Advisory | Digital Transformation | Supply Chain

Supply chain trends 2024: The digital shake-up

With digital opportunities sweeping the supply chain landscape, readiness and line of sight will be paramount to success

Advanced technologies are shaking up the supply chain world. With quickly evolving capabilities across generative AI, data analytics, automation, machine learning, Internet of Things (IoT), blockchain and more the 'smart' supply chain is well on its way to becoming the new normal.

requests, proactively address problem solving, and reduce errors and inefficiencies. It can also provide greater visibility, transparency and traceability. Most importantly, organizations will be more resilient to future supply chain shocks.

With a future that promises autonomous, self-learning machines seamlessly managing the broader supply chain process, now is the time for organizations to overcome the inherent silos and enterprise systems that will restrict their progress.

To get started, organizations need to first embrace the trends that will define 2024. This includes learning about emerging technologies from AI to distributed ledger technologies, low-code and no-code platforms and fleet electrification. This will need to be followed by managing the migration to a new digital architecture and executing it flawlessly.

Organizations will need to intensely focus on mining relevant, clean and well-governed data if they want to make the most of their new technology investments. Data will also be crucial as organizations are pressured to meet evolving ESG and Scope 3 commitments.

These structural trends will shape new operating models and improve broad processes. To avoid being left behind, it is important for organizations to understand these trends and apply specific actions to begin their transformation sooner rather than later. This way they can create a more agile and responsive supply chain that can capture the promise of value creation, cost reduction and improved shareholder value.

Trend 1: Generative AI in operations

Generative AI (GenAI) is a subset of AI that has the potential to revolutionize supply chain management, logistics and procurement. Software engines powered by GenAI can process much larger sets of data than previous forms of machine learning and can analyze an almost infinitely complex set of variables. GenAI can also *learn* —and teach itself — about the nuances of any given company's supply chain ecosystem, allowing it to refine and sharpen its analysis over time.

production workflows, or enable virtual logistics communication by using virtual assistants to handle routine inquiries and provide quick responses.

The use of AI is an enterprise-wide consideration, organizations must avoid dissipating effort across several single point disconnected AI implementations. Core business processes should be strategically rethought and redesigned to effectively leverage GenAI.

> **50%**
> Through 2024, 50% of supply chain organizations will invest in applications that support artificial intelligence and advanced analytics capabilities.[1]

Key actions to take in 2024 include:

- Build a clear benefits case for each supply chain use case that you intend to pilot using generative AI. It should illustrate how AI improves the productivity of supply chain employees, inventory, or assets, along with the estimated financial impact to operations.

- Re-evaluate your current supply chain analytics team and prepare for an AI upgrade. Generative AI teams require skills beyond just supply chain data migration, extending into areas such as collecting external supply chain market data for vector database ingestion and chatbots trained in a specific operations domain.

- Perform an initial data scan across manufacturing and distribution sites to evaluate feasibility of generative AI opportunities. Success of initiatives are fueled by the quality of data, be it internal and external data, as well as structured and unstructured data.

output. Generative AI often excels in these use cases.

Trend 2: AI enabled no touch / low touch planning

With the continued focus on resilience and ESG coupled with the expansion of sites, flows, and partners, the pressure on supply chain planning is increasing. Existing planning capabilities have been unable to meet the demands of a more complex, multi-tiered, more nuanced world. The result is few companies can run effective scenario analysis to determine the financial consequences of important decisions.

AI enabled sales and operational planning (S&OP) and integrated business planning (IBP) applications will help eliminate the gap between supply chain planning and execution. Low touch planning will take large swaths of manual work out of the end-to-end planning process and leverage the power of advanced analytics to answer deeper questions with minimal human intervention. AI will be able to analyze data at scale, identify anomalies, search for patterns that lead to unexpected disruptions, and make suggestions on how to solve them—almost instantaneously.

From a technology perspective, the capabilities to enable low touch planning are like a control tower or its more advanced counterpart, the cognitive decision center which includes digital twin capabilities. These promise improved predictability, enhanced gross margins and free up resources to focus on value adding activities.

> **1-3%**
> Low touch planning, improves predictability enhancing Return on Equity (ROE) by 2 to 4 percentage points, and adds 1 to 3 percent to gross margins across revenue, cost, and assets [2]

Key actions to take in 2024 include:

- Make decision-making a business discipline: Be performance led: Start with performance goals – Don't let technology dictate your decisions.
- Blend expertise with data analytics: Inject data into your existing processes. Data management will be critical to success.
- Develop an ecosystem of technology partners, business integrators, and academic experts to access skilled individuals.

Trend 3: The critical role of data

Data is still one of the core challenges facing supply chain management. Each day millions and millions of date records are generated across the supply chain from multiple systems. The proliferation of digital technologies, IoT devices, and advanced tracking systems have compounded the problem. This wealth of data has given rise to greater silos of data within the organization which in turn has led to disconnected data sets. Duplication and misinterpretation will become increasingly problematic, too. Critically, the fragmentation of data impedes the creation of a holistic view of the organization's supply chain.

Consequently, data availability, quality, cadence, and consistency – are now critical considerations. Supply chain professionals must manage the complexities within their data landscape efficiently; to be able to make informed decisions and enhance their operations.

A solution is to adopt a use case-driven approach to proactively address data quality issues. By focusing on specific use cases, organizations can prioritize data quality improvements where they matter most, thereby gradually refining and improving their datasets.

> **$7.1 B**
>
> Low touch planning, improves predictability enhancing Return on Equity (ROE) by 2 to

Key actions to take in 2024 include:

- Placing a laser focus on the critical elements of data availability, quality, reliability, cadence, and consistency. Data is the linchpin that enables businesses to make informed decisions, optimize processes and ensure resilience in the face of disruptions.
- Acknowledge that data management is an ongoing journey rather than a one-time destination.
- Take an iterative approach to data management. This allows organizations to refine their data strategies, adjust to changing circumstances, and learn from experience.
- Develop a value-driven roadmap. Data must be aligned with a clear purpose and tied to value generation, such as cost savings, enhanced efficiency, improved customer satisfaction and innovation.

Trend 4: Transparency and visibility beyond Tier 1 and 2

The lack of visibility across the layered tiers of a supply chain has major implications for organizations across industries, particularly for meeting regulatory requirements, and for the identification and mitigation of supply chain risks.

Breaking the barrier of visibility beyond Tier 1 allows organizations to look across their extended supply chain into partners, build greater and deeper insights into root causes, identify new risks that occur further into the supply chain and drive ESG goals through better traceability and transparency.

provide clear insight into the depth of an organization's supply chain. When implemented at scale they can improve supply chain resilience.

> **43%**
> Less than half (43%) Forty-three percent of organizations have limited to no visibility of tier one supplier performance [4]

Key actions to take in 2024 include:

- Move towards a more collective and data-driven approach by using technology solutions and partnerships. Extend visibility of product flows to create more in-depth views of the supply chain ecosystem.
- Create cross-functional teams to provide a fuller picture of key use cases, the scope of visibility and surfacing downstream problems.
- Build on the visibility of others – with organizations each embarking on their own projects and control towers to build visibility, explore partnerships that may provide access to a wealth of data and insights.
- Embed ESG measures within the technology for improved procurement decision making and performance management, and incorporate ESG performance metrics into supplier evaluations or scorecards.

Trend 5: Low-code platforms

A supply chain is a dynamic and complex process that includes provisioning, raw material supply, warehousing and the distribution of manufactured products to consumers. Historically, this has resulted in multiple systems and data sources.

Most supply chain tasks can be fully or partly automated through low-code platforms, which use a wide range of Application Programming Interfaces (APIs) and pre-packaged integrations to link previously separate systems. These cut the development time, enabling companies to swiftly react and adapt their applications to new market conditions, disruptive events, or changing strategies. It enables business users with little technical knowledge to quickly build, test and implement new capabilities.

Potential applications span planning, manufacturing, product life cycle, supply chain collaboration, and track and trace. Low-code platforms are not just a technological upgrade; they represent a paradigm shift in how organizations approach their operations providing a pathway to a more agile and adaptable future.

> **2/3**
>
> More than two-thirds of enterprises have already adopted low-code to their supply chains[5]

Key actions to take in 2024 include:

- Define and document cross-functional processes, tasks, and timelines – identify suitable use cases.
- Leverage low-code apps to go from managing supply chains to building agile, resilient and predictable supply chains.
- Use low-code platforms to modernize legacy systems, automate processes and connect disconnected systems.
- Empower stakeholders and business domain experts to create apps for insights, actionable tasks and collaboration in the supply chain.

Trend 6: ESG and Scope 3 emissions

While many businesses have traditionally prioritized the collection of their Scope 1 (direct emissions) and Scope 2 (purchased electricity) emissions data, the focus has now shifted decisively toward Scope 3 emissions – that is, emissions incurred throughout the entire value chain. Although voluntary to date, the collection and reporting of Scope 3 emissions data is becoming a legal requirement in many countries.

Establishing a solid emissions baseline is essential for monitoring progress and setting ambitious reduction targets. Scope 1 and Scope 2 emissions are relatively straightforward to assess however, when extending this to the full supply chain, as in Scope 3, the complexity multiplies exponentially.

To target reductions in carbon emissions, companies need primary sources of information from their suppliers, and are starting to use hybrid carbon accounting methodologies to produce a more accurate assessment of Scope 3 emissions. Digital platforms are providing a centralized system for suppliers to input their emissions data, which can then be easily integrated into a company's sustainability reporting.

> **5%**
> Only 5% of supply chain emissions stem from direct manufacturing, whereas emissions originating within the supply chain can be 5 to 10 times greater[6]

Key actions to take in 2024 include:

- Carry out supplier segmentation based on key criteria such as spend and criticality to business to identify and prioritize supply chain categories.
- Establish and implement a supplier engagement program. Start educating suppliers about the significance of Scope 3 emissions data capture and your sustainability goals.

your industry and start implementation. Investing into technology solutions now will lead to cost savings in the long run.

- Educate and support employees in understanding Scope 3 emissions, carbon reduction approaches and technology solutions to collect and manage carbon data. It is vital that a change management strategy is built into the decarbonization action plan.

Trend 7: Electric vehicles, transport and logistics

The logistics sector is also undergoing rapid transformation. Some elements of future-ready transport and logistics networks are already in evidence such as the automation of warehouses and ports, and the increasing use of autonomous vehicles. Their adoption will expand as organizations commit to emissions reduction targets and battery technology evolves to extend distance limits for electric trucks, buses and delivery vehicles.

Organizations will continue to accelerate the electrification and automation of the logistics transport value chain – especially those that remain costly or manual, such as processing of air freight and last mile delivery. Similarly, the transition from autonomous vehicles overseen by humans to fully automated vehicles without human intervention is almost ready to expand from controlled closed-loop environments to public roads.

Smart logistics and transport will also be accelerated with the continued ramp-up of AI, IoT, data analytics and cloud across many use cases – improving traditional route optimization and applying machine learning, predictive and sensing capabilities to make material improvements to network efficiency, customer experience, risk reduction and sustainability targets.