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Building on belief

Top three accelerators to boost your supply chain in 2022

Introduction

Supply chain disruptions are expected to continue in 2022, requiring all business processes to be more agile, resilient, and flexible to support fulfillment, cost efficiency, and CX.

Surging cases of the Omicron variant spark fears of yet another wave of the coronavirus pandemic causing isolation and quarantine requirements with shortage of labor, import delays (averaging two weeks due to port congestions), shipping container shortages, and significant increases in cost across the supply chain. Digital mastery of supply chains is the only way to minimize disruptions, support business value realization, and enable optimization and growth.

CSO priorities: Visibility, efficiency, sustainability

To stay relevant in today's market, retailers need to put the finger on the pulse of their business and respond with agility in real time. Visibility has become a top priority and is a core part of logistics technology. Knowing what is going on in the materials flow will support planning, increase flexibility, minimize inventory, and ensure fulfillment of orders and delivery. Equally, they must focus on building purposeful and carbon-neutral supply chains to contribute to the global agenda of limiting global warming to 1.5 degrees by halving greenhouse gas emissions by 2030 and be net-zero by 2050.[1]

In the new technology environment, the potential is huge to leverage cloud, IoT, AI-ML, automation, and robotics to achieve these goals. For example, Walmart is making investments in warehouse automation in distribution centers to deliver aisle and department-ready pallets to stores,[2] while Target will test tech-enabled ways to restock shelves and new hubs that sort packages for more cost-efficient delivery routes.[3] Retailers can create intelligent predictions end-to-end using AI in supply chain. Cloud-based infrastructure and data lakes that consolidate information from all data sources, including sensors and IoT, are true enablers in building dashboards that offer interactive visualization and empower logistics teams with accurate customer insights for better supply chain decisions and outcomes.

Chief supply chain officers (CSOs) should prioritize three aspects (Figure 1) when building digital supply chains:

- E2E real-time visibility: Supply chain visibility is no longer just a great thing for logistics companies to have. In 2022, it needs to take another step forward—become real time. Customers and carriers are now demanding it more than ever, and logistics companies and retailers must focus on implementing cutting-edge supply chain visibility solutions into their operations for transparency

[1] United Nations Climate Change, "COP26 Reaches Consensus on Key Actions to Address Climate Change" (13 Nov 2021), accessed Dec 2021, https://unfccc.int/news/cop26-reaches-consensus-on-key-actions-to-address-climate-change
[2] Forbes, "Walmart's Massive Investment In A Supply Chain Transformation" (23 Apr 2021), accessed Dec 2021, https://www.forbes.com/sites/stevebanker/2021/04/23/walmarts-massive-investment-in-a-supply-chain-transformation/?sh=4cb1cf58340e
[3] CNBC, "Target to invest $4 billion to speed along new stores and remodels, expand ability to fill online orders" (2 Mar 2021), accessed Dec 2021, https://www.cnbc.com/2021/03/02/target-to-invest-4-billion-to-speed-new-stores-expand-supply-chain.html

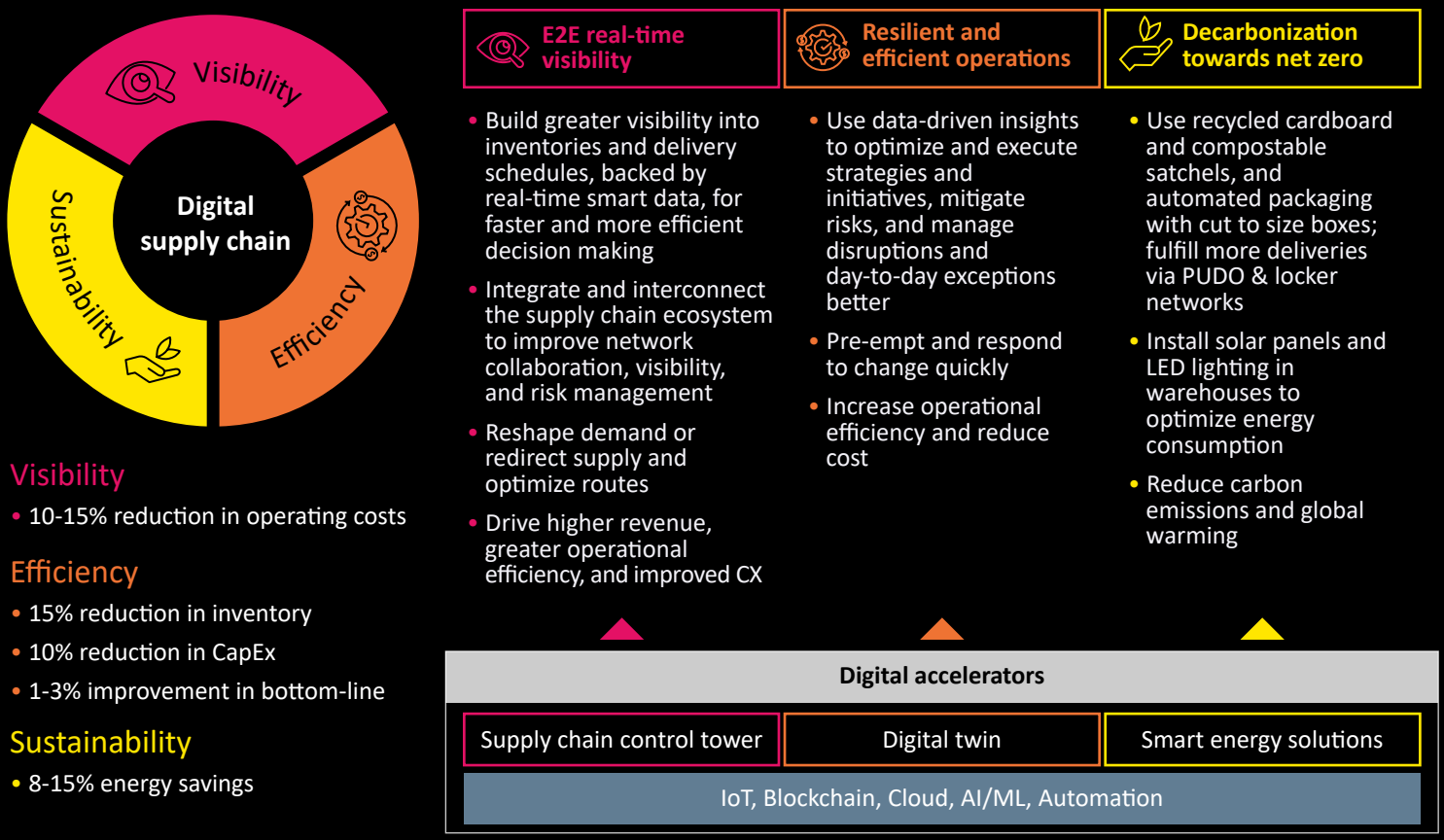

Figure 1: Digital supply chains deliver significant benefits

from inbound to outbound and last-mile delivery to the end-customer. Building greater visibility into inventories and delivery schedules, backed by real-time smart data, helps supply chain managers make faster and more efficient decisions on securing multiple sources or prioritizing one shipment over another to meet fluctuating demands.

To capture, share, and use data as an engine is imperative to support collaboration and make supply chains transparent. New supply chain visibility start-ups are providing technology that promotes quick response to change by allowing companies to use real-time data. The data includes traffic patterns, weather, and road and port conditions, which can be acted on to reshape demand or redirect supply and optimize routes. Logistics companies that fully use integrated supply chains report 20% more efficiency than those without.[4]

By 2023, 50% of global product-centric enterprises will have invested in real-time transportation visibility platforms.[5] Increased digitalization will result in a more resilient and agile supply chain, powered by technologies such as the internet of things (IoT), digital twins, and blockchain. These technologies will digitally interconnect the supply chain ecosystem and improve network collaboration, visibility, and risk management.

- Resilient and efficient operations: Data-driven insights can uncover previously unseen savings, opportunities to increase efficiencies, and reduce costs. Supply chain teams can optimize and execute supply chain strategies and initiatives, mitigate risks, and manage disruptions and day-to-day exceptions better. The key is to be able to pre-empt and respond to change. Through 2024,

[4] Transmetrics, "Top 10 Supply Chain and Logistics Technology Trends in 2021" (7 Feb 2021), accessed Dec 2021, https://www.transmetrics.ai/blog/supply-chain-logistics-technology-trends/
[5] Gartner, "Gartner Predicts the Future of Supply Chain Technology" (26 Jan 2021), accessed Nov 2021, https://www.gartner.com.au/en/articles/gartner-predicts-the-future-of-supply-chain-technology

50% of supply chain organizations will invest in applications that support artificial intelligence and advanced analytics capabilities.[6]

- Decarbonization towards net-zero: The supply chain is often one of the largest drivers of a company's carbon footprint. As retailers make tangible efforts at environmental stewardship through supply chain sustainability, it will trigger initiatives such as transport route optimization, fulfilling more deliveries via pickup and dropoff (PUDO) locations and locker networks (last-mile ecosystem), utilizing recycled cardboard and compostable satchels, automated packaging with cut-to-size boxes, installing solar panels and LED lighting in warehouses to reduce electricity and energy required. Meeting net-zero emissions target by 2050 is an all-hands-on-deck endeavor—everyone in the supply chain community has a responsibility in developing a purposeful and cognitive supply chain.

Accelerating supply chain transparency, cost efficiency, sustainability

Supply chains of the future will be powered by platforms and tools such as supply chain control towers, digital twins, and smart energy solutions. These technologies will help retailers accelerate supply chain transformation to optimize both financials and net-zero targets by enabling pro-active decision-making, simulations of supply chain performance, improving CX, and driving sustainable actions.

- Supply chain control tower for E2E real-time visibility
  As a central hub for visibility, decision-making, and action, control towers help supply chain executives monitor, manage, and optimize the flow of the entire network while promoting collaboration with partners.

  360-degree real-time visibility and predictive insights of shipments and assets help move products in a smarter way, offering several benefits such as reduction in operating costs, increase in revenue and operational efficiency, reduction in carbon emissions, and improved CX. For instance, commercial planning must be in sync with supply chain planning. A promotional campaign will be useless if there is no stock to support an increase in demand and sales. Transparency and a holistic view across functions are imperative to optimize resources and meet expectations. Real-time data and analytics will bring insights across the business, improve response time, and drive informed decisions.

- Digital twin for optimized asset utilization and scenario planning
  A digital twin is a virtual supply chain replica consisting of hundreds of assets, warehouses, logistics, and inventory positions. Using advanced analytics and artificial intelligence, the digital twin simulates the supply chain's performance, including all complexities that cause value loss and risks. It identifies where volatility and uncertainty exist, as well as where optimization is possible. Retailers can test and demonstrate different scenarios, solutions, and drive evidence-based decision-making. Retailers can also enable autonomous decisions on what to make, and when and how to maximize customer satisfaction and profitability. The results captured include sustainable inventory reductions of up to 5%, capex reductions of up to 10% (through better resource planning and investment decisions), and EBITDA improvements of 1-3%.[7]

[6] Gartner, "Gartner Predicts the Future of Supply Chain Technology" (26 Jan 2021), accessed Nov 2021, https://www.gartner.com.au/en/articles/gartner-predicts-the-future-of-supply-chain-technology
[7] Microsoft Industry Blogs, "Revolutionizing the retail supply chain with digital twins" (26 Jan 2021), accessed Dec 2021, https://cloud-blogs.microsoft.com/industry-blog/retail/2021/01/26/revolutionizing-the-retail-supply-chain-with-digital-twins/

Early adopters of digital twins commonly report the following benefits:

- Data-driven decision-making and collaboration
- Streamlined business processes, higher throughput, and enhanced service levels
- New avenues of growth/business models

- Smart energy to enable emission and energy savings at distribution centers
  In the new normal, energy usage patterns are unpredictable due to various factors such as volume, production spikes, weather, time, population, technology, and usage behavior. Also, the size and complexity of enterprise operations pose a challenge in understanding the energy footprint as well as opportunities for conservation. Smart energy solutions powered by IoT, AI, cloud, and digital twin can optimize energy consumption at distribution centers (DCs) with the advantage of providing valuable data to connect operations and information technology systems across the enterprise. AI and ML-based data models with augmented intelligence can provide an integrated energy view, helping organizations take informed decisions through predictive analytics. Typically, this type of solution will enable and deliver emission and energy savings of 8-15% year-on-year. Purposeful and carbon-neutral supply chains will be a key contributor to tackle climate change.

Conclusion

Success in establishing a cognitive and purposeful supply chain requires a strategic road map and a robust change management process governed by the senior management. Retailers that move quickly, respond, and make the best decisions aided by data and new technologies will be ahead of the competition.

About the author

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Per Gustafsson is a supply chain consulting partner at Retail Strategic Initiatives, TCS, ANZ. Per has over 25 years of experience in B2B/B2C logistics and supply chain management, and has held executive management positions at large transport and logistics companies in Europe and Australia. His focus is on customer value creation, integrated E2E supply chain solutions, and transforming connectivity, visibility, and scalability into competitive advantages.

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