Supplyframe

Supplyframe, a Siemens Company

2024 DSI Digital Maturity Model Survey for Global Manufacturing

A recent survey of supply chain leaders uncovers persistent challenges and opportunities for elevated digital maturity from new product introduction through direct materials sourcing and supply management.

Overview

The global manufacturing and supply chain landscape has faced near-constant disruption and elevated risk in recent years. From the pandemic to chip shortages to geopolitical turmoil, rising product complexity, and climate change, no industry has been spared the pressures that face our modern world.

Though some of these factors have stabilized, many organizations have become stuck in "firefighting mode" and remain at risk to the next major disruption. Recognizing a need for change, investments in digital transformation technology are rising, with worldwide spending projected to reach $3.6 trillion by 2026.

In this report, we'll explore the current state of the electronics industry and the path forward to digital maturity.

Key Findings

Across all industries, companies self-rate their digital maturity at level 2 of 5. Many are ready to take the next step, but obstacles remain. To reach the highest levels of digital maturity, organizations need to address the entire design-to-source process.

Over 50%

are ready to "shift left" and operationalize risk insights at the design phase

Only 16%

have some level of collaboration and alignment between engineering and sourcing teams
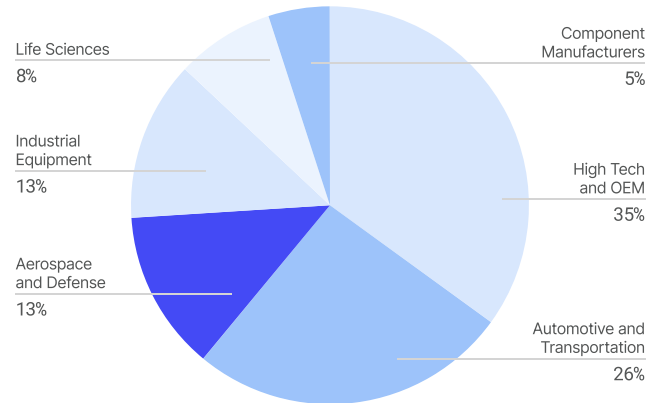
75%

are still using some form of ad hoc spreadsheets for sourcing

About the Respondents

What We Did

Supplyframe created a baseline for digital maturity, focusing on different categories for our respondents to rate themselves.

How We Did It

60 respondents across the industry in senior procurement, strategic sourcing, and supply chain positions completed a twelve-question survey. We have mapped the survey results to a 5-level model illustrating the digital maturity spectrum across global manufacturing.

Life Sciences 8%
Industrial Equipment 13%
Aerospace and Defense 13%
Component Manufacturers 5%
High Tech and OEM 35%
Automotive and Transportation 26%
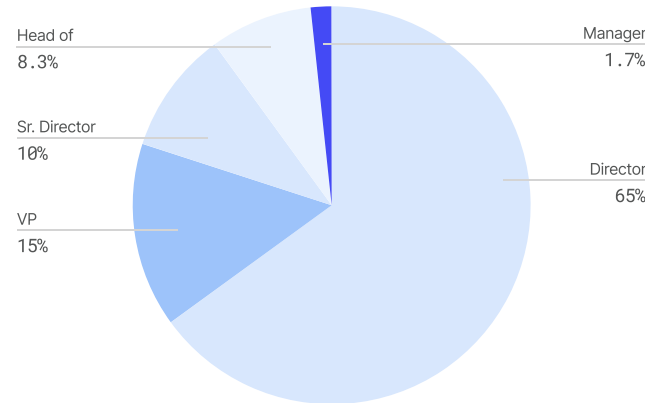
By Industry

A primary goal of the survey was to establish an industry-wide view across all major verticals in global electronics. We achieved this by focusing on six industry sectors.

Head of 8.3%
Sr. Director 10%
VP 15%
Manager 1.7%
Director 65%

By Seniority

Digital transformation starts at the top. Our respondents were all in leadership positions, with the majority in a Director role or higher.

Supply Chain 21.7%
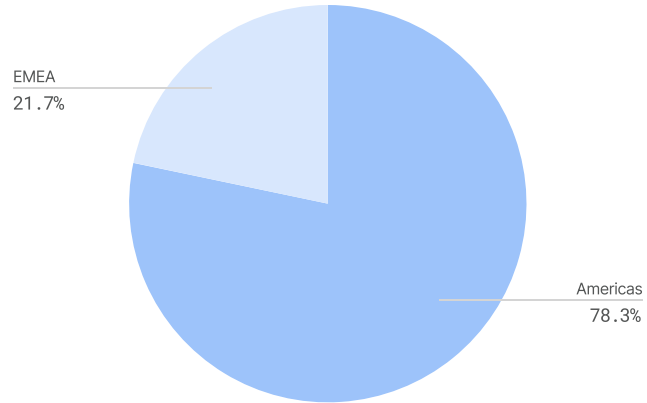Strategic Sourcing 26.7%
Procurement 51.7%
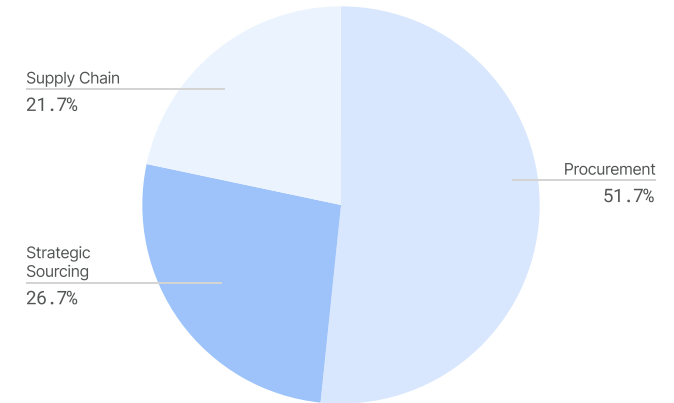
By Strategic Sourcing and Risk Management

Respondents from the supply chain space had the highest average maturity, while procurement professionals ranked their organizations the lowest.
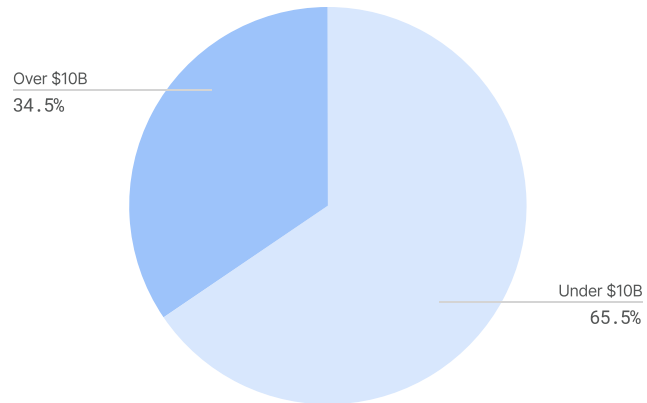
About the Respondents

By Location

EMEA
21.7%

Americas
78.3%

Given the complexity of global supply chains and the inherent challenges present in specific parts of the world, another focus was to ensure a wide range of locations among the respondents.

By Company Size

Over $10B
34.5%

Under $10B
65.5%

The survey focused on medium to large enterprise organizations with annual revenue above and below $10 billion.

Intelligent capabilities enable Molex to

SOURCING   RAMP TO VOLUME   SUSTAINING

Peak

MAXIMIZE
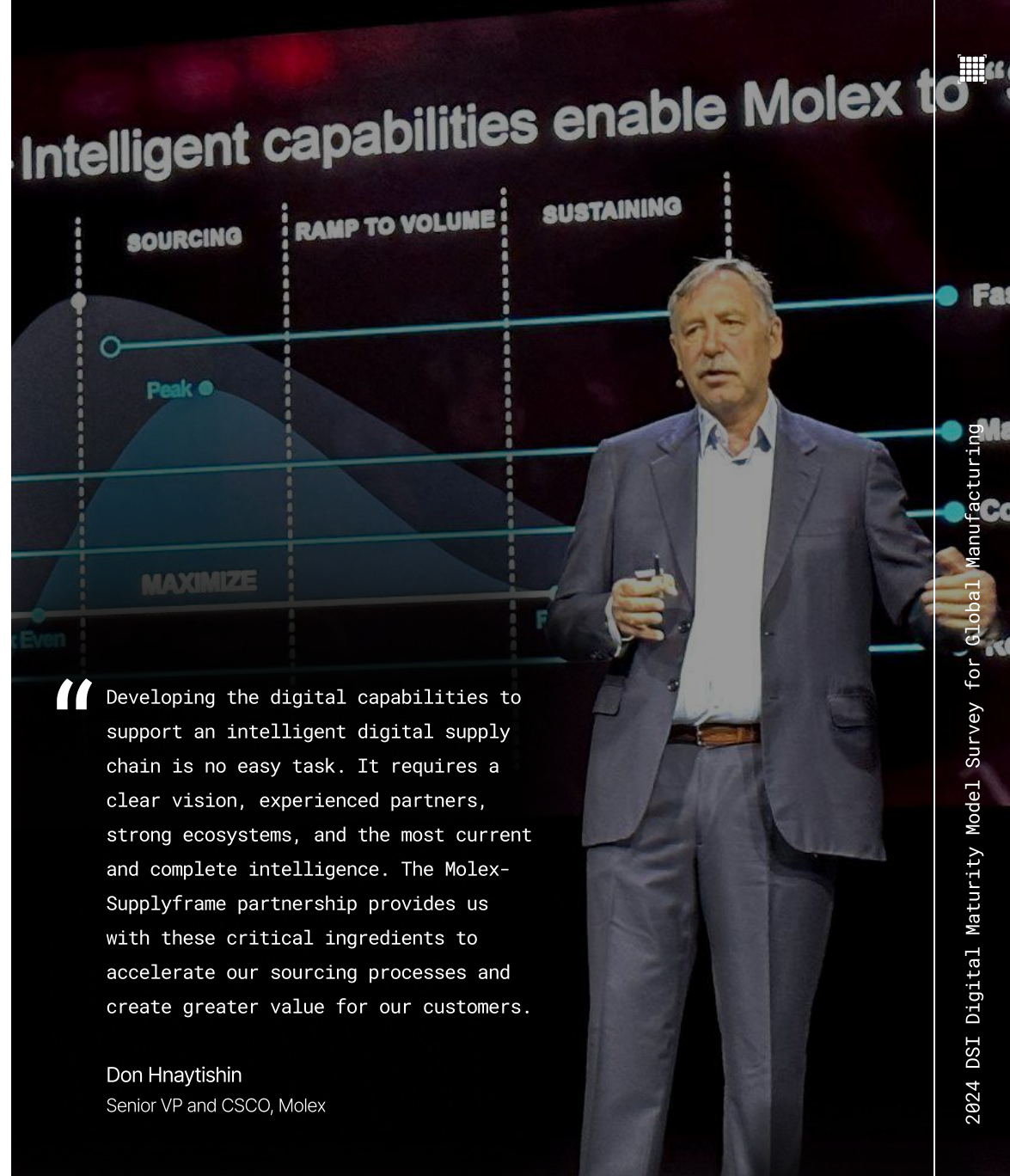
"
Developing the digital capabilities to support an intelligent digital supply chain is no easy task. It requires a clear vision, experienced partners, strong ecosystems, and the most current and complete intelligence. The Molex-Supplyframe partnership provides us with these critical ingredients to accelerate our sourcing processes and create greater value for our customers.

Don Hnaytishin
Senior VP and CSCO, Molex

DSI Digital Maturity Model Overview

What is digital maturity from Design-to-Source?

A digitally mature organization is predictive and agile. It utilizes an integrated platform to make collaborative design and sourcing decisions based on real-time intelligence across a holistic digital thread. These organizations can proactively identify and address risk at the earliest stages of the product lifecycle and throughout their strategic sourcing initiatives.

They move at the speed of their supply chains thanks to agile teams, cross-functional collaboration, and the technology and analytics needed to make better decisions from design through fulfillment.

To properly capture the scope of digital maturity and create a path forward for global manufacturing, we have created a Design-to-Source Maturity Model that maps our survey results to a five-level scale across several categories:

- **Organizational Structure:** This category examines the level of collaboration across teams and the scope of alignment between them.

- **People and Talent:** This category identifies capabilities, talent, and skills combined with teams' influence in design, sourcing, and supply chain departments.

- **Design for Supply Chain:** This category assesses overall sourcing strategies, team goals, frequency of sourcing events, and the presence of a "shift left" approach.

- **Technology and Systems:** This category focuses on solutions, data management, system integration, automation, and sources of insight for engineering and supply chain.

- **Analytics and Performance:** This category measures key performance indicators, responsiveness, and the capability to identify critical events or disruptions proactively.

Levels of Maturity

Within these five categories, survey respondents are ranked on a 5-level scale:

**Level 1
Reactive**

- Spreadsheet and email-based sourcing
- Static and limited forms of data
- Siloed organizational structure
- Manual operations from design-to-source
- Disruption due to redesigns

**Level 2
Opportunistic**

- Collaboration using static tools
- Limited influence from sourcing teams on design
- Single annual sourcing events
- Spot solutions covering specific needs
- Manual BOM validation with static data

**Level 3
Integrated**

- Loose alignment across engineering and procurement
- Increased knowledge transfer across departments
- Shared insights during design, beyond part lifecycle data
- Standardized data feed to make decisions
- Focused on cost, risk, and opportunity management

**Level 4
Optimized**

- Collaborative organizational design
- Procurement is part of product development
- Monthly sourcing and commodity reviews
- Real-time intelligence and insights
- Strategic sourcing platform

**Level 5
Predictive**

- Strategic sourcing via an integrated platform
- Informed decision-making across teams
- Predictive intelligence and minimal redesigns
- Holistic Digital Thread and PLM solution
- Proactive risk mitigation and visibility

Level of Influence

People & Talent

Critical Event
Preparedness

Organizational structure

Shift Left Maturity

Design for
Supply Chain

Technological
Maturity

Level of
Collaboration

Technology & System

Responsiveness
and Processing
Time

Automation
Maturity

Analytics & Performance

Analytics
Maturity

Data
Digitalization

5
4
3
2
1
0

Leading Enterprises   Industry Average

Average Score By Industry

Aerospace and Defense	**2.1**
Life Science	**1.6**
Industrial Equipment	**1.3**
High Tech and OEM	**1.3**
Component Manufacturers	**1.0**
Automotive and Transportation	**1.0**

Within the survey results, we noted that aerospace & defense companies tend to have higher maturity levels. This is likely due to the industry's rigorous standards and extended lifecycles that necessitate long-term visibility in product designs.

Furthermore, aerospace & defense leaders also leverage digital twin technology and possess functional digital threads across their design-to-source processes.

Key Takeaways

The results from our survey painted a clear picture of where challenges and opportunities exist in global manufacturing. Some of the findings may seem familiar, but others challenge pre-existing assumptions.

For example, our results found that larger organizations aren't necessarily more mature than their smaller counterparts. This could be due to longer timelines for digital transformation in more complex organizations and other factors like industry.

Analysis of the survey findings revealed five key takeaways that set the stage for what's next:

✳ Leaders are focused on Design-to-Source Processes

As part of the survey, respondents were asked which primary sourcing or procurement challenge they needed the most help with. Answers included cost, supply assurance, quality, NPI sourcing, and technology.

36% of respondents selected "All of the above," showing that many organizations are aware of the fact that challenges persist across the entire design-to-source journey.

globally, these results point to a potential need for more visibility into inventory and lead times.

20%
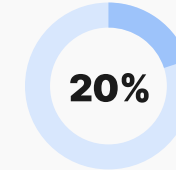
of organizations indicated that an assurance of supply is their primary challenge.

## ✳ Teams are Siloed, and Collaboration is Minimal

In another section of the survey, we asked respondents to describe the level of collaboration across the design-to-source process. We wanted to assess the input and information exchange level between engineering, sourcing, and supply chain departments.

Organizations that have yet to break down silos are operating on elevated levels of risk. With design and sourcing decisions made in a vacuum, potential issues surrounding cost or lead times don't emerge until much later.

only 16%
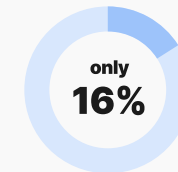
of organizations have some level of collaboration between supply chain and engineering departments.
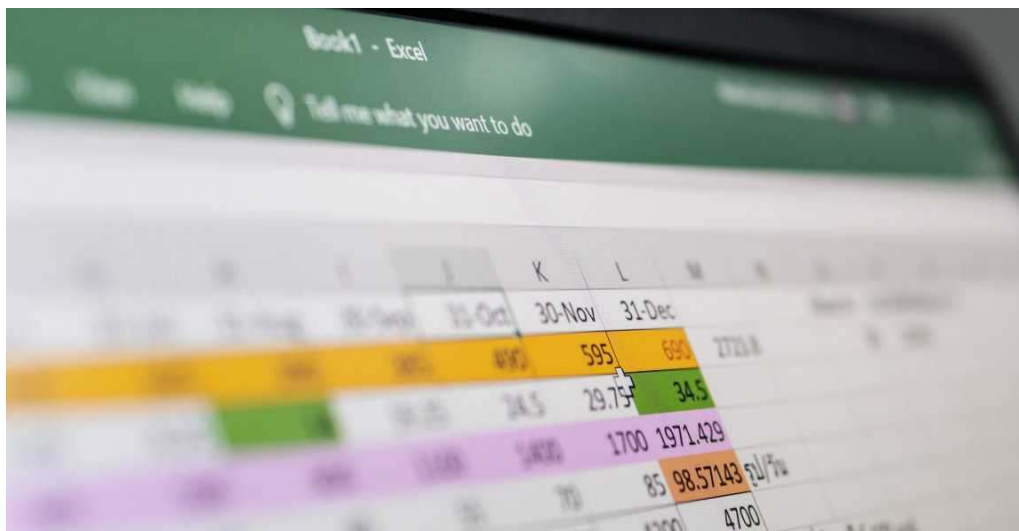
✳ Operationalizing Risk Insights for Tradeoff Decisions is Limited

According to Supplyframe data, 80% of a product's lifetime risk is "locked in" during the design phase. This puts immense pressure on decisions made by engineering teams.

Supplyframe and Siemens enable organizations to "Shift Left" by introducing real-time intelligence at the beginning of the product lifecycle. This focus on design for the supply chain is a key factor in long-term success, allowing teams to account for risk factors during design and side-stepping costly redesigns later in the sourcing and procurement process.

over 50%

focus on design for the supply chain by bringing greater awareness to risk during the design phase.

✳ Sourcing Processes are Manual and Calendar-Driven

Before the advent of digital transformation initiatives and strategic sourcing platforms, organizations relied on static spreadsheets and email communication to manage their sourcing processes.
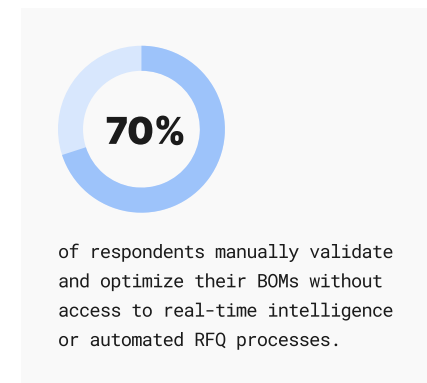
A static bill of materials (BOM) stored in a spreadsheet does not accurately reflect current lead times, pricing, inventory, or potential end-of-life status for the components it contains. It's also impossible to pinpoint incorrect or mismatched part numbers and functional alternates with such an approach.
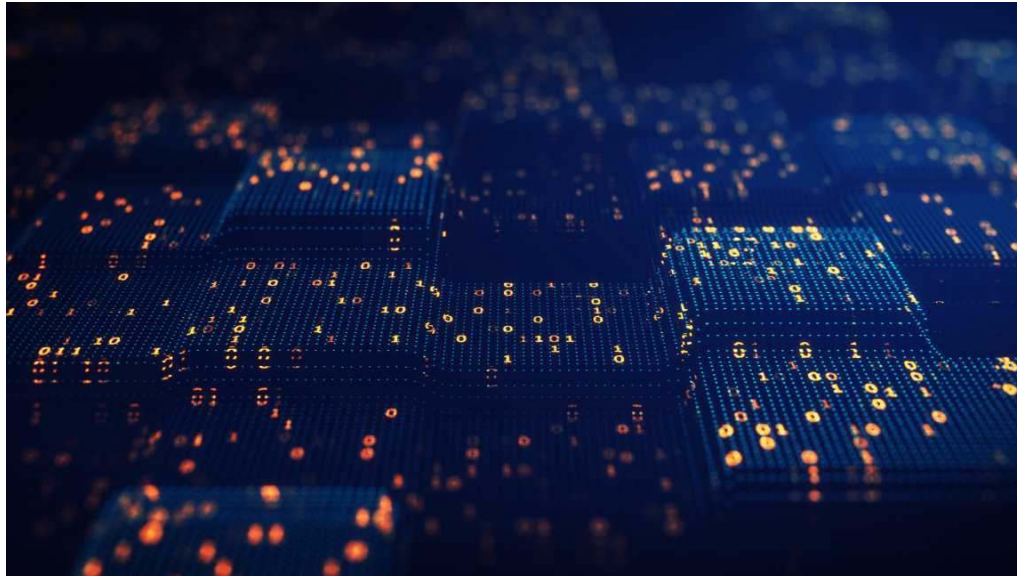
75%

of respondents still rely on ad hoc spreadsheets for sourcing.
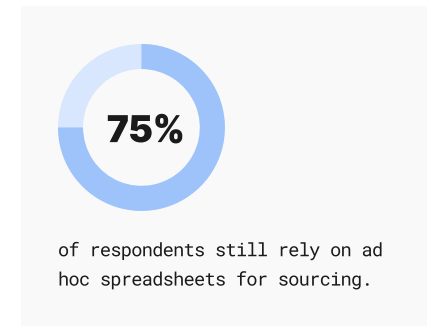
✳ BOM Validation is Limited, Manual, and Disconnected

BOM optimization is an important stage of product development. It allows teams to ensure that the parts can be reliably sourced at acceptable prices and lead times. However, this process can be time-intensive and requires substantial manual effort and research.

Siemens Teamcenter customers can benefit from a new integration between our solutions. Once BOMs are prepared in the Siemens solution, customers can seamlessly transfer them to Supplyframe, where they will be scanned for high-risk parts, mismatched part numbers, and other common data errors in seconds.
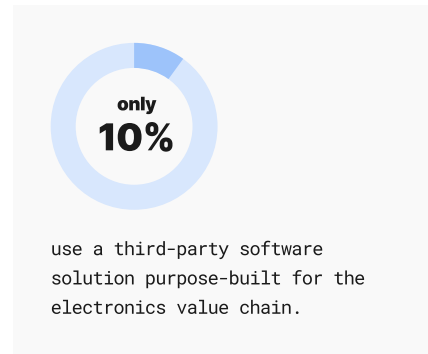
70%

of respondents manually validate and optimize their BOMs without access to real-time intelligence or automated RFQ processes.

✳ Sourcing Teams Remain Reactive

Many sourcing teams in today's organizations are reactive to the electronics market shifts. Furthermore, they follow the engineering team's lead instead of collaborating to ensure that parts fall within the preferred functionality and cost concerns.

Without visibility across teams into a single source of truth that operates on real-time intelligence, disruption is an inevitability. This usually comes as a redesign that resets the process back to engineering to seek out alternate parts, again, without the input of procurement or supply chain teams.

43%

said their sourcing teams are reactive and follow the lead of the engineering department.

✳ Many Organizations Are Still Trapped in the Past

In the digital age, industry leaders must provide their teams with the data, analytics, and technology required to perform at the highest level. The ways of the past simply will not work as supply chains evolve and competitive pressures continue to rise.

Purpose-built solutions are crucial in today's global landscape. They address the inherent complexities of the electronics industry and focus on key capabilities like real-time component intelligence, automated RFQ processes, and risk analysis.
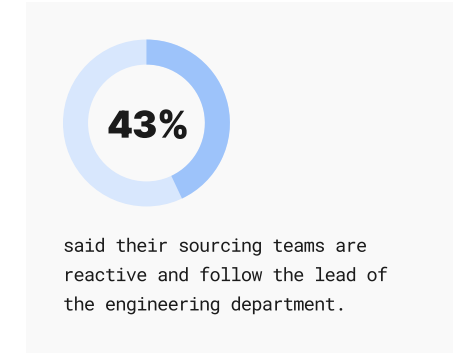
only
10%

use a third-party software solution purpose-built for the electronics value chain.

✳ Most Organizations Prioritize Data-Driven Capabilities

The importance of data is not in question, based on our survey results. Instead, leaders understand the need to give their teams access to data that allows them to make better decisions.

Despite this, other results indicate a need for digital transformation in many enterprises. This could be due, in part, to a general resistance to change or a need for more conversations on how to implement digital transformation across the organization.

80%

believe data-driven capabilities are a top priority for their organization.
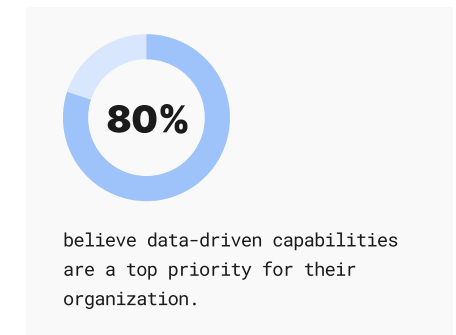
✳ Sourcing Events are Heavily Dependent on Manual Tasks

Time is of the essence in today's supply chains. Despite this, sourcing events tend to last for weeks as teams manually scour internal databases and other disparate sources of information looking for the information they need.

With timelines extending up to two weeks based on our findings, teams could immediately benefit from automated access to the intelligence they need across their BOMs. The ability to quickly view all relevant pricing, availability, and risk information on any given component seamlessly automates what is historically a heavily manual process.

60%

manually pull data for a sourcing event for two weeks or more.
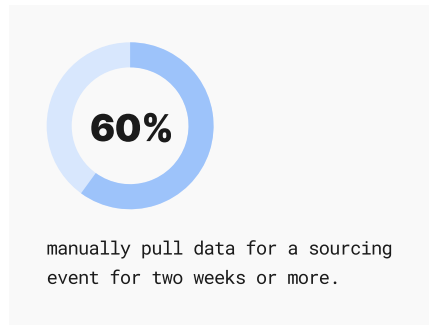
✳ The Industry as a Whole is Unprepared for The Next Major Disruption

Disruption is expected in such a complex industry, but global manufacturers have faced significant challenges recently.

A significant finding from our survey was that very few respondents can identify critical events before they impact the business. This is significant because of the cost and delays that come with disruption and because many challenges will persist across the industry in the coming years.

only
1%

can accurately identify upcoming critical events before they impact the business.
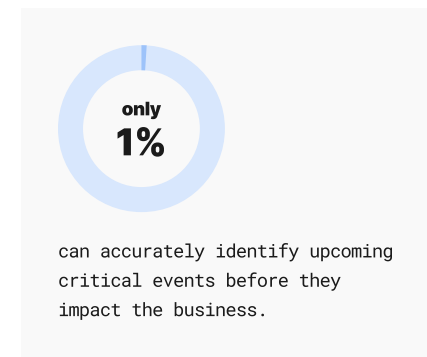
✳ Procurement Decisions are Based on Limited and Fragmented Market Intelligence

Procurement decisions should carry appropriate weight, but in many cases, teams are forced to make decisions based on limited intelligence or context. This is another avoidable problem that most of today's global manufacturers face.

A proper balance of consideration and forward-looking insights allows more digitally mature procurement teams to make decisions without the need for spot buys that carry a premium cost.

80%

said sourcing and procurement decisions are resource-heavy and rely on spot solutions.
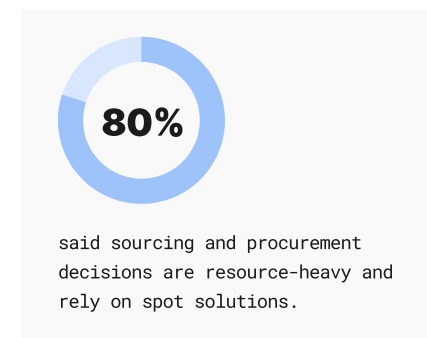
5 Steps to Elevate Your Digital Maturity

Today's most mature industry leaders can score between levels three and four. This is by design, as the highest level of the model is a theoretical future state that can be reached by transforming people, processes, and technology across each of the five categories.

Many organizations today (including the ones that participated in our survey) are between levels 1 and 2. Engineering, sourcing, and supply management leaders must set the stage for organizational transformation. Let's determine what steps you can take today to embark on the journey toward a level 5 organization.

How to Develop Your Organization's Roadmap to Digital Maturity

Engineering, sourcing, and supply management leaders must become digital transformation champions for organizations at levels one and two. Using the maturity model as a roadmap, these are the actions you can take starting today and over the next six months to a year:

01 Establish a Baseline

Every organization's journey to digital maturity differs based on its position within the overall model. It's important to start by reviewing the model with your team and conversing about each category and your organization's position on the five-level scale.

Conversations like this should include cross-functional participants from the engineering, sourcing, and supply management departments. This will open up lines of communication for future collaboration.

Once you've established a starting point on the maturity model (most likely somewhere within level one or two) with leaders in other departments, the next step is to explore the challenges your organization faces in the design-to-source process.

02 Identify Challenges and Obstacles

While each organization faces unique challenges, our survey results identified cost, supply assurance, quality, NPI sourcing, and technology as some of the most prevalent. While discussing the model with other leaders in your organization, consider the following questions as you dive deeper into the challenges your teams face:

- How do our current data and analytics solutions help teams identify cost-saving opportunities?
- What tools or technologies do our teams have to support strategic sourcing?

- What external intelligence or insights do teams have to help them optimize BOMs?
- Can our teams effectively predict changes in pricing, lead times, inventory, or end-of-life status for the components on our BOMs?
- How often do engineering, sourcing, and procurement teams collaborate on sourcing decisions?
- What processes are in place for teams to respond quickly to critical events?
- How much time could teams save if they could automate heavily manual tasks?

Asking these questions while reviewing the full maturity model can bring challenges to the surface and reveal vulnerabilities in your strategic sourcing and risk mitigation strategies. This type of internal review is an excellent way to identify and prioritize the next steps in your journey to digital maturity.

03 Focus on Cross-Functional Alignment

Many enterprise organizations still use a siloed structure between teams that prevents effective cross-functional collaboration. In a world where product complexity is rising, and supply chains face countless forms of risk, decisions made in a vacuum can lead to downstream disruption like redesigns or production delays.

Breaking down silos starts by opening and creating lines of communication between departments, but it's important to note that there's a difference between collaboration and cooperation. Cooperation involves sharing information, but this alone is not enough to reap the benefits of cross-functional collaboration.

Teams should start by identifying shared goals and performance metrics. A combination of flexibility and agility is important to optimize department resources. Teams should also have the opportunity to share their perspectives and priorities.

For example, engineers should be able to present their point of view and logic behind material choices, while procurement should be able to share their ideal metrics around lead times and pricing.

If silos are deemed necessary from an organizational standpoint, teams should instead seek to align their decision-making under the same intelligence or single source of truth. When everyone is working with the same data, insights, and metrics, it will translate to more effective results throughout the product lifecycle.

04 Champion New Solutions

Using the maturity model as a guide, leaders should connect their organization's challenges to capabilities that address concerns and empower teams to make better decisions. Purpose-built solutions enable higher levels of maturity with capabilities such as:

- Real-time intelligence and reliable forecasting surrounding pricing, lead times, inventory, and years to end-of-life timelines.
- AI-driven decision support that provides contextual insights within a strategic sourcing platform.
- Cross-functional collaboration within a single platform, including in-solution messaging and change tracking.
- Streamlined BOM validation that identifies high-risk parts and data errors within minutes.
- Automated RFQ processes that allow for seamless and streamlined sourcing.

Leaders must also address any resistance to change at individual and executive levels by using the maturity model to showcase how a comprehensive transformation roadmap

can reduce workload, mitigate risk, increase profits, and enable teams to perform at the highest level.

05 Create a Phased Approach to Value Realization

With your roadmap in place, the final step is to create realistic goals and timelines that align with your organization's unique needs. Consider short-term goals in the next six months and long-term outlooks for the next year or longer.

Something to consider is the impact of smaller changes. Transformation opportunities don't have to be immediate and sweeping changes. Even the smallest improvements addressing the larger challenges can have significant benefits.

Identify key performance metrics and establish a cadence to track your organization's progress through the full maturity model. This should include benefits, costs, and ROI estimations. It's best to begin with a detailed phase one roadmap for the next six months and include it in a presentation for team leaders and executives.

Your roadmap and presentation should ultimately aim to link these organizational and technological changes to real-world business benefits, as this will become the foundation of a case for change alongside the maturity model itself.

For many, a test-and-learn approach is also important. Start with small pilot programs, track results, and adjust your approach as needed. Every organization is different. Allow for both flexibility and agility in how you approach your unique journey to the higher levels of digital maturity.

Your Partner for Digital Transformation

With a clear roadmap and a deeper understanding of digital maturity opportunities, leaders within today's global manufacturing organizations can take action to pursue digital transformation across the enterprise.

A potential level-five enterprise would combine organizational adjustments, new technologies, better analytics, and cross-functional collaboration. Supplyframe, a Siemens company, offers our customers a wide range of next-generation solutions and decades of industry expertise, helping them realize their short and long-term digital transformation goals through a combination of new capabilities and real-time intelligence.

Discover how Supplyframe and Siemens can help your organization achieve the highest levels of digital maturity. Learn more at Supplyframe.com