IDC

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REGION FOCUS: WORLDWIDE

2023 State of Manufacturing Technology Survey

How manufacturers are building the foundation for digital transformation

Reid Paquin
Research Director,
Manufacturing Insights, IDC

Mickey North Rizza
Group Vice President,
Enterprise Software, IDC

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In This InfoBrief

The manufacturing industry has faced continual disruption, which has required companies to adapt and rethink their operations. IDC conducted a study of manufacturers and found:

- Even with economic concerns, more than three-quarters of manufacturers (75.2%) plan to boost software spending over the next 12 months, with more than one-third (37.8%) planning on double-digit increases.
- Top of mind are initiatives to improve security, operational performance, and sustainability, as well as to maximize the value of data and enable collaboration across the enterprise.
- Toward such goals, two-thirds of respondents are considering changing ERP providers.
- While some manufacturers may have unfounded concerns over using the cloud, those who have already transitioned to a cloud ERP platform have experienced positive outcomes.
- On the horizon, AI/ML, Big Data and analytics, and IoT are technologies of interest.

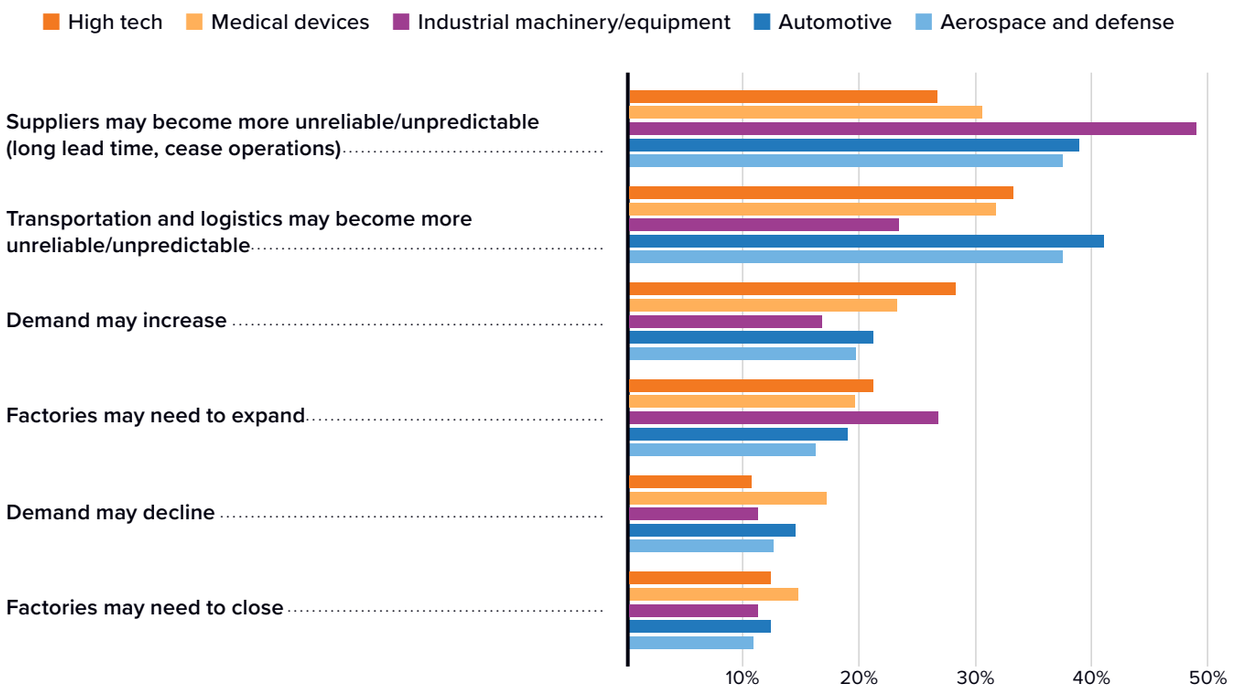
This InfoBrief, sponsored by Rootstock Software, explores additional results from this study, including trends in digital transformation, drivers behind enterprise system modernization, and use of cloud-based ERP systems.

Why Digital Transformation (DX) Matters to Manufacturers

FIGURE 1

How do you expect inflation/interest rates/economic conditions to impact your organization over the next 12 months?

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023 | For an accessible version of the data in this figure, see Figure 1 Data in the Appendix.

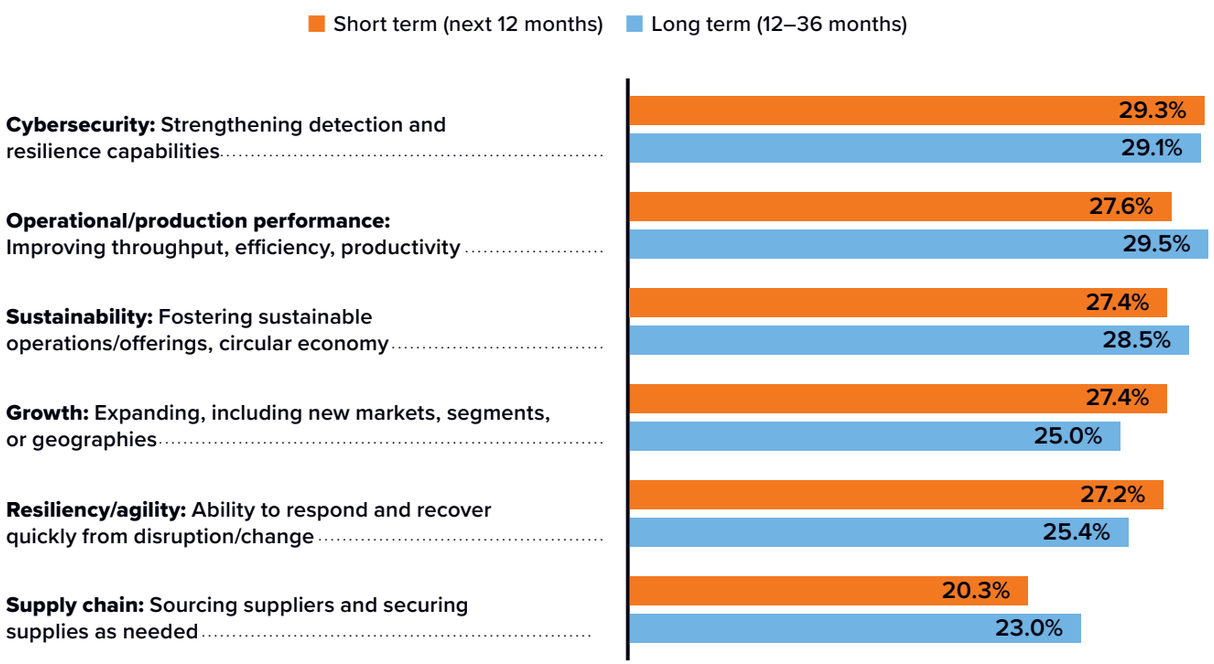
- Economic uncertainty is top of mind across the manufacturing industry, influencing DX priorities.
- Clearly the biggest fear is continued uncertainty across suppliers, transportation, and logistics.
- Being prepared to adapt to unpredictable supply chain issues will be essential to success.
- Visibility outside a manufacturer's four walls will be key to monitor existing suppliers down all the tiers or to add new suppliers quickly.
- Improved supplier collaboration will strengthen supplier relationships and enable manufacturers to source alternate suppliers and perhaps more local ones for greater resiliency.
- Nearly twice as many respondents said they were concerned about keeping pace with increased orders over those worried about diminishing demand.

Short-Term and Long-Term IT Goals in Manufacturing

FIGURE 2

Which of the following initiatives will be significant drivers behind IT investments at your organization, short and long term? (select top 3)

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023
For an accessible version of the data in this figure, see Figure 2 Data in the Appendix.

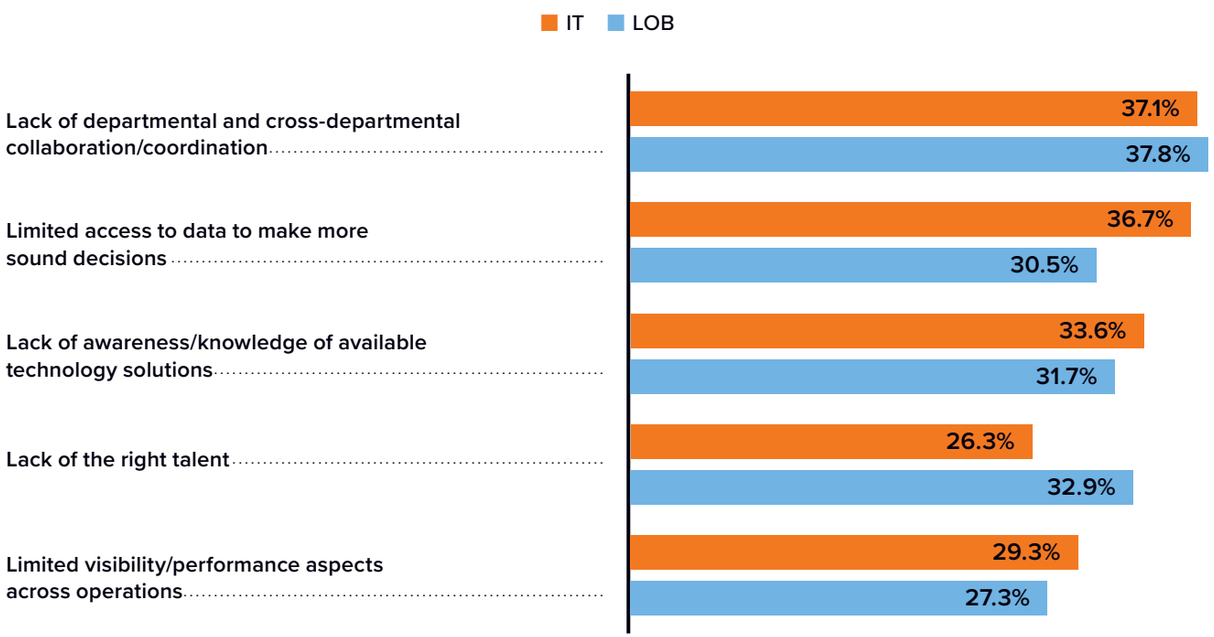
- With the push to embrace digital technology, cybersecurity has been driven to the forefront of the manufacturing industry.
- Operational performance and growth are among the top initiatives for manufacturers.
- Manufacturers have seen sustainability rise as a priority over the past few years. This adds complexity to their business along with managing risky supply chains.
- Given the constant disruptions faced by the industry, resiliency/agility are more pressing in the short term but less important in the long term.
- Manufacturers are aiming to address these issues with a solution that:
  - Is built on a digital platform with orders of magnitude greater security than manufacturers could provide on their own
  - Focuses on streamlining core manufacturing functions for improved productivity
  - Supports sustainability by eliminating paper, minimizing waste/scrap, and optimizing resource consumption (energy, water)

What Holds Manufacturers Back from DX Initiatives?

FIGURE 3

Top Digital Transformation Barriers: IT and LOB

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023
For an accessible version of the data in this figure, see Figure 3 Data in the Appendix.

- Collaboration remains a top challenge for IT and lines of business (LOBs). Platforms and tools that enable collaboration are required.
- Silos are an issue both for data visibility and access to data for decision making.
- Business leaders expect talent shortages to continue to grow across the industry and to worsen over time.
- In a recent but separate manufacturing talent survey by IDC, IT sees finding, acquiring, and retaining talent with the necessary digital skills as a priority.
- Supporting technology will play an important role in addressing DX barriers.

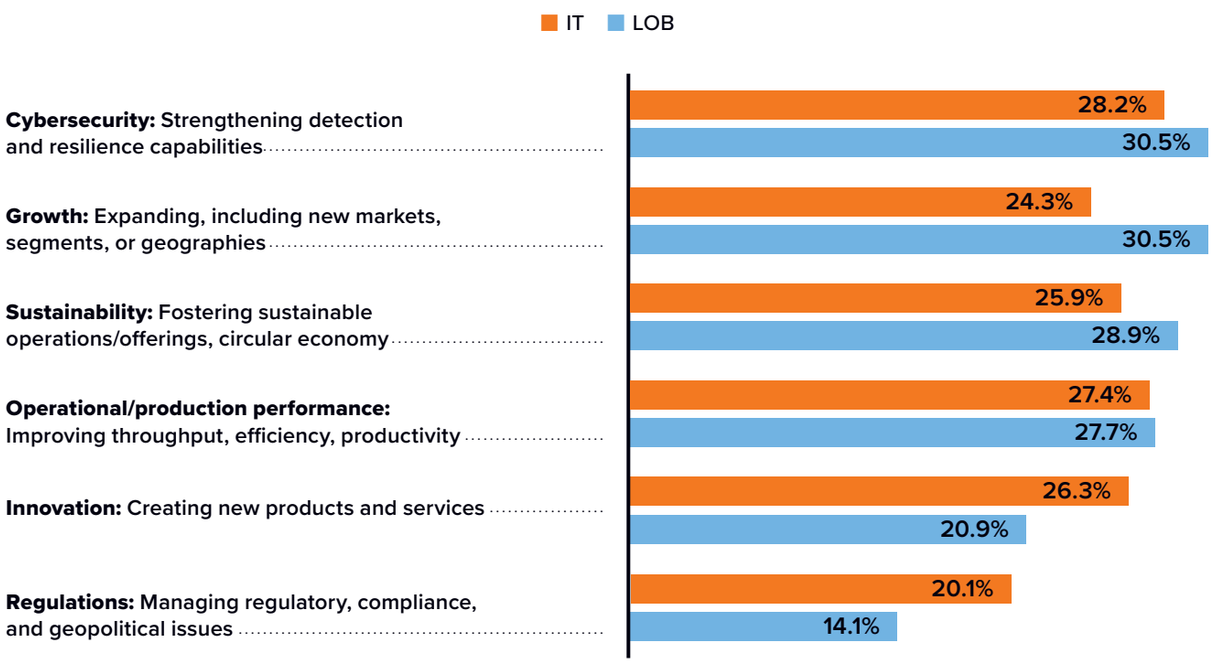
> "The industry's growing talent gap is making it difficult for us to find skilled workers, so our focus has been on better supporting our current workforce to reduce the need for hiring new employees that just aren't out there."
>
> CIO, small high-tech components manufacturer

IT Investments to Alleviate Immediate Manufacturing Concerns

FIGURE 4

Priorities over Next 12 Months (IT and LOB)

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023
For an accessible version of the data in this figure, see Figure 4 Data in the Appendix.

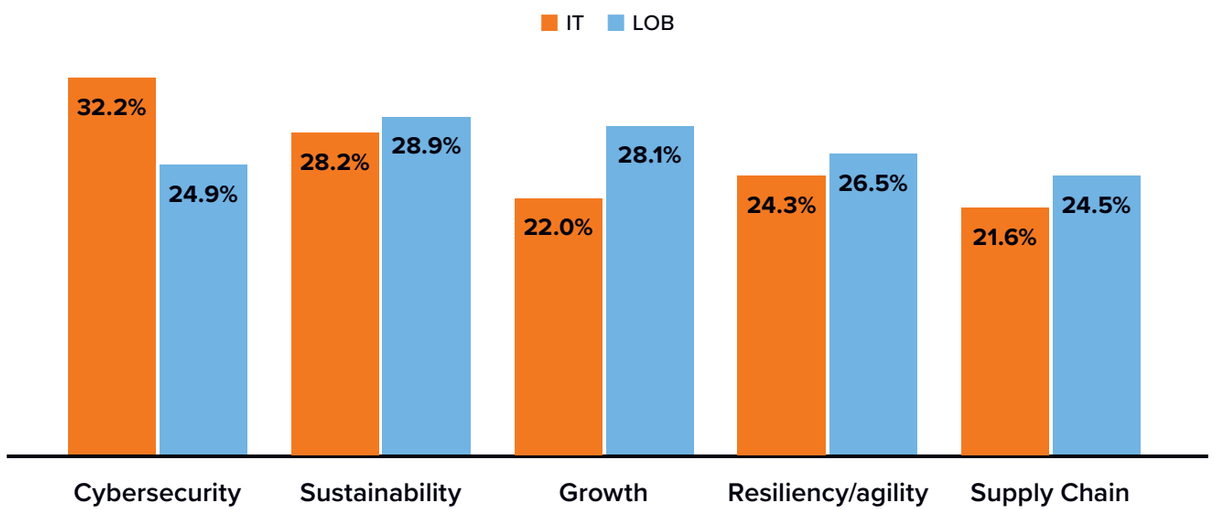
- Cybersecurity is a top priority for IT and LOB units, highlighting the growing concern over security risks.
- Both LOB and IT rank operational performance, the second highest manufacturing driver, at similar rates. Every part of the manufacturing value chain has the potential to contribute to operational excellence.
- For the LOB, achieving growth and fostering sustainability are significant short-term priorities. Manufacturing leaders are tasking LOB managers to address these issues.
- For IT, supporting innovation and managing regulations are key short-term priorities.

IT Investments to Address Long-Term Manufacturing Concerns

FIGURE 5

Priorities over Next 12–36 Months (IT and LOB)

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023
For an accessible version of the data in this figure, see Figure 5 Data in the Appendix.

- Sustainability is a key priority for IT and LOB, as regulatory requirements are increasing.
- For the long-term, cybersecurity represents the priority with the largest discrepancy between groups. This is not surprising since IT typically takes the lead in addressing such concerns.
- Growth and agility remain key concerns for IT and LOB. However, resiliency has risen in long-term rankings, implying that future disruption (e.g., geopolitical conflict, and so forth) is still a concern.
- Supply chain issues are the lowest priority, with the LOB looking more strongly at investments to support this aspect of the business than IT.
- The ever-present manufacturing drivers of cost, performance, reconfiguration, and regulations round out the other priorities in very similar patterns for both groups.

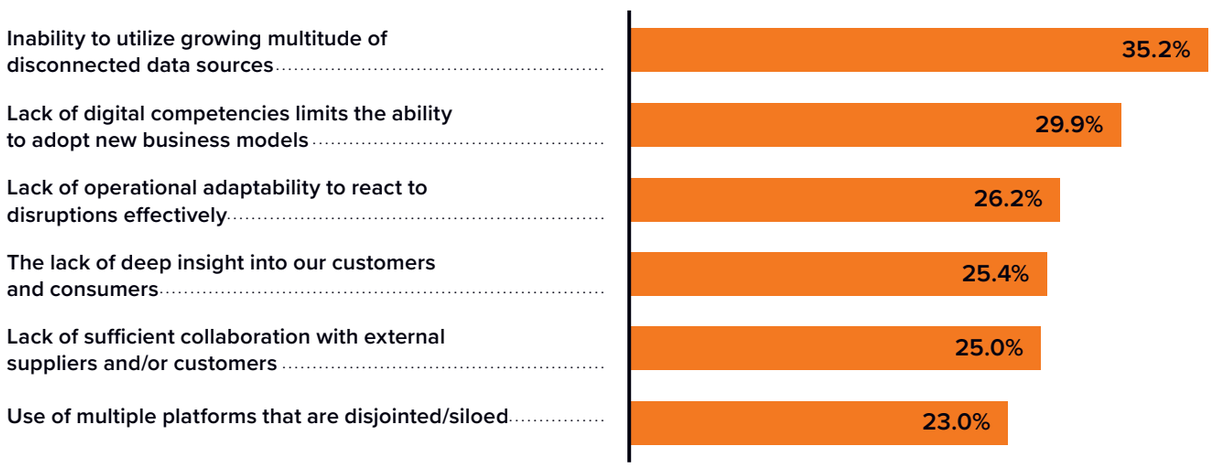
The most successful DX initiatives involve both IT and LOB.
IT investments must address key concerns for each group over the short- and long-term.

Risk of Inaction: What If Manufacturers Don't Digitally Transform?

FIGURE 6

As you think about the future of your business, what consequences are likely to be the most problematic if your organization does not digitally transform?

(% of respondents)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

- The biggest consequence is likely the continued disconnection caused by data silos. All other risks can be traced back to this problem. It must be the first task on any DX agenda.
- Since many manufacturers lack digital competencies/skill sets internally, they will need to upskill existing staff or lean on vendors/consultants to augment their DX expertise.
- It is important to rethink manufacturing operations from the ground up in order to digitize processes and provide each department with the data it needs.
- To this end, manufacturers need to adopt a common data model, which can provide connectivity across enterprise systems such as customer relationship management (CRM) for improved customer insights and enhanced visibility into supply chains.

> "Our business has adapted to disruptions by leveraging technology to streamline processes and improve visibility and efficiency."
>
> Director of IT, midsize high-tech components manufacturer

Many Cloud Concerns Are Overstated or Unfounded

- Managing cloud can be an **order of magnitude easier** to manage than legacy on-premises solutions, with software vendors assisting with the migration.
- IT resources are **growing much faster** in the cloud space as most industries, even the least-mature segments like automotive and aerospace and defense, have made considerable progress in their cloud journey.
- Security has always been a cloud concern voiced by those with a limited understanding, but the reality is that cloud systems are often **more secure.**
- As cloud technology has continued to mature, the ability to customize an instance of a solution is **significantly easier** with low-code/no-code tools built in.

TABLE 1

Top Concerns About Cloud ERP	% of Respondents
Difficulty centrally managing IT systems and integrating cloud services	31.5
Lack IT skills to implement/manage cloud services	30.7
Security	29.7
Limited ability to customize	28.9
IT governance issues	27.2
Migration time investment and time to value	26.4
Regulatory or compliance issues	23.6

> “Companies that want to survive in today’s market should strongly consider upgrading their infrastructure with digitally enabled disruptive technologies that are applicable to Industry 4.0.”
>
> Director of IT, large medical device manufacturer

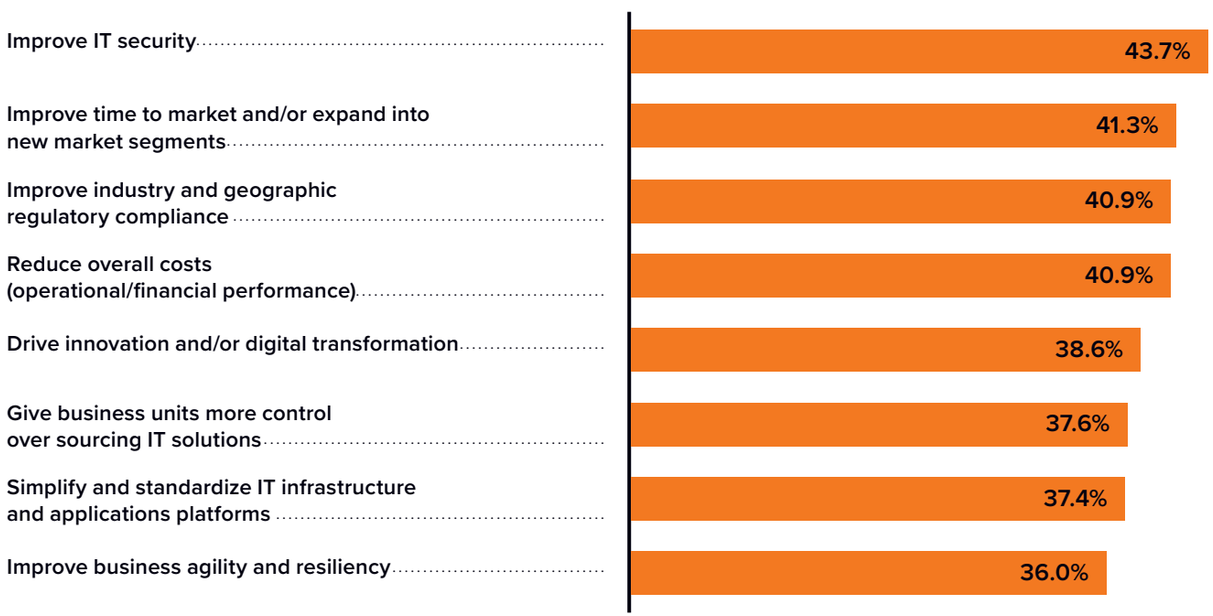
n = 508; Source: IDC’s *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

Cloud Supports the Manufacturing DX Journey

FIGURE 7

Where have you experienced or expect to experience the greatest positive outcome from a cloud ERP solution?

(% of respondents)



- When looking at the benefits, it is clear why manufacturers have continued to embrace cloud.
- On the previous slide, cybersecurity was a top concern, but it is the area that benefitted most. Cloud providers spend far more time and resources on security than manufacturers.
- The benefits align well with the IT investment drivers that manufacturers cited earlier in this survey. This alignment demonstrates the valuable role cloud solutions can play in the DX journey.
- The importance of cloud in manufacturers' business strategy is almost universal, with less than 5% of respondents seeing no immediate need for cloud ERP.

n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

Utilizing Technology to Maximize Digital Transformation Efforts

- The industry's chief DX aspiration is to be able to leverage data to drive its overall business strategy.
- IoT, analytics, and AI/ML will allow manufacturers to collect, manage, and analyze the growing amounts of data available.
- The goal is to find patterns, turn data into actionable insights, and enable automation across manufacturing processes.
- New and innovative technologies are not feasible without the scalability and computing power of cloud, both for applications and ecosystems.
- To maximize the value from DX initiatives, manufacturers must first build a digital foundation.

TABLE 2

Technologies with Greatest Impact over Next 5 Years	% of Respondents
Artificial intelligence/machine learning (AI/ML)	33.9
Big Data/analytics	32.1
Internet of Things (IoT)	31.3
Cloud applications	28.3
Mobility	27.6
Cloud ecosystems	26.8

> "The U.S. market is in a period of significant change and transition. We are facing several challenges, such as an aging workforce and increased costs. In response, we are trying to be more efficacious towards supply chain networks using digital technology."
>
> Director of IT, large medical device manufacturer

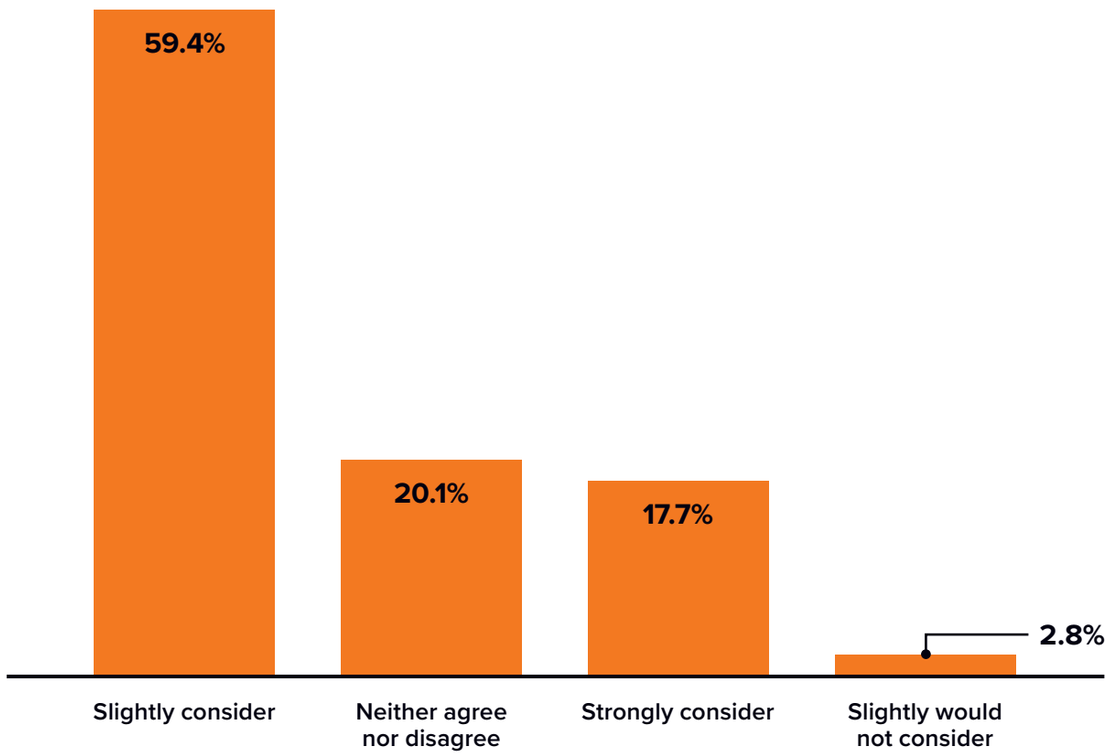
n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

Salesforce as a Platform for Manufacturing DX

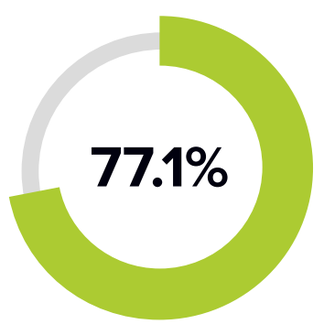
FIGURE 8

Would you consider Salesforce as the single platform to standardize your IT systems?

(% of respondents)



- Given the legacy nature of many manufacturers, siloed or disjointed systems are often the norm. Standardizing on a single platform has become a rising priority.
- Manufacturers are beginning to see the value of cloud ecosystems to address the growing multitude of disconnected data sources.
- Salesforce is the world's most widely used CRM platform, and every survey respondent was using a Salesforce product in some form.
- In the past, Salesforce may not have been widely viewed as the platform to standardize an entire manufacturing IT stack. However, that mindset is changing.



of manufacturers stated they would **consider Salesforce as the single platform** versus only **2.8%** stating they would not consider it.

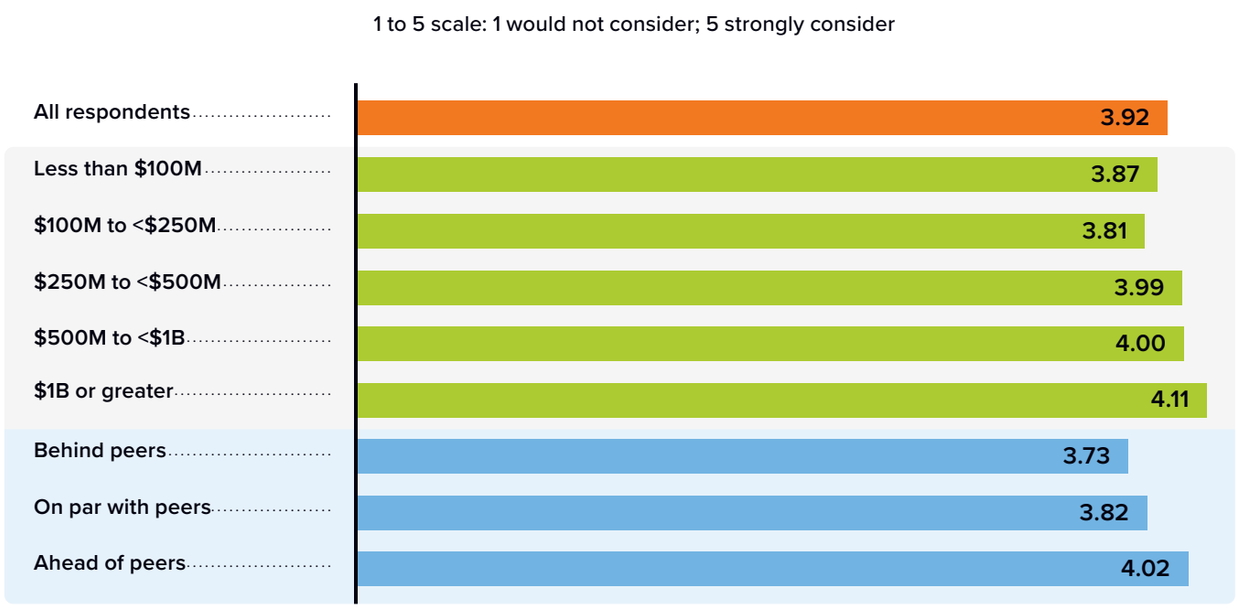
n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

Salesforce as a Platform for Manufacturing DX (continued)

FIGURE 9

Would you consider Salesforce as the single platform to standardize your IT systems?

(Mean score)



- One of the most interesting findings is the difference in mindset among manufacturers with different revenue sizes and technological maturity.
- While consideration of Salesforce as a single platform for manufacturing was elevated for all sizes of manufacturers, it was highest among larger-sized manufacturers.
- In addition, manufacturers who rated themselves as having more mature use of technology reported increased consideration of Salesforce as the single platform.

> Salesforce has allowed us to automate customer service tasks, provide personalized product recommendations, and track customer feedback so that our business can better serve our customers."
>
> Director of production, midsize high-tech equipment manufacturer

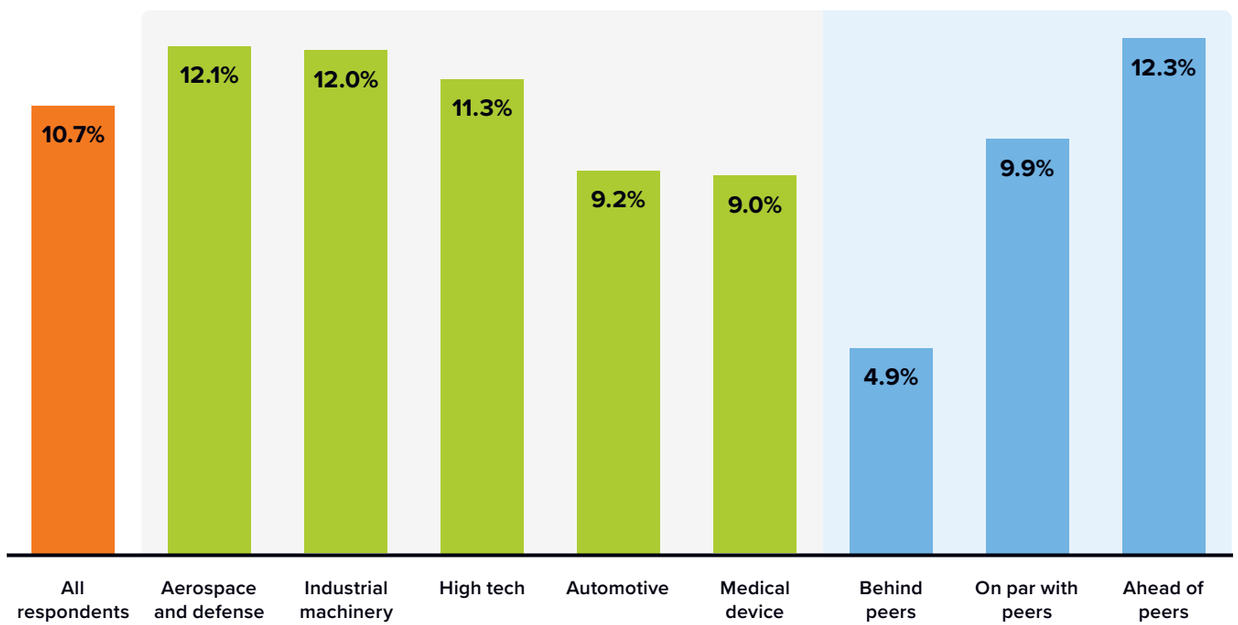
n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

Investment in Enterprise Software as a Response to Economic Concerns

FIGURE 10

What are your organization's investment plans for software that's used across your entire enterprise (CRM, ERP, etc.) over the next 12 months?

(Mean change)



n = 508; Source: IDC's *North America Manufacturing Survey,* sponsored by Rootstock Software, January 2023

- Even with inflation and recession being top of mind, manufacturers still think it is likelier that their business/ demand will increase rather than decrease.
- As a result, manufacturers are expecting investments in technology to further increase as well, almost 11% over the next year.
- Investment will likely shift to use cases that support efficiency and cost reductions, a common approach for manufacturers during economic downturns.
- Continued investment in digital technology remains essential to build the foundation for manufacturing transformation.
- Manufacturers that are ahead of their peers are investing at higher rates to maintain their competitive advantage.

IDC Essential Guidance

Focus on solving data challenges to provide employees with access to consolidated, enterprise-wide data to make the best decisions possible.

Talent gaps will only grow, but **digital technology will play an important role in alleviating labor issues.**

The value of cloud is evident. If you haven't yet made the transition, start moving to the cloud today.

IoT, Big Data and analytics, and AI/ML allow manufacturers to maximize the value of their data but **breaking down silos with a common platform will be required.**

Consider Salesforce as the business platform to standardize your IT systems and provide the single source of truth.

Do not let market conditions hold back investments; **technology serves as the foundation for digital transformation** and a steppingstone for establishing a competitive advantage.

Appendix: Supplemental Data

The tables in this appendix provide an accessible version of the data for the complex figures in this document. Click "Return to original figure" below each table to get back to the original data figure.

DATA FROM FIGURE 1

Why Digital Transformation (DX) Matters to Manufacturers?

	Aerospace and defense	Automotive	Industrial machinery/ equipment	Medical devices	High tech
Suppliers may become more unreliable/unpredictable (long lead time, cease operations)	37.5%	38.9%	48.9%	30.5%	26.6%
Transportation and logistics may become more unreliable/unpredictable	37.5%	41.1%	23.3%	31.7%	33.4
Demand may increase	19.6%	21.1%	16.7%	23.2%	28.2%
Factories may need to expand	16.1%	18.9%	26.7%	19.5%	21.1%
Demand may decline	12.5%	14.4%	11.1%	17.1%	10.6%
Factories may need to close	10.7%	12.5%	11.1%	14.6%	12.2%

n = 508; Source: IDC's *North America Manufacturing Survey*, sponsored by Rootstock Software, January 2023

Return to original figure

Appendix: Supplemental Data (continued)

DATA FROM FIGURE 2

Which of the following initiatives will be significant drivers behind IT investments at your organization short- & long-term? (select top 3)

	Short term (next 12 months)	Long term (12–36 months)
Cybersecurity: Strengthening detection and resilience capabilities	29.3%	29.1%
Operational/production performance: Improving throughput, efficiency, productivity	27.6%	29.5%
Sustainability: Fostering sustainable operations/offerings, circular economy	27.4%	28.5%
Growth: Expanding, including new markets, segments, or geographies	27.4%	25.0%
Resiliency/agility: Ability to respond and recover quickly from disruption/change	27.2%	25.4%
Supply chain: Sourcing suppliers and securing supplies as needed	20.3%	23.0%

n = 508; Source: IDC's *North America Manufacturing Survey*, sponsored by Rootstock Software, January 2023

Return to original figure

DATA FROM FIGURE 3

Top Digital Transformation Barriers: IT and LOB

	IT	LOB
Lack of departmental and cross-departmental collaboration/coordination	37.1%	37.8%
Limited access to data to make more sound decisions	36.7%	30.5%
Lack of awareness/knowledge of available technology solutions	33.6%	31.7%
Lack of the right talent	26.3%	32.9%
Limited visibility/performance aspects across operations	29.3%	27.3%

n = 508; Source: IDC's *North America Manufacturing Survey*, sponsored by Rootstock Software, January 2023

Return to original figure

Appendix: Supplemental Data (continued)

DATA FROM FIGURE 4

Priorities over Next 12 Months (IT and LOB)

	IT	LOB
Cybersecurity: Strengthening detection and resilience capabilities	28.2%	30.5%
Growth: Expanding, including new markets, segments, or geographies	24.3%	30.5%
Sustainability: Fostering sustainable operations/offerings, circular economy	25.9%	28.9%
Operational/production performance: Improving throughput, efficiency, productivity	27.4%	27.7%
Innovation: Creating new products and services	26.3%	20.9%
Regulations: Managing regulatory, compliance, and geopolitical issues	20.1%	14.1%

n = 508; Source: IDC's *North America Manufacturing Survey*, sponsored by Rootstock Software, January 2023

Return to original figure

DATA FROM FIGURE 5

Priorities over Next 12–36 Months (IT and LOB)

	IT	LOB
Cybersecurity	33.2%	24.9%
Sustainability	28.2%	28.9%
Growth	22.0%	28.1%
Resiliency/agility	24.3%	26.5%
Supply chain	21.6%	24.5%

n = 508; Source: IDC's *North America Manufacturing Survey*, sponsored by Rootstock Software, January 2023

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About the IDC Analysts

Reid Paquin
Research Director,
Manufacturing Insights, IDC

Reid Paquin is research director for IDC Manufacturing Insights responsible for the IT Priorities & Strategies (ITP&S) practice. His core research coverage includes IT investments made across the manufacturing industry and manufacturers' progress with digital transformation. Based on his background covering the manufacturing space, Reid's research also includes an emphasis on the technology enablers that help manufacturing executives make better informed operational decisions.

More about Reid Paquin

Mickey North Rizza
Group Vice President,
Enterprise Software, IDC

Mickey North Rizza is group vice president for IDC's Enterprise Software. She leads the Enterprise Applications & Strategies research service along with a team of analysts responsible for IDC's coverage of the next generation of enterprise applications, including digital commerce, employee experience, enterprise asset management and smart facilities, ERP, financial applications, HCM and payroll applications, procurement, professional services automation and related project-based solutions software, supply chain automation, and talent acquisition and strategies. In her role, Mickey and the team advise clients on these intelligent, modern, and modular enterprise applications for businesses of all sizes with an emphasis on the key trends, opportunities, and innovations.

More about Mickey North Rizza

Message from the Sponsor

Rootstock Software provides the #1 Manufacturing Cloud ERP, which empowers hundreds of manufacturers to turbocharge their operations in today's dynamic, post-pandemic world. Natively built on the Salesforce Platform, Rootstock delivers a future-proof solution. With it, manufacturers gain the agility to continually transform their businesses to meet evolving customer needs, navigate emerging challenges, and accelerate their success. In addition, the "connectability" of Rootstock Cloud ERP gives manufacturers 360° visibility to collaborate with suppliers, trading partners, and the broader value chain.

Ranked as a leader by industry analysts, Rootstock has vertical expertise in discrete manufacturing, medical devices, and high-tech verticals. Rootstock team members partner with customers as trusted advisors in driving change and transformation to what's next.

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IDC Research, Inc.
140 Kendrick Street, Building B, Needham, MA 02494, USA
T +1 508 872 8200

@idc @idc idc.com