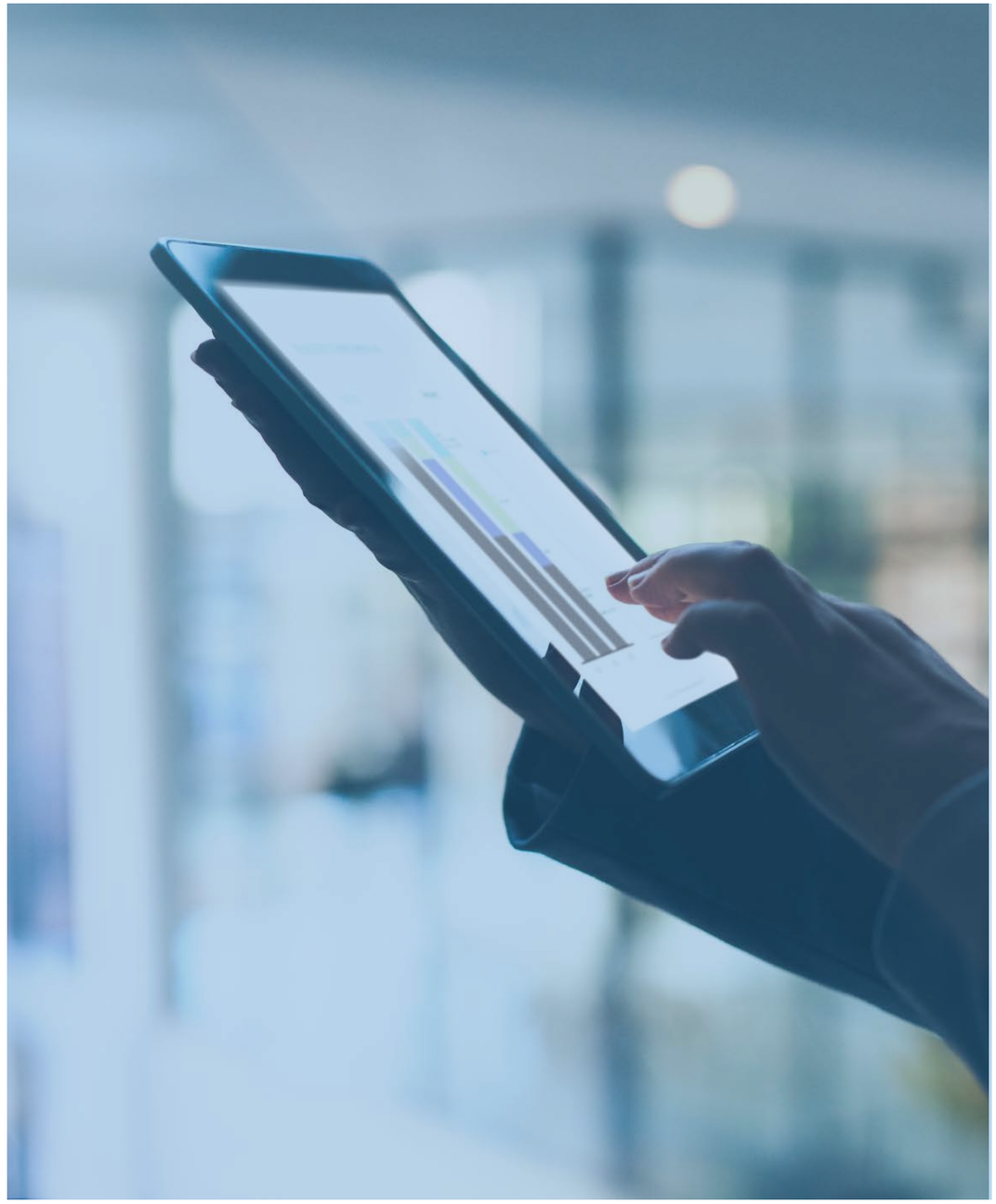

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The year 2019 is shaping up to be the year when manufacturing and supply chain companies are achieving clarity about the importance of Industry 4.0—and what it will take to enable connected manufacturing.

Executive Summary

This report reveals the findings of the 2019 Industry 4.0 Technologies State of the Market survey, conducted by Informa's *IndustryWeek* on behalf of Jitterbit and Epicor. The study explores the progress companies have made in adopting Industry 4.0 technologies, including the integration of manufacturing applications and ERP where companies currently store customer and enterprise data. It also delves into the business objectives companies seek to achieve with Industry 4.0 adoption, the obstacles that stand in their way and the strategies companies are using to deploy modern technologies.

The results show that manufacturing and supply chain companies are moving toward adopting Industry 4.0 technologies, though most companies are still in the early phases. For now, they are not only working on learning how these technologies can be used to improve business competitiveness but, frankly, also how to execute the integration at the technology level.

The good news is that the findings suggest common use cases where early adopters are finding value in Industry 4.0 deployment and identify the biggest obstacles to achieving Industry 4.0 objectives, offering business and technology decision-makers a clearer path forward.

The survey results also provide clues to how you can quickly begin integrating Industry 4.0 technologies across your business, to achieve business goals.

PRIMARY OBJECTIVES OF INDUSTRY 4.0 TECHNOLOGY IMPLEMENTATION

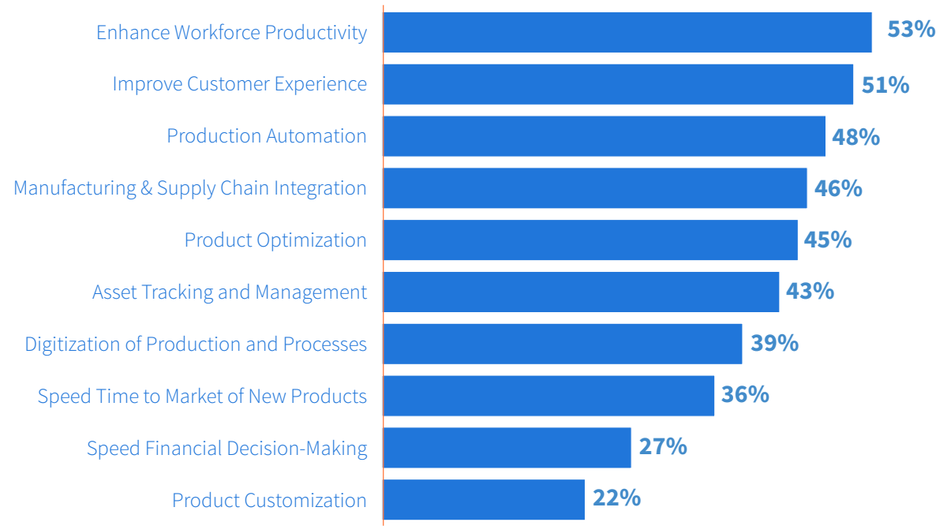
The most common strategic objectives behind the implementation of Industry 4.0 Technologies include enhancing productivity, improving the customer experience, production automation, and achieving manufacturing and supply chain integration.

FIGURE 1

Question: What do you consider the primary strategic objectives of implementing Industry 4.0-related technologies at your company?

(Select all that apply).

Base: All respondents; multiple answers permitted (n=211).



[FIGURE 1] Asked to select four primary objectives, a majority of respondents chose enhancing workforce productivity and improving the customer experience, which were closely followed by four to five other objectives.

The primary objectives that respondents say drive their organization's Industry 4.0 implementation are not very different than goals that drive any business strategy. Enhancing workforce productivity and improving customer experience top the list, with a majority of the respondents citing them as their primary objective for implementing Industry 4.0 technologies. However, it's important to note that no single objective dominates, which suggests that respondents understand their companies can't compete only with a single strategy.

The survey results indicate that company leaders are aware that ensuring connected business processes is the ultimate goal.

Research Methodology

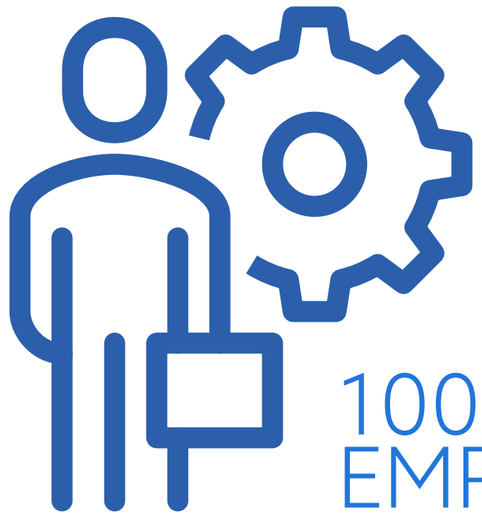
The purpose of this survey was to determine the state of Industry 4.0 technology adoption. In March, Informa Engage emailed invitations to participate in an online survey to subscribers of *IndustryWeek* and/or New Equipment Digest.

Subscribers representing the following job titles and industries were specifically targeted:

- C-Level, IT Management, Operations Management and Plant Management
- Manufacturing, Automotive, High Tech, Retail, Chemicals, Life Sciences, Aerospace and Defense, and Engineering and Construction

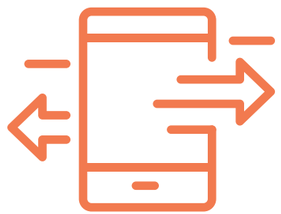
QUALIFYING CRITERIA

Between March 1, and March 18, 2019, Informa Engage received 945 completed surveys, of which 172 respondents represented companies that met the qualifying criteria. This report is based on those respondents.



100+ EMPLOYEES

$50 MILLION+ IN ANNUAL REVENUE



RESPONDENT COMPANIES HAVE AT LEAST BEGUN A PILOT PROJECT LEVERAGING INDUSTRY 4.0 TECHNOLOGIES.

Introduction

Companies are Embracing Industry 4.0

To determine the degree to which companies are ready to embrace Industry 4.0 technologies, the survey asked a question to determine how far along companies are in implementing them.

57% SURVERY RESULTS SUGGEST THAT THE MAJORITY OF RESPONDENTS ARE STILL IN THE VERY EARLY STAGES.

The 57 percent includes data not shown in the graph, where 16 percent of respondents said that they have just started planning a project.

Also, not shown in the graph is that the survey offered respondents three other options to choose, and no respondents selected:

- We're still researching and planning what we're going to do.
- We haven't done any planning.
- We anticipate no foreseeable adoption of Industry 4.0 technologies.

Overall, these results indicate a pretty high level of interest in adopting Industry 4.0 technologies.

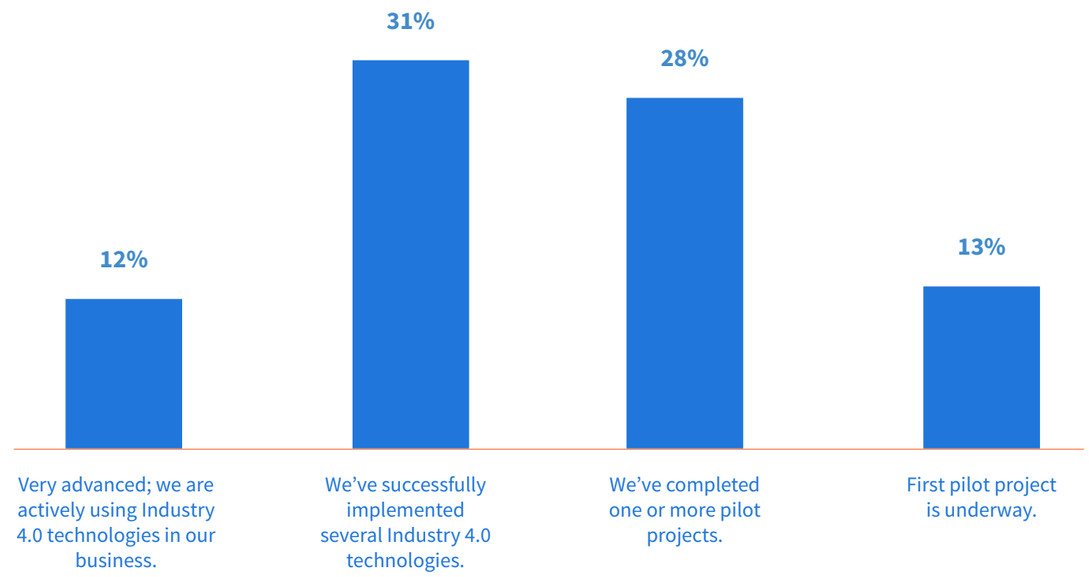
COMPANY STATUS WITH REGARD TO INDSUTRY 4.0

The vast majority of respondents (87%) have completed one or more Industry 4.0 technology pilot projects.

FIGURE 2

Question: What do you consider the primary strategic objectives of implementing Industry 4.0-related technologies at your company?

Base: All respondents (n=172).



[FIGURE 2] The vast majority of respondents (71%) have completed one or more Industry 4.0 technology pilot projects.

While companies are adopting modern Industry 4.0 technologies, 67% of companies do not have a strategic integration roadmap in place.

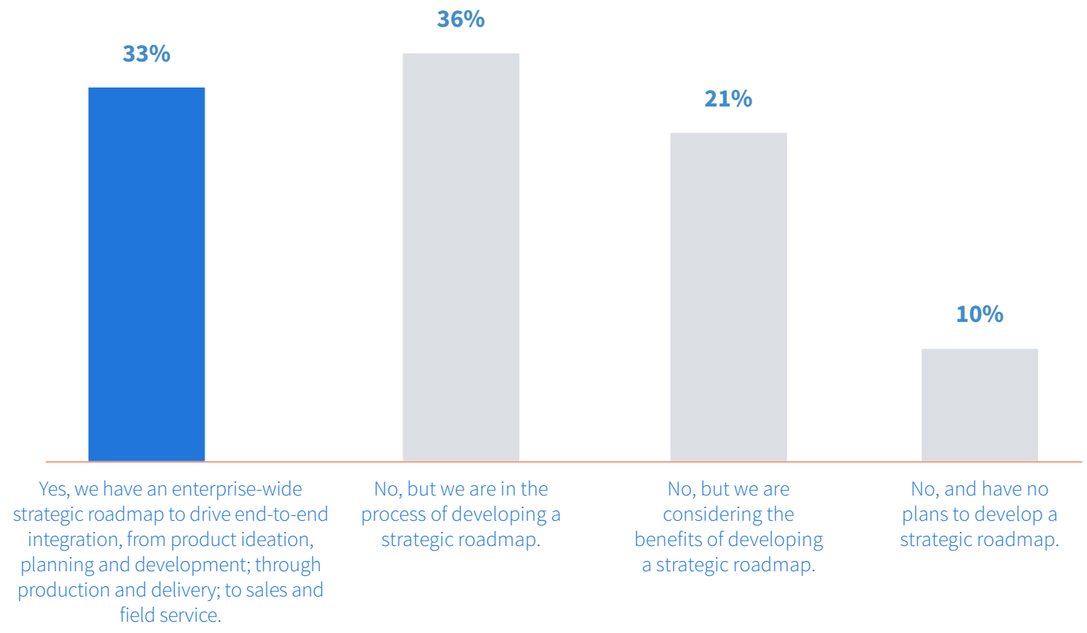
INDUSTRY 4.0 STRATEGIC ROADMAP

One in three respondents report their companies have an enterprise-wide strategic roadmap for Industry 4.0 Technologies. An additional 36% are in the process of developing one.

FIGURE 3

Question: What is your company's status with regard to Industry 4.0 technologies? (e.g., Data Analytics, Industrial IoT, Artificial Intelligence, Machine Learning, Advanced Robotics, AR/VR, Cybersecurity, Additive Mfg, Simulation)

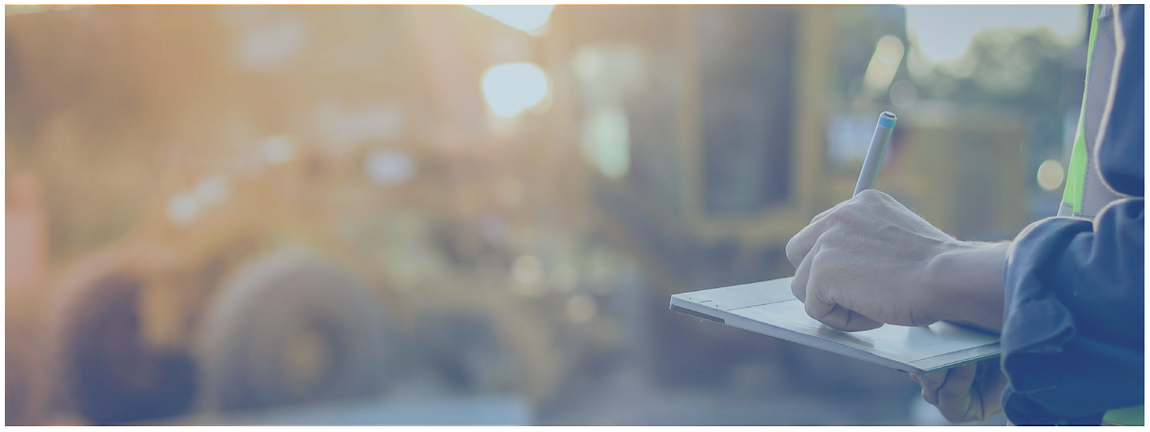
Base: All respondents (n=172).



[FIGURE 3]: One in three respondents report that their companies have an enterprise-wide strategic roadmap for Industry 4.0 technology. An additional 36 percent are in the process of developing one. Only 10 percent of respondents have no plans to develop an enterprise-wide strategic roadmap.

Strategies Used to Adopt Technology

On the question of the strategies companies are using to implement new technologies, only **one in three respondents report** that their companies have an enterprise-wide strategic roadmap. Combined with the additional **36 percent of respondents who say they are in the process** of developing a strategic roadmap, **nearly 70 percent of companies seem to view Industry 4.0** as a strategic imperative.



21 percent of respondents say they do not have a strategic plan but are considering the benefits of developing one, and **only 10 percent of respondents have no plans** to establish an enterprise-wide strategic roadmap. These results suggest that many business leaders are beginning to understand that Industry 4.0 adoption should be viewed as a core element of their company's business strategy.

Of the respondents who indicated that they don't have an enterprise-wide strategic roadmap, **46 percent are most likely to approach the adoption of Industry 4.0 technologies** by either integrating adjacent functions (46%) or on an ad hoc, case-by-case basis (41%). At **12 percent of the companies**, each function is working to optimize its own process.

Of those companies that are choosing to integrate adjacent functions, **a majority indicate that they are working to connect manufacturing with supply chain (57%) or product development with manufacturing (51%)**. Perhaps it's not surprising that these two sets of functions are among the first to be connected via Industry 4.0 technologies. Manufacturers have been working to streamline the connections between these workflows for decades, mostly by applying lean management principles.

Meanwhile, the third and fourth most often cited adjacent functions that companies are working to integrate—ERP solutions with the e-commerce platform and social media data with marketing software—have only relatively recently been identified as functions that should be integrated. Manufacturing and supply chain organizations that are looking to jump ahead of the competition would do well to consider integrating these two workflows, as they may be able to reap the first-mover advantage over their direct competitors.

57% OF COMPANIES ARE WORKING TO CONNECT MANUFACTURING WITH SUPPLY CHAIN.

51% OF COMPANIES ARE WORKING TO CONNECT PRODUCT DEVELOPMENT WITH MANUFACTURING.

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INDUSTRY 4.0 ADOPTION PLAN IN THE ABSENCE OF A STRATEGIC ROADMAP

Those without a strategic roadmap are most likely to approach the adoption of Industry 4.0 technologies by either integrating adjacent functions or on an adhoc basis. Those integrating adjacent functions are most likely to report integrating Manufacturing & Supply Chain and Product Development & Manufacturing.

FIGURE 4

Question: In the absence of an enterprise-wide strategic roadmap, which of the following best characterizes how your company approaches the adoption of Industry 4.0 technologies?

Base: Respondents lacking a strategic roadmap (n=109).

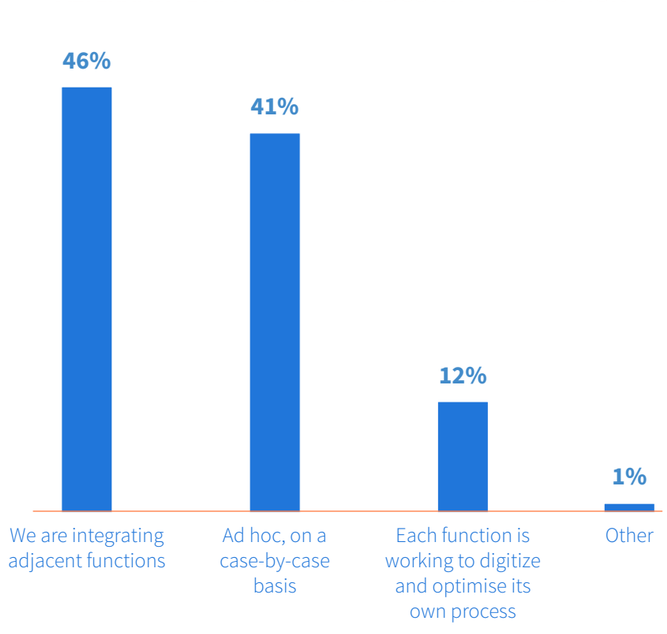
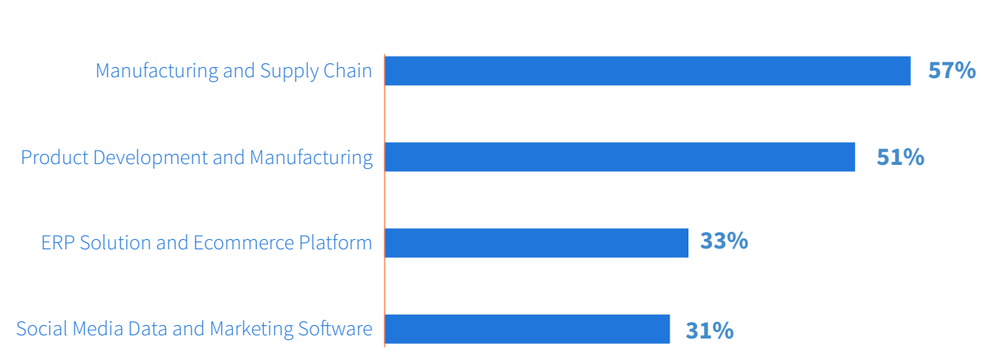


FIGURE 5

Question: Which adjacent functions is your company integrating with regard to new Industry 4.0 technology adoption? (Select all that apply.)

Base: Respondents lacking a strategic roadmap, and integrating adjacent functions (n=49).



[FIGURES 4-5] Respondents without a strategic roadmap are most likely to approach the adoption of Industry 4.0 by either integrating adjacent functions or on an ad hoc basis. Those integrating adjacent functions are most likely to report integrating manufacturing & supply chain, and product development and manufacturing.

When asked about current and future integration of specific manufacturing applications, respondents say they are most likely to have integrated enterprise resource planning (ERP) and supply chain management (SCM) applications, followed by customer resource management (CRM). Over a third of respondents cited manufacturing execution systems (MES) (38%) and product lifecycle management (PLM) (37%).

Quality Lifecycle Management (QLM) and electronic data interchange (EDI)/E-commerce are, again, at the bottom of the list. This data reinforces the idea that integrating these technologies could deliver competitive advantage to early adopters.

Finally, of the manufacturing applications being considered for integration in the future, the light-blue portion of the bars, there are no clear front-runners.

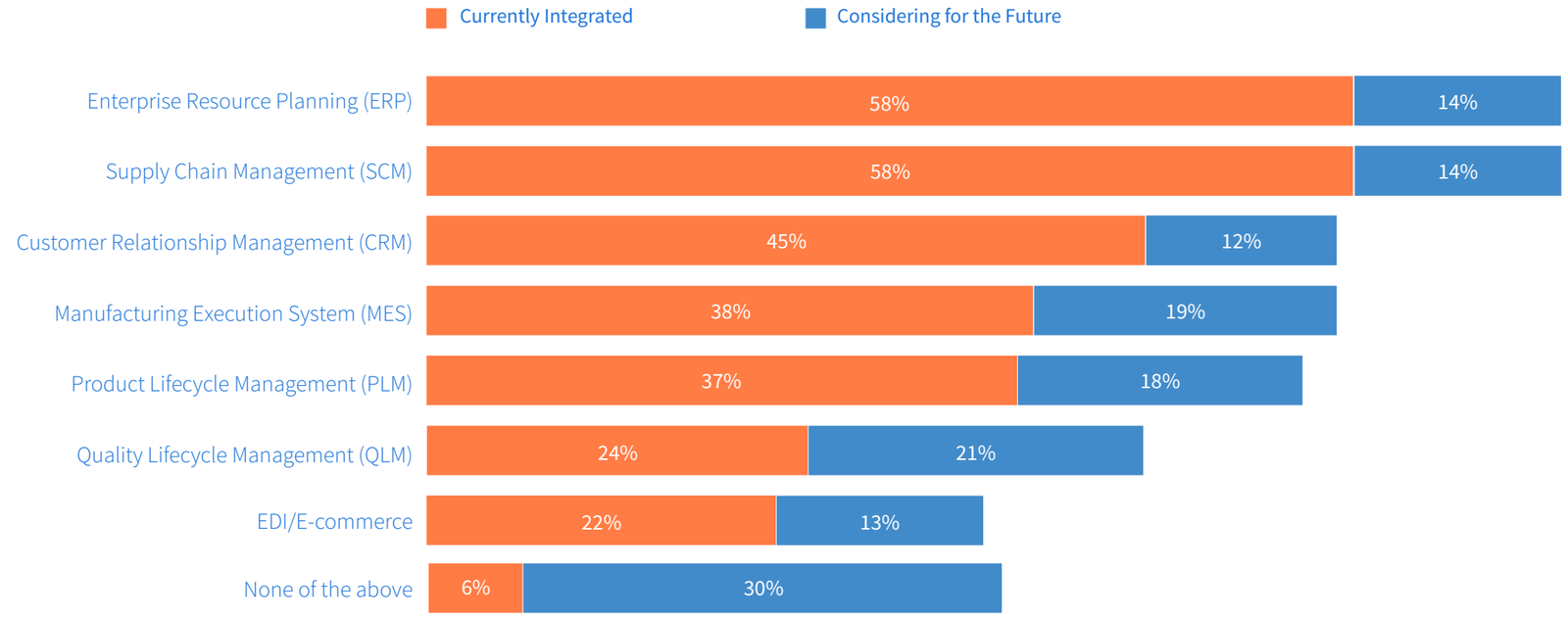
INTEGRATION OF MANUFACTURING APPLICATIONS: CURRENT & FUTURE

Respondents are most likely to have already integrated ERP and SCM applications, followed by CRM.

FIGURE 6

Question: Which of the manufacturing applications has your company integrated? (Select all that apply.) Which of the following manufacturing applications is your company exploring for future integration? (Select all that apply.)

Base: All respondents; multiple answers permitted (n=172).



[FIGURE 6] Respondents are most likely to have integrated ERP and SCM applications, followed by CRM. Of the manufacturing applications being considered for integration in the future, there are no clear front-runners.

Current & Future Storage of Enterprise & Customer Data

The research team also wanted to understand how companies are storing their data and how they plan to do so in the future. Where companies store their data is a critical element determining the ease or difficulty of technology integration. Responses indicate a significant shift from on-premise storage to cloud storage will take place over the next three years.

Significantly, however, the results suggest that manufacturers will likely continue to integrate data from a wide variety of sources, the reasons for which will require further research. Combined with findings about the barriers to achieving Industry 4.0 objectives, discussed below, the data suggests that companies will need to identify effective ways to integrate their data repositories.

70% IN THREE YEARS, 70 PERCENT OF RESPONDENT COMPANIES PLAN TO STORE THEIR DATA IN THE CLOUD.

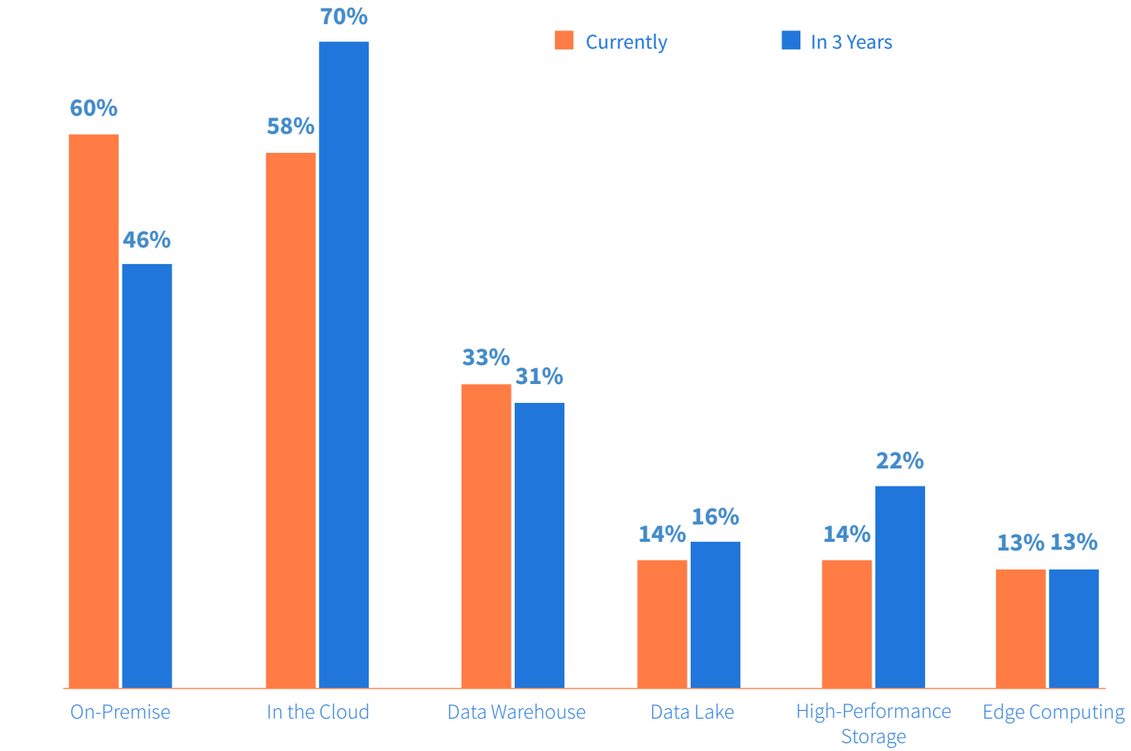
STORAGE OF ENTERPRISE & CUSTOMER DATA: CURRENT & FUTURE

Currently, respondents are equally likely to store enterprise and customer data on-premises or in the cloud. Three years from now, they are more likely to leverage the cloud.

FIGURE 7

Question: Where are you currently storing your enterprise and customer data? (Select all that apply.) Three years from now, where will your company store data? (Select all that apply.)

Base: All respondents (n=172); multiple answers permitted.



[FIGURE 7] Currently, respondents are equally likely to store enterprise and customer data on-premises or in the cloud. Three years from now, they are more likely to leverage the cloud.

50% of respondents say that complexity of implementation/integration with legacy systems is a key obstacle to achieving their industry 4.0 technology implementation objectives.

Barriers to Achieving Industry 4.0 Objectives

It's notable that **three of the top four responses indicate that the complexity of implementation/integration is the biggest obstacle** to achieving Industry 4.0 objectives. A majority of respondents cites the complexity of implementation/integration with legacy systems and, in third place, the complexity of implementation/integration of new process control solutions is cited by 34 percent. In fourth place, 32 percent say the biggest obstacle is lack of internal technical skill.

Though **budget restrictions ranks second**, cited by 44 percent, these results suggest that though companies are increasingly embracing Industry 4.0 technologies—such as the cloud, cybersecurity and industrial internet of things (IIoT)—to digitize their operations, improve customer engagement and secure competitive advantage, they are challenged by the difficulty of integrating the new technologies. As a result, companies risk failing to fully exploit the capabilities the new technologies can provide.

Looking at the barriers cited by a smaller percentage of respondents, at the bottom of the list, suggests that many obstacles that had been significant in the past have become less of a concern.

These warning concerns include no clear ROI, cited by 22 percent of respondents, no clear owner of these objectives (18%) and uncertainty about partners/providers 13 percent. As organizations learn more and become more comfortable with new technologies, it's expected that barriers will be overcome and concerns will be alleviated.

Significantly, **only eight percent of respondents indicated that they saw no perceived need** for adopting Industry 4.0 technologies.

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KEY OBSTACLES TO ACHIEVING INDUSTRY 4.0 TECHNOLOGY IMPLEMENTATION OBJECTIVES

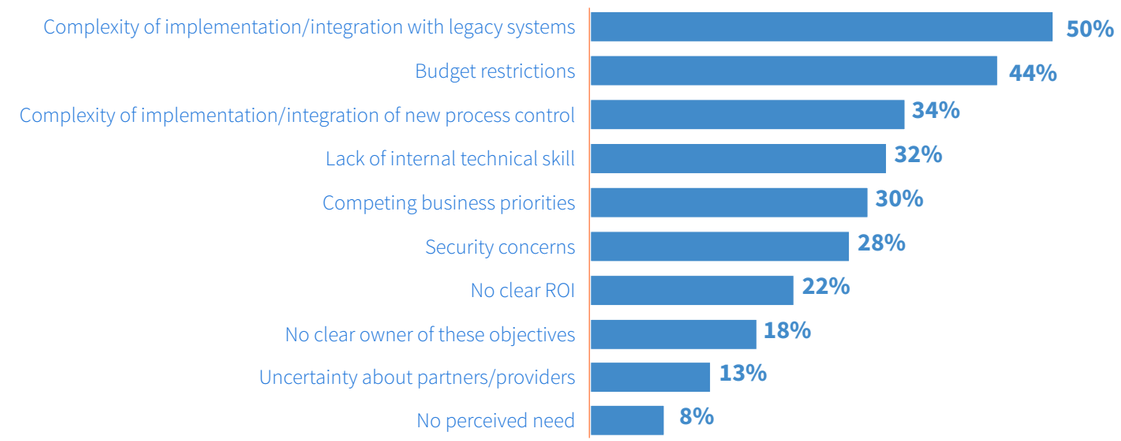
The most common obstacles to achieving the strategic objectives behind Industry 4.0 technology implementation are the complexity of integration with legacy systems and budget restrictions.

FIGURE 8

Question: What are the key obstacles to achieving those objectives?

(Select all that apply).

Base: All respondents; multiple answers permitted (n=211).



[FIGURE 8] The most common obstacles to achieving the strategic objectives of Industry 4.0 technology implementations are the complexity of integration with legacy systems, with 50 percent, and budget restrictions, with 44 percent.

ERP at the Core

Reviewing the survey results overall suggests that ERP—especially ERP in the cloud—could become the centerpiece of companies' Industry 4.0 implementation. First, ERP has become established as a core technology to manage all facets of an operation, including product planning, development, manufacturing and distribution processes over the last few decades, as indicated by its top spot on the list of integrated applications.

Conclusion

Though manufacturing and supply chain companies face some challenges to adopting Industry 4.0 technology, they are forging ahead as the path to adoption is made more apparent. Though most organizations are still in the early phases, this survey reveals clear indications that the use of Industry 4.0 technologies is reaching a tipping point. Survey results suggest that as more specific objectives and use cases are identified, more companies will begin implementing Industry 4.0 as an enterprise-wide strategy.

Respondent Demographics

The survey respondents represent a wide variety of industries and a balanced cross-section of company sizes, both in terms of revenue and number of employees, in the target demographic. No single industry is over-represented, but the machinery-manufacturing industry yielded the most respondents, with 16 percent, followed by computer and electronic products and electrical equipment appliance industries, both with seven percent. Aerospace manufacturing and fabricated metal manufacturers each represented six percent of respondents, while primary metal manufacturing and transportation equipment manufacturers each represented five percent. Industries with four percent of respondents included chemical product manufacturing, communications equipment; food, beverage and tobacco; medical equipment and supplies; and plastics and rubber manufacturing.

By the number of employees, 36 percent of respondents have 10,000 or more employees, 30 percent have 1,000 to 9,999, 12 percent have 500 to 999, and 22 percent have 100 to 499 employees. By annual revenue, over a third (36%) reports $2 billion or more, while 23 percent report $100 million to $499 million. Two groups of companies—those that have $50 million to $99 million and those that have $1 billion to $1.9 billion in annual revenue—each make up 16 percent of survey respondents, while eight percent of respondents generate $500 million to $999 million in annual revenue.

Looking at the professional profile of respondents, a majority hold management level or higher positions within their organizations, including manager (36%), director (20%) and executive management (17%). Over nine job functions are represented in the sample, most commonly engineering (37%), corporate and executive management (16%) and operation, production and plant management (15%).

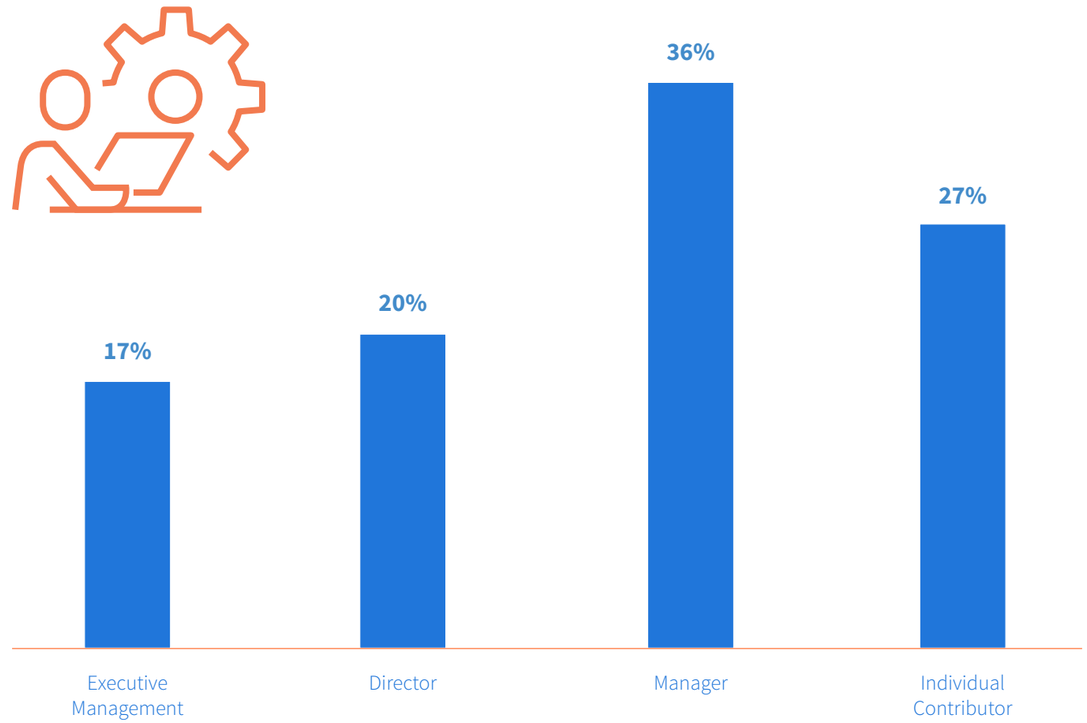
PROFESSIONAL PROFILE

A majority of respondents hold Management level or higher positions within their organizations. A variety of job functions are represented in the sample, most commonly Engineering, R&D and Technical Management (37%).

FIGURE 9

Question: Which of the following best matches your primary job level?

Base: All respondents (n=172).



About Jitterbit

Jitterbit, the API transformation company, makes it quicker and easier for businesses to exploit data from any source, empowering them to rapidly innovate and make faster, more effective decisions. The Jitterbit API integration platform enables companies to quickly connect SaaS, on-premises, and cloud applications and instantly infuse intelligence into any business process. To learn more, visit www.jitterbit.com or contact us at 1-877-852-3500.

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