TOOLS FOR BUILDING

TRUST, VISIBILITY, & CONTROL

IN SUPPLY CHAIN PARTNERSHIPS

Improving the Medical Supply Chain with Enhanced Technologies and Strategies

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EXECUTIVE SUMMARY

Medical supply chains are setting the trends with their use of digital and analytics tools across the value chain to drive growth and productivity, improve resilience, and deliver environmental sustainability. Nonetheless, achieving growth and resilience is still a challenge, especially for medical and pharmaceutical organizations that are heavily dependent on global suppliers.

Medical and pharma companies are now creating closer relationships with their suppliers to build resiliency and partner for growth. New technology solutions and collaborative platforms are making it easier for these organizations to build trust with their supply networks, increase visibility, and gain more control over their operations.

According to *Supply Chain Quarterly*, "Real-time network visibility solutions (such as 5G technology and blockchain) can help integrate data across the entire supply chain" while "artificial intelligence and natural language processing can be used for supplier monitoring."[1]

This study explores the investments and strategies medical and pharmaceutical companies have and plan to employ to improve their supply chain strategies and build better partnerships with their suppliers to position themselves for long term, sustainable growth.

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[1] Mahmoodi, Farzad, Ph.D. "COVID-19 and the health care supply chain: impacts and lessons learned." February 17th, 2021. *Supply Chain Quarterly.* https://www.supplychainquarterly.com/articles/4417-covid-19-and-the-health-care-supply-chain-impacts-and-lessons-learned

ABOUT THE RESPONDENTS

The WBR Insights research team surveyed 100 leaders from pharmaceutical and medical devices manufacturers to generate the results featured in this report. The respondents represent companies from the U.S. and Canada.

What is your role?
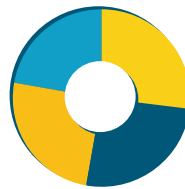
- **27%** Operations, Safety, & Risk Management
- **26%** Information Technology (IT)
- **25%** Supply Chain
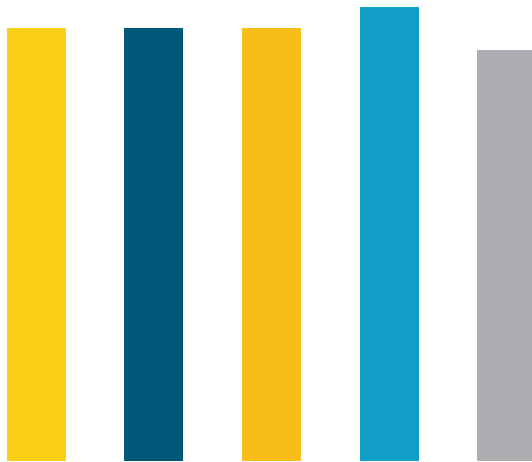- **22%** Logistics & Planning

What is your seniority
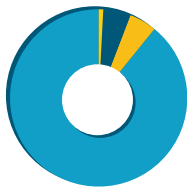
- **1%** C-Suite
- **5%** Vice President
- **5%** Department Head
- **89%** Director

What type of company do you represent?

50% / 50%

- Pharmaceutical Manufacturer
- Medical Devices Manufacturer

What is your company's annual revenue?

The goal of the survey was to understand how supply chain analytics investments have evolved and how they are enabling companies throughout their digital transformations.

- **20%** Less than $100 million
- **20%** $100 million to $250 million
- **20%** $250 million to $1 billion
- **21%** $1 billion to $10 billion
- **19%** More than $10 billion

"It's important to include suppliers in the decision-making process, so that we are seamlessly aligned with them and the conditions of the market. This level of involvement helps build trust between both parties."

— Director of Operations, Medical Devices Manufacturer
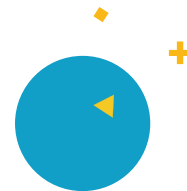
KEY INSIGHTS

Among the respondents:

✚ 84% note that the digitization of supply chain operations (5G and IoT) has been their largest investment, but 40% say analyzing big data is a significant challenge to their supply chain strategies.

▶ 39% say **improving supply chain visibility by adopting new technologies is among their two most important strategies** for gaining more control over the supply chain.

◆ In each case, nearly half say the following are significant challenges to their supply chain analytics strategies:

- Forecasting and modeling (43%)
- Streamlining transportation and logistics (43%)
- Addressing and managing recalls (42%)
- Ensuring on-time delivery (42%)
- Managing data volume in the supply chain (41%)

✳ Most have **a high level of trust with most** (53%) **or all** (24%) **of their suppliers.**

▪ 38% consider **improving demand forecasting for more agility and rapid planning among their two most important** strategies as well.

✚ 61% **somewhat agree that their enterprise or data platform makes visual analytics and reporting easy** for their leaders and other users, but 31% somewhat disagree.

◆ 55% consider **data management among their two biggest barriers to adopting and integrating analytics** into their business processes and supply chain strategies.

✳ 42% say their organizations are **sharing analytics and insights with their end customers, vendors, and stakeholders to improve transparency and planning;** but they have goals to expand this capability.

▪ Most rated **quality control and measures as either the most important** (35%) or second-most important (20%) strategy for ensuring optimal efficiency and performance on their shop floors.

✚ **Staffing analytics was most important** (7%) or second-most important (37%) among nearly half of the respondents as well.

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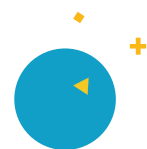
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IoT AND 5G ARE NOW ESSENTIAL TO SUPPLY CHAIN VISIBILITY

It's indisputable that analytics adds significant value to supply chain processes. It is also a necessary component for achieving industry 4.0 goals, as most industry 4.0 technologies rely on analytics for automation and AI-based decision making.

The true question for medical devices manufacturers and pharmaceutical companies is whether their current analytics technologies are producing the type of value they need to achieve their supply chain goals.
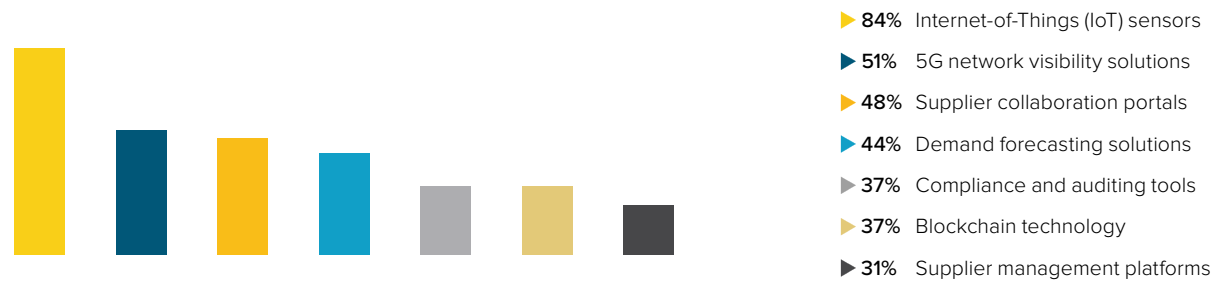
Most organizations have made significant investments into digitizing their processes and

incorporating analytics into the supply chain. However, they face challenges when attempting to turn big data into actionable intelligence.

Much of the process of applying analytics begins with generating usable data. Some companies are facing hurdles in determining which data needs to be highlighted and analyzed once it is generated by their IoT and 5G networks.

> **Medical device manufacturers** are more likely to use IoT sensors than **pharma manufacturers.**

All Respondents: What technologies do you currently use to obtain visibility into your supply chain?

- ▶ **84%** Internet-of-Things (IoT) sensors
- ▶ **51%** 5G network visibility solutions
- ▶ **48%** Supplier collaboration portals
- ▶ **44%** Demand forecasting solutions
- ▶ **37%** Compliance and auditing tools
- ▶ **37%** Blockchain technology
- ▶ **31%** Supplier management platforms

Medical Devices Manufacturers: What technologies do you currently use to obtain visibility into your supply chain?

- ▶ **92%** Internet-of-Things (IoT) sensors
- ▶ **30%** Blockchain technology
- ▶ **52%** 5G network visibility solutions
- ▶ **40%** Demand forecasting solutions
- ▶ **30%** Supplier management platforms
- ▶ **48%** Supplier collaboration portals
- ▶ **40%** Compliance and auditing tools

Pharma Manufacturers: What technologies do you currently use to obtain visibility into your supply chain?

- ▶ **76%** Internet-of-Things (IoT) sensors
- ▶ **44%** Blockchain technology
- ▶ **50%** 5G network visibility solutions
- ▶ **48%** Demand forecasting solutions
- ▶ **32%** Supplier management platforms
- ▶ **48%** Supplier collaboration portals
- ▶ **34%** Compliance and auditing tools

Currently, 84% of the respondents say they are using IoT sensors to obtain visibility into their supply chains.

When this data is segmented by company type, 92% of medical device respondents say they use IoT sensors, compared to 76% of pharma respondents. This could represent an opportunity for pharma to improve their visibility, as **IoT sensors enable pharma companies to monitor shipments of products that must be kept in specific conditions to remain viable. IoT sensors, as well as AI and automation, are some of the most important technologies in the cold chain.**

Most of the respondents (51%) are also leveraging 5G network solutions to obtain visibility, while about half (48%) are using supplier collaboration portals to see into their supply networks. 5G has the potential to provide greater connectivity across supply networks, even in transit locations where there is little internet connection. Meanwhile, more and more organizations are collaborating with their suppliers via shared workspaces and platforms, enabling each party to contribute insights to help solve problems.

These results suggest that most companies have made solid strides to improve their supply chain visibility. Although they haven't adopted some technologies, such as blockchain and demand forecasting tools, they have widely implemented IoT and improved connectivity through 5G and collaboration tools.

Most of the respondents (60%) are also underpinning their supply chain technologies with a supply chain analytics platform. **This type of tool not only provides visibility into the supply chain but also allows the organization to engage in prescriptive and predictive analytics to overcome challenges.**
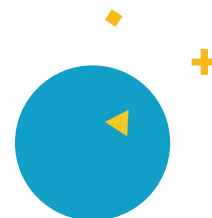
Nonetheless, only 28% of the respondents say they are "very satisfied" with their supply chain analytics platforms. Although a majority (57%) say they are "somewhat satisfied," most feel there is something left to be desired.

These organizations may not have tools that make it easy to turn analytics into value. Visibility is only one component of the medical supply chain strategy. Analytics tools must produce actionable insights to bring real results.

Do you currently use a supply chain analytics platform(s) to obtain visibility into your supply chain?

▶ **60%** Yes
▶ **40%** No
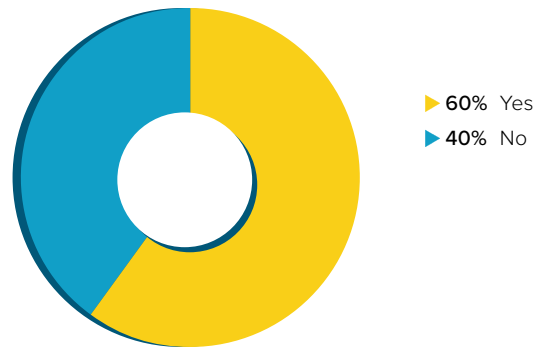
Since you said you currently use a supply chain analytics platform(s), how satisfied are you with your current solution(s)?

▶ **28%** Very satisfied
▶ **57%** Somewhat satisfied
▶ **15%** Somewhat unsatisfied

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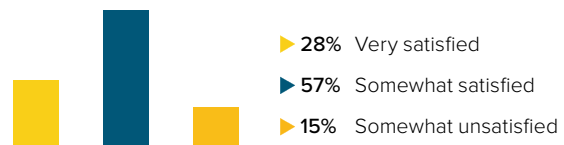
THE VALUE OF SUPPLY CHAIN ANALYTICS

When asked to describe what analytics they currently employ that are the most useful, several respondents provided quantitative information to demonstrate the value of their solutions.

These organizations can influence multiple aspects of their supply chain strategy, including output accuracy, cost reduction, process efficiency, and decision-making capabilities.

"Process efficiency has increased by 15% since the integration of cognitive analytics."
Supply Chain Department Head, Pharma Manufacturer

"The predictive analytics we use has been effective enough to enhance the level of precision of the supply chain. Fall-out orders are close to zero now."
Operations Director, Medical Devices Manufacturer

"Predictive analytics has improved our decision-making capability by nearly 40%."
IT Director, Medical Devices Manufacturer

"The predictive platform we use has made a great impact on our supply chain. It has increased consistency and accuracy by nearly 30%."
Logistics & Planning Director, Medical Devices Manufacturer

"The descriptive platform is effective for us and has also been effective in avoiding unnecessary costs by 25%."
**Logistics & Planning Director, Medical Devices Manufacturer**

"Predictive analytics has supported us well and has given us more than 20% improvement in business and operations results."
IT Director, Medical Devices Manufacturer

"We follow a predictive analytics format that makes it easier to gain the visibility we need. Our speed of analyzing data is up by almost 10% and output accuracy is also up by nearly 40%."
Supply Chain Director, Pharma Manufacturer

"Predictive analytics has been in the mix for some time now, and the total productivity of the supply chain has moved up by nearly 40% since."
Supply Chain Director, Pharma Manufacturer

"Committing to the use of predictive analytics has made things easier for us. The turnaround time (TAT) for the planning team has been reduced by 50%."
Logistics & Planning Director, Pharma Manufacturer

Analytics have **helped improve critical KPIs** but there are **still significant opportunities to expand analytics capabilities.**
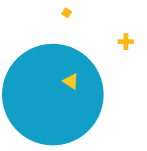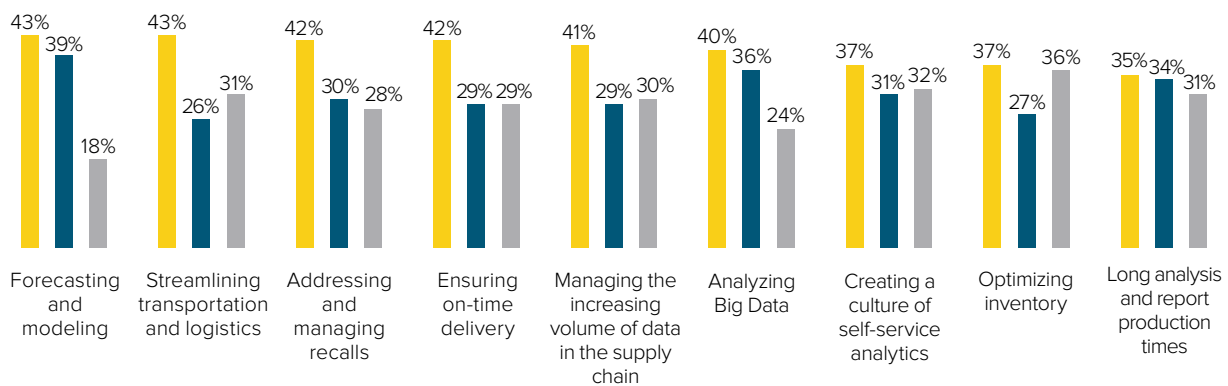
TURNING DATA INTO ACTIONABLE STRATEGIES IS STILL A CHALLENGE

Now that medical device and pharma manufacturers have digitized their supply chain processes, they've enjoyed some significant benefits, as referenced by the quantitative statements above. Nonetheless, **many companies still struggle to leverage their data and turn it into actionable insights.** They may be succeeding in some increments, but they have a long way to go to optimize their entire data operation.

This challenge can arise for a variety of reasons. In some cases, data can't be processed and contextualized for different applications, such as forecasting and modeling. There may also be a disconnect between data collection nodes like IoT sensors and the software used to analyze the data produced.

Which of the following presents a significant challenge to your current supply chain analytics strategy?

Bar chart data:

Category	This presents a significant challenge	This presents somewhat of a challenge	This does not present a challenge
Forecasting and modeling	43%	39%	18%
Streamlining transportation and logistics	43%	26%	31%
Addressing and managing recalls	42%	30%	28%
Ensuring on-time delivery	42%	29%	29%
Managing the increasing volume of data in the supply chain	41%	29%	30%
Analyzing Big Data	40%	36%	24%
Creating a culture of self-service analytics	37%	31%	32%
Optimizing inventory	37%	27%	36%
Long analysis and report production times	35%	34%	31%

▶ This presents a significant challenge ▶ This presents somewhat of a challenge ▶ This does not present a challenge

For example, forecasting and modeling is a significant challenge for 43% of the respondents and somewhat of a challenge for 39% of respondents. Managing increasing volumes of data is also a significant challenge for 41% of the respondents. These are both areas where advanced, AI-powered supply chain analytics tools could help, especially from a predictive perspective.

Forty percent of the respondents say that analyzing big data is a significant challenge. Resolving big data analytics strategies can have significant benefits beyond what companies have already achieved through existing analytics programs. **In essence, big data analytics enables the organization to understand their insights within the context of larger, or even industry-wide data sets.**

According to one respondent who employs this type of context-based analytical strategy, "Supply chain activities are more streamlined, and the value has appreciated by more than 20%."

Overcoming these challenges is not just a matter of making quantitative improvements to supply chain operations. Visibility, predictability, and efficiency are the cornerstones of trust and agility when it comes to the organization's suppliers, and a robust analytics capability is often key to achieving both.

Factories, suppliers, and transport routes sometimes shut down. Companies must be able to predict these disruptions and plan for contingencies to remain agile.

All Respondents: How would you rate the current level of trust you have with your suppliers?
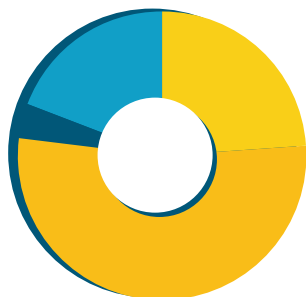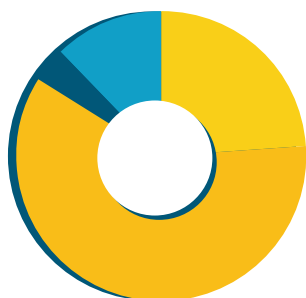
▶ **24%** We have a high level of trust with all our suppliers

▶ **53%** We have a high level of trust with most of our suppliers

▶ **4%** We have a high level of trust with only some of our suppliers

▶ **19%** We don't have a high level of trust with any of our suppliers

Medical Devices Manufacturers: How would you rate the current level of trust you have with your suppliers?
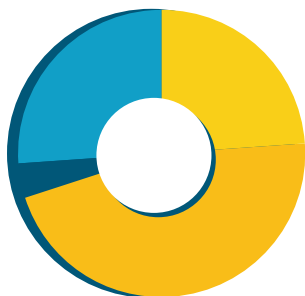
▶ **24%** We have a high level of trust with all our suppliers

▶ **46%** We have a high level of trust with most of our suppliers

▶ **4%** We have a high level of trust with only some of our suppliers

▶ **26%** We don't have a high level of trust with any of our suppliers

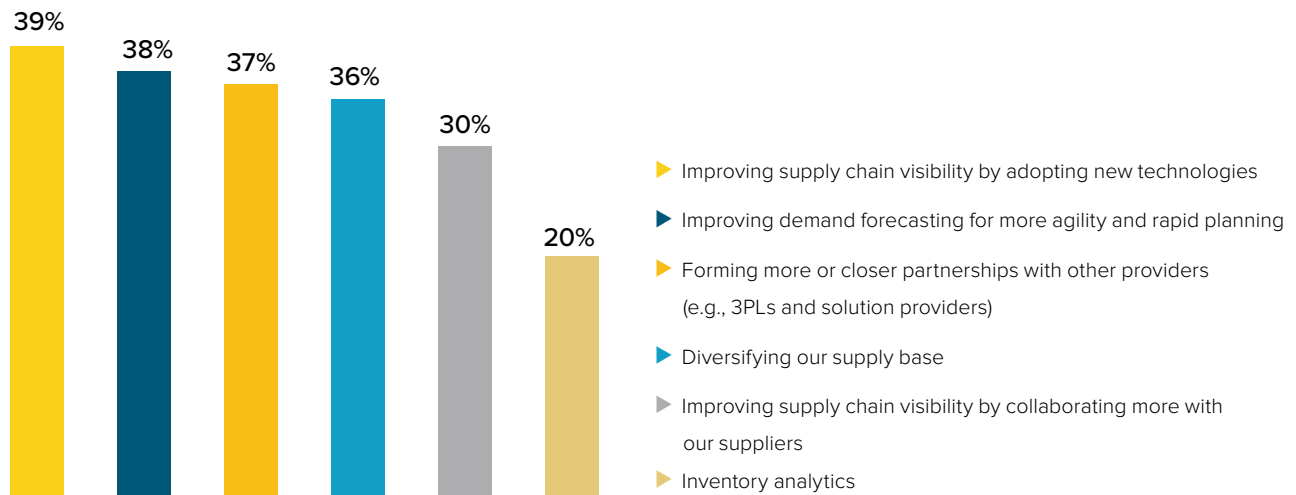**Pharma Manufacturers:** How would you rate the current level of trust you have with your suppliers?

▶ **24%** We have a high level of trust with all our suppliers

▶ **60%** We have a high level of trust with most of our suppliers

▶ **4%** We have a high level of trust with only some of our suppliers

▶ **12%** We don't have a high level of trust with any of our suppliers

Most of the respondents (53%) say they have a high level of trust with most of their suppliers, while almost one-quarter (24%) say they have a high level of trust with all their suppliers. Nonetheless, 23% of the respondents have trust issues with a significant portion of their suppliers.

When the results to this question are segmented by company type, pharma manufacturers have a higher level of trust in their suppliers than medical devices manufacturers. Specifically, just 12% of pharma respondents say they don't have a high level of trust, compared to over one-quarter (26%) of medical devices manufacturers.

Which of the following are your two most important strategies for gaining more control over the supply chain over the next 12 months?

39% ▮ 38% ▮ 37% ▮ 36% ▮ 30% ▮ 20%

▶ Improving supply chain visibility by adopting new technologies

▶ Improving demand forecasting for more agility and rapid planning

▶ Forming more or closer partnerships with other providers (e.g., 3PLs and solution providers)

▶ Diversifying our supply base

▶ Improving supply chain visibility by collaborating more with our suppliers

▶ Inventory analytics

Researchers asked respondents with a low level of trust what they believe their suppliers can do to improve the situation. Many of these respondents say they need their suppliers to operate on the same digital platform as them, so they can "co-develop procedures and contracts that thrive on transparency," as one IT department head puts it.

Other respondents echo the sentiment that "digitization" and "digital communication" are key to improving these relationships.

Indeed, 39% of the respondents say that improving supply chain visibility by adopting new technologies is one of their most important strategies for gaining control of the supply chain over the next 12 months. Meanwhile, 30% say collaborating more with suppliers is a top priority, and 37% plan to form more close partnerships with other providers, such as solution providers.

Executing these strategies will require oversight from high-level leaders within the organization, but several respondents also say that they have dedicated individuals who own their analytics strategies.

For example, one IT director at a medical devices manufacturer says, "We have a dedicated strategy formation and execution team that comprises members from multiple groups to which the strategy belongs."

Some respondents say their department heads are responsible for analytics strategy. Others say that other individuals are responsible for analytics, at least as it pertains to manufacturing and supply chain operations. Several respondents point to their director of operations.

Still, some respondents say there have "no formal ownership" established for their analytics strategy. Even when analytics are centrally owned, the application and impact of analytics across the supply chain is complex. Strategies must accommodate multi-faceted steps across the supply chain to affect every aspect of it—from sourcing and production to quality and logistics.

Resolving these challenges will be crucial for supply chain partnerships moving forward. Selecting analytics tools and executing analytics initiatives can be complex matters, and they are now crucial to generating value.
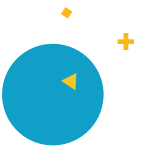
MORE VALUE-BASED APPLICATIONS OF ANALYTICS ARE NEEDED

Discussions of supply chain analytics often focus on big-picture topics like supply chain visibility, ROI, and overall value creation for the business. However, analytics also have value-based applications at the ground level. Often, **it's these tactical applications of analytics that contribute true value to the business.**

In medical manufacturing settings, analytics ensure efficiency and performance directly on the shop floor. This type of value-based application can provide significant benefits to operations if the organization has the technology to support it.

Many organizations are already using their analytics solutions in this context. **Over one-third (35%) say quality control is the most important application of analytics when it comes to operational efficiency, while another 20% rank this as the second-most important application.**
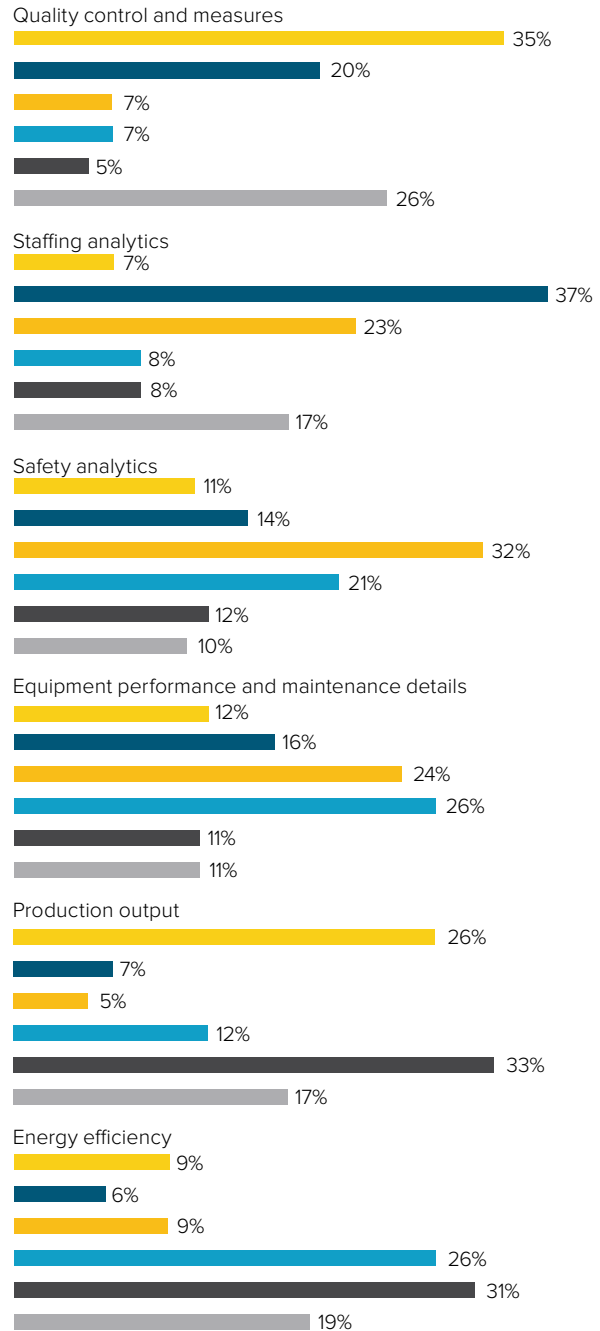
Over one-third (37%) also list staffing analytics as their second-most important application of analytics on the shop floor. Maintaining adequate staffing is often a challenge in manufacturing, but it has been more pronounced in recent years.

When this data is segmented by company type, there are clear differences in their priorities. While 46% of medical devices manufacturers list quality control as their most critical form of analytics, only 24% of pharma manufacturers do so. Instead, 34% of pharma manufacturers say production output is their most critical form of analytics.
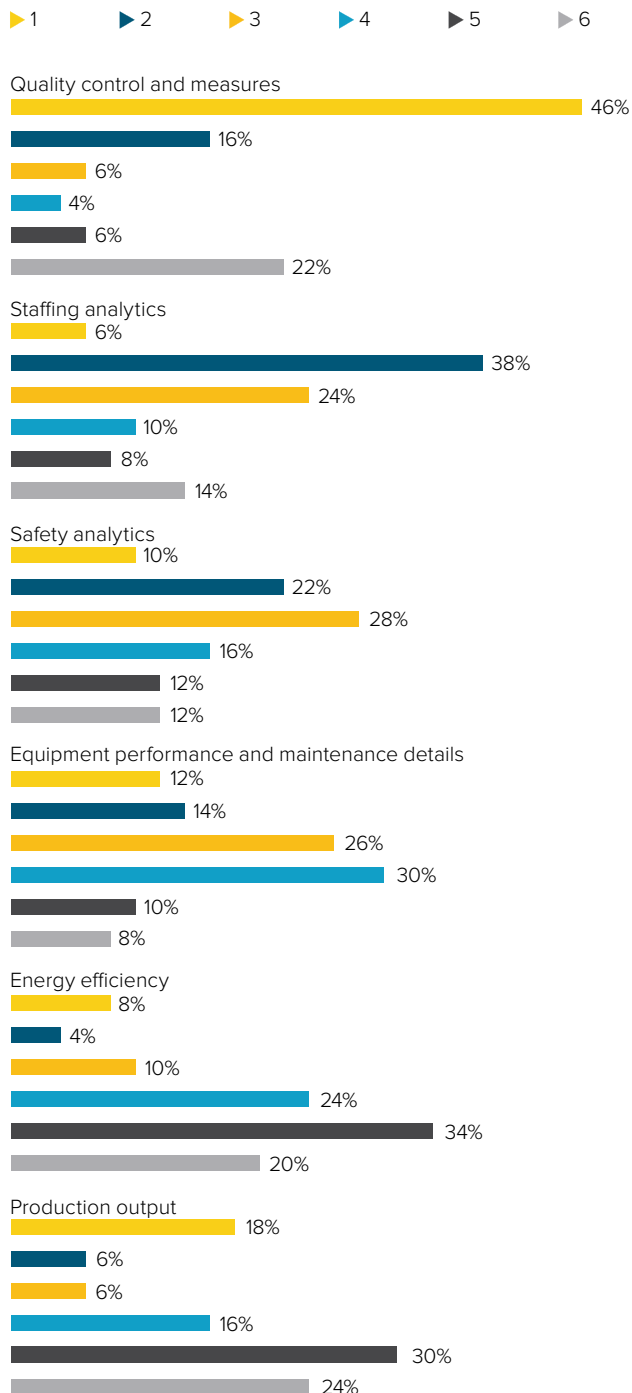
Medical devices manufacturers also appear to prioritize safety analytics more than pharma companies. Almost one-quarter of medical devices manufacturers (22%) consider safety analytics their second-most critical form of analytics, compared to just 6% of pharma manufacturers.

All Respondents: What are the most critical analytics to ensure optimal efficiency and performance on your shop floor?

▶ 1   ▶ 2   ▶ 3   ▶ 4   ▶ 5   ▶ 6

Quality control and measures
- 1: 35%
- 2: 20%
- 3: 7%
- 4: 7%
- 5: 5%
- 6: 26%

Staffing analytics
- 1: 7%
- 2: 37%
- 3: 23%
- 4: 8%
- 5: 8%
- 6: 17%

Safety analytics
- 1: 11%
- 2: 14%
- 3: 32%
- 4: 21%
- 5: 12%
- 6: 10%

Equipment performance and maintenance details
- 1: 12%
- 2: 16%
- 3: 24%
- 4: 26%
- 5: 11%
- 6: 11%

Production output
- 1: 26%
- 2: 7%
- 3: 5%
- 4: 12%
- 5: 33%
- 6: 17%

Energy efficiency
- 1: 9%
- 2: 6%
- 3: 9%
- 4: 26%
- 5: 31%
- 6: 19%

Medical Devices Manufacturers: What are the most critical analytics to ensure optimal efficiency and performance on your shop floor?

▶ 1   ▶ 2   ▶ 3   ▶ 4   ▶ 5   ▶ 6

Quality control and measures
- 46%
- 16%
- 6%
- 4%
- 6%
- 22%

Staffing analytics
- 6%
- 38%
- 24%
- 10%
- 8%
- 14%

Safety analytics
- 10%
- 22%
- 28%
- 16%
- 12%
- 12%

Equipment performance and maintenance details
- 12%
- 14%
- 26%
- 30%
- 10%
- 8%

Energy efficiency
- 8%
- 4%
- 10%
- 24%
- 34%
- 20%

Production output
- 18%
- 6%
- 6%
- 16%
- 30%
- 24%

Pharma Manufacturers: What are the most critical analytics to ensure optimal efficiency and performance on your shop floor?

▶ 1   ▶ 2   ▶ 3   ▶ 4   ▶ 5   ▶ 6

Quality control and measures
- 24%
- 24%
- 8%
- 10%
- 4%
- 30%

Staffing analytics
- 8%
- 36%
- 22%
- 6%
- 8%
- 20%

Safety analytics
- 12%
- 6%
- 36%
- 26%
- 12%
- 8%

Equipment performance and maintenance details
- 12%
- 18%
- 22%
- 22%
- 12%
- 14%

Energy efficiency
- 10%
- 8%
- 8%
- 28%
- 28%
- 18%

Production output
- 34%
- 8%
- 4%
- 8%
- 36%
- 10%

There are also some slight differences in how different roles within these organizations prioritize their analytics. Logistics and planning leaders prioritize equipment performance, quality control, and staffing analytics in equal measure, for example. Close to half of all the IT respondents (42%) believe quality control and measures analytics
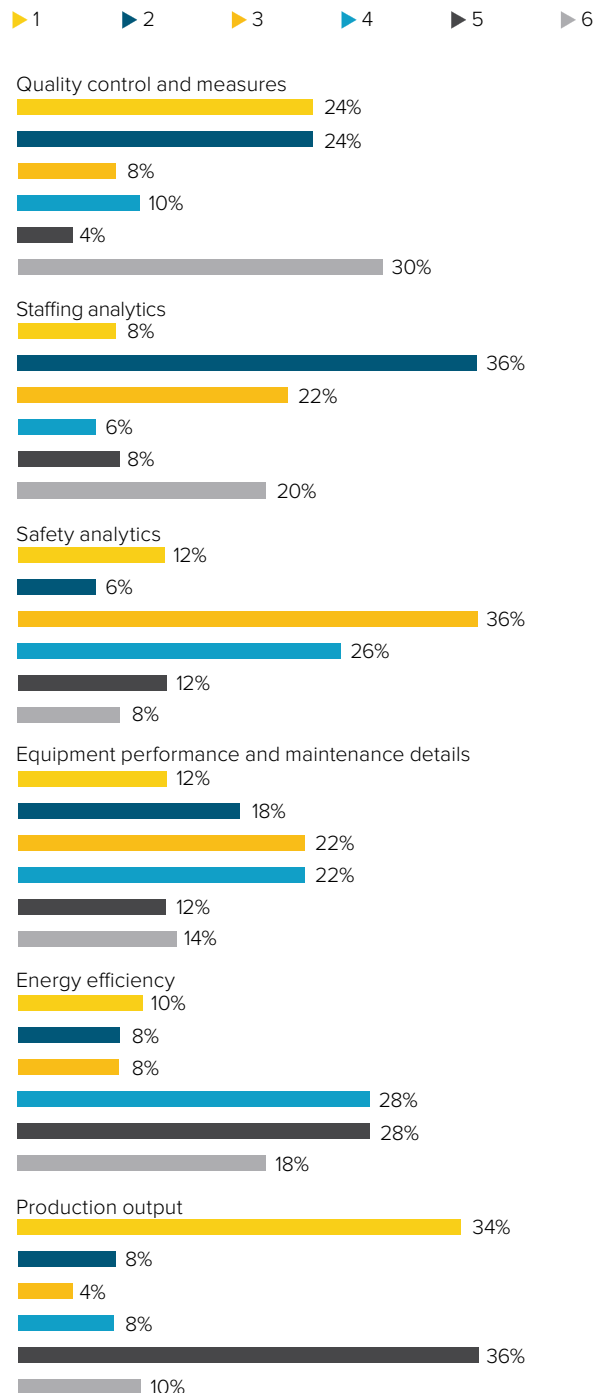
are the most critical applications ensure optimal efficiency and performance on the shop floor.

Nonetheless, in each case, about 40% of respondents in each role agree that staffing analytics is the second most critical type of analytics to their operations.

Analytics and enterprise data platforms often excel at generating reporting for leaders, stakeholders, partners, and decision makers as well. They are especially useful in generating visualizations of data, which allow decision makers to understand their supply networks quickly and effectively. This is paramount to establishing healthy relationships with suppliers.

Most of the respondents (61%) only somewhat agree that their enterprise data platform makes visual analytics and reporting easy for leaders and other leaders. Almost one-third of the respondents somewhat disagree (31%).

When visual analytics and reporting are difficult to achieve or understand, it becomes more challenging to integrate analytics into business processes, including those involving supplier partnerships. Some organizations may simply be struggling with outdated technology or an inability to reconcile data from across the supply chain. Others likely have the technology they need but may be struggling with a lack of data analytics talent.

Among the following options, which are the two biggest barriers to adopting and integrating analytics into your business processes and supply chain strategies?

▶ **56%** Budget and/or Tools: We do not have analytics platforms, tools, and/or budgets for those assets to execute on this.

▶ **55%** Data Management: Data is too distributed, unformatted, and/or is not suitable in its current state for analytics.

▶ **53%** Skills Gap: We do not have the skills or internal resources to carry out necessary analytics.

▶ **36%** Competing Priorities: There are too many other priority initiatives at this time.

The respondents verify these barriers when they identify the two biggest barriers they face when adopting and integrating analytics into their supply chain strategies.

Most of the respondents (56%) struggle with their budget or their existing data analytics tools. They simply don't have the technology they need to execute value-based applications of analytics, and they don't think they have the budget to pursue better technology.

Most respondents also say data management issues (55%) and a skills gaps (53%) are key challenges. These two challenges may be intertwined.

Data that comes from disparate sources across the supply chain must be formatted and contextualized, so it can be used for analytics purposes. It often takes internal resources, including data expertise, to accomplish this task.

To what extent do you agree with the following statement: "Our enterprise or data platform makes visual analytics and reporting easy for our leaders and other users."

▶ **7%** Strongly agree

▶ **61%** Somewhat agree

▶ **31%** Somewhat disagree

▶ **1%** Strongly disagree

Almost half of the respondents (46%) aren't currently sharing analytics and insights with other parties to improve transparency and planning, either. One-quarter of the respondents want to do so. Meanwhile, 42% are sharing analytics and insights with their end customers, vendors, and stakeholders, but they are working to expand these efforts.

Manufacturers of pharmaceutical and medical devices need to share analytics and insights with their supply chain partners not only because it builds trust, but also because it builds visibility and agility. Doing so allows for better management of the the supply chain. This can help every party identify potential problems, including significant disruptions. Sharing analytics and insights can be challenging, especially due to privacy and security concerns, mixed technologies among partners, and data management challenges, but it's now an essential step for improving decision-making.

To what extent is your organization sharing analytics and insights with your end customers, vendors, and stakeholders to improve transparency and planning?


▶ **12%** We are doing this extensively today.

▶ **42%** We are doing this today but have goals to expand sharing analytics and visibility with stakeholders and customers.

▶ **25%** We are not doing this today but want to/have pressure from our customers/ stakeholders to deliver this.

▶ **21%** We are not doing this today and do not plan to do this anytime soon.

"The science of the medical and pharma supply chain will be supported by the stability, intelligence, and speed of digitization."

— VP of Operations, Medical Devices Manufacturer
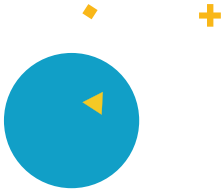
CONCLUSION: SUSTAINABILITY AND END-TO-END VISIBILITY THROUGH DIGITIZATION

In their final line of questioning, the research team asked the respondents to describe their vision for the future of medial and pharma supply chains. Most of the respondents agree that digitization will continue to be a driving force in improving visibility.

According to one VP of IT from a medical devices manufacturer, digitization "will provide the stability that medical and pharma supply chains have always demanded."

Other respondents say digitization will provide "end-to-end control," "better collaborations," and "speed."

The results of this study suggest that most manufacturers are pursuing new digital technologies to improve their supply chain relationships and enhance visibility, even if they are facing some challenges.

Nonetheless, digitization wasn't the only topic that the respondents identified as a key driver of change. Several respondents mentioned sustainability, suggesting that it is becoming a larger focus as more and more organizations reach digital maturity.

"Performance-wise, sustainability will be one of the biggest changes or improvements," says an operations, safety, and risk management director. "Apart from that, AI and digitization will keep improving supply chain management."

"A lot of digital disruptions and the ever-increasing need to move to sustainable methods will be a part of medical and pharma supply chains," says a director of logistics and planning.

Similarly, a director of operations, safety, and risk management at a devices manufacturer says, "My vision is that the supply chain needs better end-to-end visibility and needs to be supported with effective, environmentally sustainable operational methods."

Pharma and medical devices manufacturers now view digitization and sustainable supply chain strategies as intertwined, and they will move in the future to bend their new partnerships toward more sustainable practices. Sustainability is much easier to pursue when organizations have a complete view of their supply networks.

However, agility is also a key driver of organizations' increasing focus on analytics and digitization. Disruptions during the pandemic proved that companies with a high level of digital maturity were better positioned to be agile and innovative.

Amid higher demand for personalized medicine and increasing regulatory oversight, having a strong foundation of analytics will be crucial from a business planning and reporting perspective. Moving forward, strong analytics will establish companies for the next frontier of pharma and medical device production.
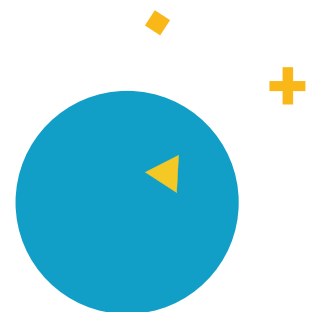
KEY SUGGESTIONS

▸ Start with the end in mind. What are the key KPIs you are looking to solve for or improve upon in your supply chain? Identify the milestones you need to reach, as well as the data, analytics capabilities, and people you need for substantial improvement.

▲ Inventory your data. Gain a better understanding of what data you have access to. This will help you determine how you can turn that digitized information into actionable intelligence across your supply chain.

✦ **Improve your analytics capability for more value-added applications.** By collecting and analyzing data throughout the medical supply chain, you can identify trends and issues that could impact quality or availability. The right analytics solutions can even provide you with granular data about your operations, so you can make improvements everywhere from the supply chain to the shop floor.

◀ **Establish visibility and transparency throughout the medical supply chain.** This can be done using tracking technologies, such as IoT sensors, that allow medical products to be tracked from production to delivery.

◆ **Develop a medical supply chain analytics team.** This will help to manage risk, optimize performance, and ensure compliance with regulations through a concerted effort within your organization. Your team should provide you with a centralized view of the medical supply chain, including information on suppliers, products, inventory levels, and demand.

✦ **Implement supplier performance management programs.** These programs will help to identify and address issues with suppliers that could potentially impact the quality or availability of medical products.

▶ **Build closer partnerships with medical supply chain stakeholders.** These partnerships should aim to improve communication and collaboration among all parties involved in the medical supply chain.

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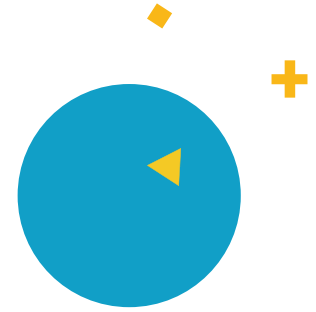
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