SOFTWARE SOLUTIONS:

SAVIORS IN TIMES OF SUPPLY CHAIN CRISIS

As the supply chain continually sustains disruptions, companies look to software to plan. Read what solutions will be the future of the supply chain.

Food Logistics
SDCE SUPPLY & DEMAND CHAIN EXECUTIVE

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INTRODUCTION

Software solutions are an important part of the supply chain today, as the entire industry runs on different forms of operating systems. Throughout the past two decades, that form of software drastically changed and the industry now completely relies on digital solutions.

But as of the past two years, the supply chain's top goal is to drive efficiency and bridge gaps exposed throughout the "crisis." Companies look to software to accomplish these goals. This means a fundamental shift in technology investment and strategy.

More acquisitions and mergers occur today in the supply chain technology sector and new innovations continue to emerge in a variety of tech sectors. Supply chain management (SCM) is a key term here, as companies flock to software for insight on how to manage operations, especially as the supply chain disruptions continue to grow.

Improving end-to-end processes, collaboration, transactional connectivity, freight optimization, freight forwarding, on-demand fulfillment, supply chain planning and inventory optimization are currently some of the biggest uses of technology and software in the supply chain.

"The entire supply chain is undergoing a technological shift as manufacturers and shippers look for efficiencies in order to avoid the bottlenecks that are currently present in global supply chains," says Okan Inaltay, VP at GP Bullhound.

According to a survey from Gartner, the Top 3 objectives of IT spend in supply chain companies are to run the business (38%), grow the business (33%) and transform the business (29%). When it comes to actual use of technology, 38% look to improve technology to support end-to-end processes as their top goal, 22% use it for multi-enterprise process orchestration with innovative tools for collaborative network-wide value creation and 14% focus on enabling trading partner transactional connectivity and support.

THE SOFTWARE

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Freight optimization, a type of technology that allows companies to determine the most efficient methods in shipping product through software like artificial intelligence and data, is a trending means of software right now.

"Many companies are searching for ways to ship their goods at full efficiency, meaning that they use the full capacity of trucks, ships, etc.," says Inaltay. "A company focusing on this area is Flock Freight, which uses its software platform to optimize the shared truckload (STL) segment of the freight market. The company is focused on avoiding transshipment through hubs, where less-than-truckload carriers consolidate and redirect shipments. Flock Freight claims its technology reduces potential damage to cargo, cuts carbon emissions, and is faster than its established competitors."

Inaltay also notes freight forwarding is a trending software solution, simplifying a process that used to consist of a series of middlemen between the transportation services and the shipper. Freight forwarding software now automates this process. Previously, shippers would arrange the shipping process including storage and transportation of the product while also negotiating cost and determining the most reliable, fastest and economical route. He references Flexport as one of the top technologies in freight forwarding.

On-demand warehousing and fulfillment is an important part of the supply chain technology industry today, as consumers search for more on-demand goods and services, so does the industry that supports that. Companies now want to scale up and down physical operations, growing interest in cloud operations.

"An example of a company innovating in this space is Stord which offers scalable physical infrastructure," says Inaltay. "The company's differentiating feature set however is its software platform that integrates the physical elements of logistics – fulfillment, warehousing and freight into one comprehensive view for companies."

In the emerging sector, top software supply chain organizations currently invest or plan to invest in advanced analytics, big data, the Internet of Things (IoT), artificial intelligence (AI)/machine learning and blockchain, in that order according to Gartner. Following close behind is RFID/electronic tagging, robotics, robotic process automation (RPA), conversational systems (chatbots), wearables and digital twins.

There are numerous ways to create software, the top in the supply chain being microservices, APIs and cloud-based software. Microservices create an application as a collection of loosely coupled services organized around business capabilities. Christian Titze, VP analyst at Gartner, says this is not a monolithic application but instead a self-contained piece of business functionality with clear interfaces.

APIs are used for integration between different technologies and for client access to applications. Numerous SCM software offers APIs for interoperability with other systems, which is necessary in today's supply chain environment. In addition, cloud adoption is extremely important in the industry as it enables software to be agile, scalable and resilient. Supply chain organizations can tap public, private or hybrid cloud platforms.

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Okan Inaltay, VP at GP Bullhound.

FADING OUT

As emerging technology promises to solve supply chain woes and new trends become widespread best practices, some technologies will fade away. More specifically in the supply chain, how technology is handled changes.

For instance, point solutions become much less popular as more robust operations take hold. Point solutions focus on one problem or task rather than an entire ecosystem of capability that supply chains look for today. As a result, mergers and acquisitions in technology make this more common as smaller capabilities become embedded into bigger platforms.

"Point solutions, such as retail execution and traceability solutions will become obsolete as larger supply chain management, transportation management system (TMS) and warehouse management system (WMS) vendors acquire those smaller vendors or develop those functionalities within their own platforms," says Isaac Gould, research manager at Nucleus Research. "Large supply chain solution vendors will be able to offer more specific point solutions within their own platform at a lower cost point with reduced integration requirements, which will be more attractive to end-users."

Enterprise resource planning is becoming less popular for similar reasons and will likely be integrated into greater management technology stacks that will do more than simply track operations but also provide specific and targeted efficiencies and insights through AI and data.

WHO'S INVESTING?

Some may be skeptical on who is actually investing in emerging technology especially during a worldwide pandemic and supply chain crisis. But most warehouses and logistics companies are indeed investing fully into the software solutions of the future in the hopes to overcome the numerous obstacles popping up and optimize their businesses. The larger location scope the business operates in, the more technology it invests in.

"Virtually all of them are investing in software solutions, especially those operating at a national or global level," Gould says. "Businesses need modern TMS to manage high volumes of deliveries and complex transportation networks for freight, shipping and air. Businesses also need modern WMS to manage larger-than-ever warehouses with high volume demand and optimized picking processes. You may still have 'mom-and-pop' warehouses or trucking companies that operate at a local level that can manage with Excel spreadsheets, but any business with over $10 million in annual revenue will be leveraging a planning solution, TMS or WMS of some kind."

Another Gartner survey showed 77% of companies said they are investing in deeper and more collaborative supplier relationships to improve resilience and agility. Gartner's "Future of Supply Chain: Crisis Shapes the Profession" survey respondents cited diversifying their supplier base as a strategy to establish more business resilience, with 63% and 23%, respectively reporting they are already investing and plan to invest within two years.

Supply chain visibility and mapping was the top investment across the board. Currently, 66% of companies invest, with 25% planning to invest within the next two years. Only 9% of respondents reported no plans to invest over the next two years.

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THE PITFALLS

There are clearly numerous benefits to software solutions in SCM. but what are the issues that pop up when it comes to investing in these technologies?

Transitioning legacy warehousing and logistics operations into a new era with advanced technologies can create a disjointed supply chain solution ecosystem. Gould explains that organizations need tightly integrated flows of data between their finances, sales, operations, inventory and transportation systems to have visibility across their entire business. Without this visibility to inform various functional departments that are dependent on one another, organizations will not be able to prevent supply chain disruptions, meet deadlines, fulfill customer orders and make ad-hoc adjustments.

Additionally, older software platforms focus on tracking data without tapping into AI to discern what this data means and how to efficiently move forward.

"Many legacy supply chain software platforms are focused on tracking information as opposed to trying to improve business efficiency," says Inaltay. "The global supply chain has drastically shifted so businesses would be better served by platforms that incorporate elements of business intelligence that are constantly trying to wring out new efficiencies."

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CONCLUSION

The emerging technologies mentioned above will likely continue to grow throughout the next few years, pushing out obsolete and outdated strategies.

While enterprise resource planning (ERP) systems become outdated, they will never truly go away and instead be absorbed into newer platforms. ERPs will remain the most ubiquitous software in the supply chain, providing the foundation for IT infrastructures, says Gould. These systems will integrate with other software that can branch out beyond finance and asset tracking to robust supply chain planning.

The future supply chain will see a less disjointed technological landscape, with more platforms integrating, working together and becoming one. These software solutions coupled with on-the-ground hardware technology like robotics may help bridge the gaps seen in the disjointed and disrupted supply chain of today.

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