WHITE PAPER

Keeping your supply chain on track

How AI is streamlining exception management

SHIPWELL®

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Supply chains are what keep the world running. Never has that been more apparent than this past year. The supply shock that started in China in early 2020, followed by the next blow as the global economy shut down, exposed just how vital a resilient supply chain is — and what happens when things go wrong. Supply chains at their best are like a complex well-oiled machine working to move freight smoothly from start to finish across the country and around the world. But like any well-oiled machine, they have all kinds of gears for the proverbial wrench to be tossed into.

In the industry, we'd refer to those wrenches as exceptions, and whether they slow down the supply chain or grind it to a halt, they all cause disruption. Spotting those disruptions quickly and addressing them before they become larger problems is one of the most important factors that go into a successful supply chain. This is where artificial intelligence (AI) and machine learning comes in.

By making it possible for machines to learn from experience, adjust to new inputs, and perform humanlike tasks, AI has already made its way into everything from self-driving cars to chatbots. But looking beyond the big headline grabbing stories around the technology you'll see that AI is also impacting the way companies manage their global supply chains. And for good reason. When looking into how machine learning works, it seems to be tailor made for identifying issues in the supply chain. With its ability to glean and assess an incredible number of distinct data points, it can identify issues the moment they arise. Not only that, but thanks to the precision it provides, it can also provide guidance on automated or manual solutions to enable logistics managers to address those issues instantly.

In this guide, we'll explore the real-world potential that AI can bring to supply chain management by examining not only its ability to rapidly identify exceptions and solutions, but how Shipwell customers have leveraged it to streamline their workflows.

Best-in-Class companies are 50% more likely to invest in AI capabilities for their supply chain

IBM Source

Increasing visibility into exceptions

According to a report by Geodis 2017 Supply Chain Worldwide, a **survey** of 623 supply chain professionals in 17 countries, 70% of firms described their supply chain as "very" or "extremely complex", with 74% saying that they use four to five different transportation modes in their supply chain. These figures clearly state how extensive and complex the global supply chain is becoming, and how difficult it can be to quickly spot and identify issues.

Getting a clear view into what loads are not being tracked, where shipments are overdue or running late and other common issues takes valuable time out of a supply chain manager's day. And while existing solutions may be capable of providing visibility into those issues, it's typically up to the individual user to identify them.

So while great visibility provides instant access to data, and supply chain technology lets you understand how everything is working around the world, AI and machine learning can help you drill into those details and find out where there are hold ups, quality issues or waste in the supply chain. For example, you may have visibility into the data needed to determine when a shipment is running late, but if it's up to the shipping manager to check the current location of the shipment and compare its projected ETA to the scheduled delivery time, this adds a level of complexity that can be quickly solved by having AI identify the issue immediately.

In order to take full advantage of these capabilities, what's needed is a way to bring all of these notifications to a single dashboard. By having AI track down exceptions and place them front and center and eliminating the need to hunt down problems or tab through different platforms, it's possible to bring a whole new level of efficiency to the supply chain.

> *Most companies simply do not understand **the full depth and breadth of their supply chain risks**, and are therefore not prepared to respond efficiently or effectively to the many potential disruptions.*
>
> **Seth Lippingcott,** Analyst,
> Nucleus Research **Source**

Use case

Packaging provider improves customer service with advanced visibility

Premier Packaging is one of America's leading providers of packing materials for customers in industries from ecommerce to medicine, and as such, they've seen an explosion in demand over the past year. "Over this past year with COVID, our freight has increased substantially due to the explosive growth of e-commerce," explained Premier Packaging division manager, Darryl Anderson. "With the amount of trucks we have on the road right now and with the amount of freight that we're moving, just to be able to have it all organized in one place has helped the team, we've loved the visibility."

Being able to quickly move products has always been highly demanding, especially when it comes to their customers in the medical industry. And now that stay-at-home orders have closed many retail shops over the past year, ecommerce has also risen to the top of what many would call "essential services." So whether it's packaging for vital medical equipment or your next Amazon order, neither customer type is able to tolerate much in the way of shipping issues when it comes to the packaging they need to ship their own products.

"Our customers don't want to hear any excuses about issues we may be faced with or why we're late, we need to perform. And with the critical nature of what we do, being late could literally shut down a customer," Darryl explained.

Thanks to the AI-powered alerts provided by Shipwell's Compass Dashboard, Premier Packaging is now able to identify and address any issues in their supply chain the moment they happen. Where previously this would require checking shipments one by one while looking through the details to uncover issues that could cause a delay, those issues are now identified and flagged directly on the dashboard. Making it possible to ensure that all orders arrive when expected while devoting more attention to customer service.

Enabling rapid resolutions

With the increased visibility into existing and potential issues provided by AI, it's possible to gain full access to information on every factor of the supply chain process, improving process efficiencies. However, visibility is only one factor in exception management. Quickly knowing when there is a problem is an important first step, but quickly solving the problem is obviously the final goal.

The problem is that determining the best method for addressing an issue in the supply chain can be something of a hit-or-miss exercise. And even when the solution is clear, contacting carriers, rescheduling shipments, updating information, or otherwise implementing a solution typically means navigating to different systems where human error can enter the equation.

However, with AI and machine learning, that multifaceted and time-consuming process is removed because they provide algorithms that work in real-time to handle the disruption. In this instance, AI and machine learning algorithms can be applied to analyze the data captured when the issue was identified in order to generate actionable KPIs and recommendations for the optimal action to take.

By bringing those actionable solutions to the same centralized dashboard housing all the detected issues across the supply chain, it becomes possible to not only view where exceptions have occurred, but correct them instantly.

> *These innovations create an environment where as soon as a supply chain exception is identified* ***it takes only a few seconds or less*** *for the system to decide on the actions needed to be taken.*
>
> **Sean Riley,**
> Director of Strategic Business Solutions
> Software AG **Source**

Use case

Food supplier discovers new efficiencies with AI-powered recommendations

Marcus Technologies is a leader in the advanced protein trading and logistics space who uses their platform to connect protein vendors, buyers, and traders. Their mission is to use technology to push the boundaries in a traditionally slow-paced industry while also creating efficiencies to help reduce food waste and spoilage.

Working with such a highly perishable commodity, relying on manual processes to book freight and ensure that any issues that might arise to affect the narrow time frames involved was a time consuming and inefficient process that they were eager to move past. "I used to spend the majority of my day writing emails and on the phone with vendors," explained logistics manager Abiel Venezuela. "But now Shipwell has allowed me to focus on higher level projects. It's been a life changer."

By bringing all supply chain issues to a single screen and providing instant actions on resolving them, Abiel has been able to not only uncover and resolve issues faster to reduce spoilage, but to extend those capabilities to handle tasks like carrier assignment. "It's like a command center," he said in describing Shipwell's Compass Dashboard.

By widening the parameters around a "no carrier assigned" alert, Abiel is able to take advantage of all the data available to make booking shipments easier than ever. He can instantly view the time remaining until pickup, today's predicted market price, how many carriers have tenders, bids, or requested bids for the shipment, a summary of all routing guides that have been started for it, along with their current status.

Filtering out the noise

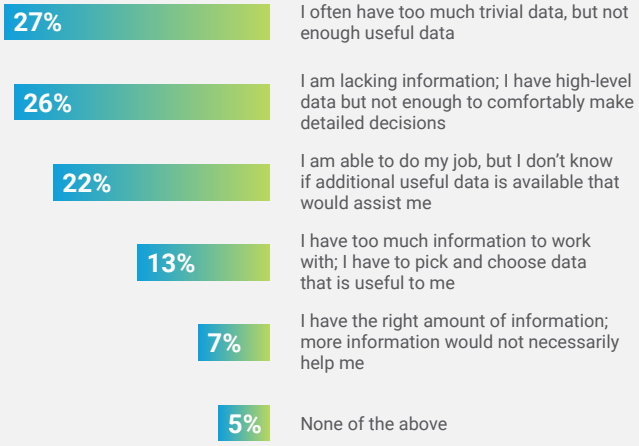
Stepping away from the actual powers of AI, it's possible to appreciate that there may be times when having access to every single issue in your supply chain may not be the most efficient method for optimization. For companies managing multiple networks across the country or around the world, having reps navigate their way through to uncover the issues that they're responsible for could easily remove any improvement to efficiency that AI provides.

Even at companies with no access to AI, 40% of companies reported having too much information (either trivial data that isn't useful, or data that is simply not useful to them personally) as a top concern in a 2015 study by **APICS**. Data overload and the abundance of trivial information are challenges many organizations face, so when looking at any solution that promises to deliver even more data, it's vital to ensure that there are methods for ensuring the right information is being delivered to the right people.

Including the option for users to create custom filters that limit alerts to specific locations, issues, times frames or other areas of responsibility make it possible to eliminate the risk of information overload and create genuine efficiency in the supply chain, no matter how complex it may be.

Data Sufficiency

Respondents were asked which statement best matches their opinions about actual data sufficiency on the job. **Source**



Use case

National logistics provider boosts productivity and focus

With the high volume of shipments being managed by a national logistics provider, this customer would definitely fit in the "I have too much information to work with" category. And having a network of clients, trucks, and routes criss-crossing the country, it also means they have a lot of reps on staff to manage specific areas and regions. So while having AI identify issues and provide solutions is extremely valuable, the sheer volume of alerts would quickly lead to data overload without the ability to filter it.

To avoid this, they can use customizable tiles or shipment list filters to narrow down what they see on their Compass dashboard, ultimately allowing them to focus on their own book of business/region. Even within their own filter set, they can highlight shipments on a watch list, which allows them to flag the most critical shipments and ensure the shipment is on track throughout the life of the load. "We can now identify potential problems sooner, which increases our ability to react as well as proactively communicate," one rep explained.

Thanks to these capabilities, the client is able to filter out the noise and drill down to the specifics of what each representative is responsible for, while still collecting and analyzing a massive amount of data. "With filters, it has given us a better dashboard to run our freight, along with myself having a one stop area to check on what's going on. It has also helped us diagnose some App/ELD issues that we didn't know we were having." It's the best of both worlds, really. All the data they need to ensure smooth operation of their sprawling network, targeted to each representative's area of responsibility.

How to put AI to work in your supply chain

When it comes to leveraging AI to manage exceptions in the supply chain, there are more than a few factors to consider. The technology is far from replacing their human counterparts, and therefore has to be able to fit into the way they work in order to deliver results. So how can this be accomplished?

01 Bring all of the issues onto a single screen

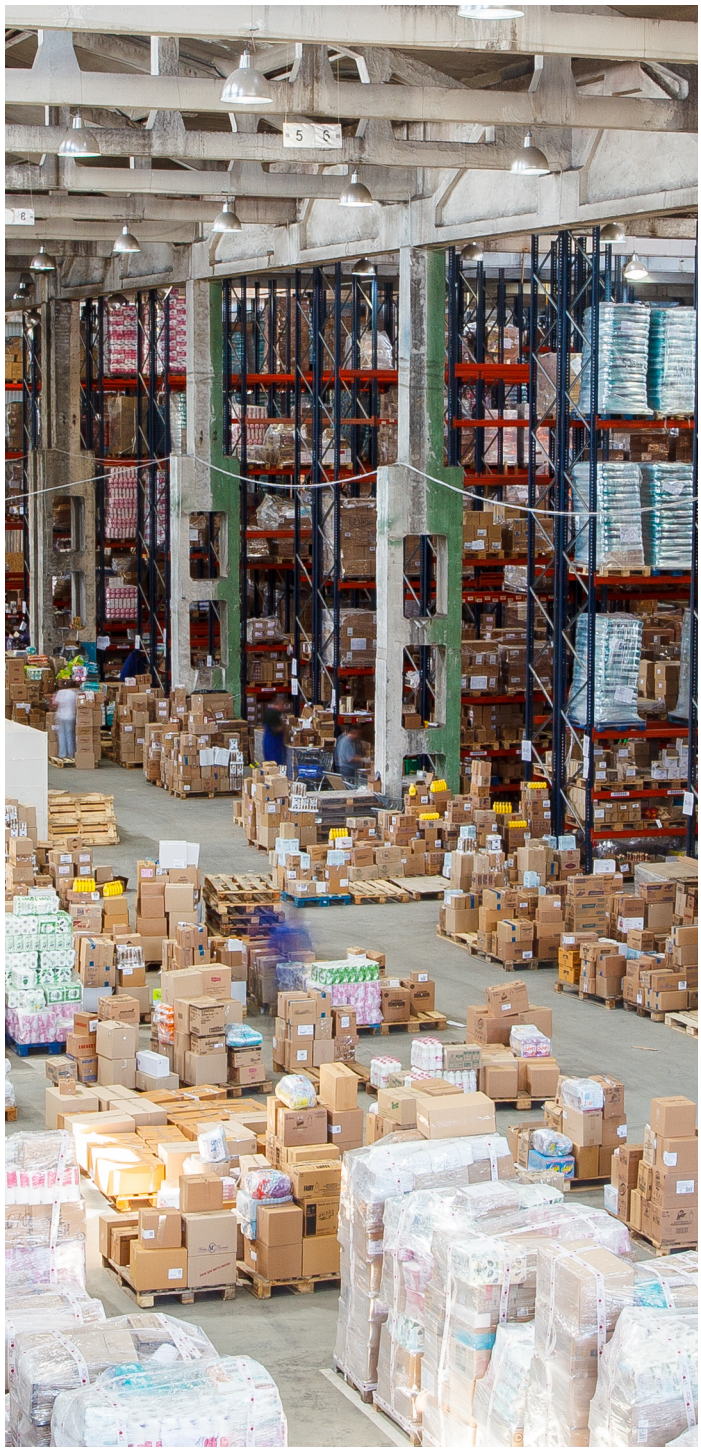
Supply chain managers typically have enough platforms and programs to keep organized without having to navigate through separate tabs or windows to view information on what issues may be occurring. All the information in the world can't be useful if it's difficult to find. By having all issues across the supply chain organized and available at a glance, it's impossible to miss an important update.

02 Provide the ability to take instant action

Employing AI to seek out and identify issues in the supply chain is the first step toward addressing them quickly. Take that a step further and it can also help to solve them while helping to eliminate human error and guesswork from the equation. The same ability to identify issues can be utilized to understand what solutions may be available for them. Sometimes an automated approach may be best, or when human intervention is required, the system should be capable of presenting options, as well as the ability to take action on them instantly.

03 Set limits to the data presented

AI creates data — a lot of it. And as valuable as it is, having to scroll through pages and pages of information that isn't relevant to your job is more likely to create frustration than efficiency. Allow those with access to the data to cut through the noise and focus on the specific supply chain issues that they want to view with customizable filters. Whether that's time periods, regions, shipment types, or their own top priority shipments, the data can only be useful if it's useful to the person viewing it.



Conclusion

There's no denying that AI is hot right now. Crunchbase **reported** that over the last year over $4 billion in venture capital has been invested in AI firms in the US alone. And a large part of that investment is going toward improving the supply chain. According to **IDC**, half of all manufacturing supply chains will invest in AI by the end of 2021, garnering a 15% productivity spike, while another **study** has found that supply chains with AI-powered capabilities are over 65% more effective, with reduced risk and lower overall costs.

The need for this type of rapid analytical capability has never been higher. With the rise of ecommerce, people have been influenced by the Amazon effect — where they place their order and expect delivery in just one or two days. These expectations extend beyond the final customer in the supply chain as well, with companies at every level expected to deliver items almost instantaneously. However, with the siloed, sequential, and manual processes employed by most companies in tracking problems that could prevent or delay that quick delivery, it's a serious challenge to keep pace with expectations.

Properly implemented AI has the power to break down the silos that exist in current supply chains, providing true end-to-end visibility into the whole supply chain operation. That gives companies a better positioning to meet both vendor and consumer expectations and to quickly address any issues that arise along the way. Their supply chains can operate more efficiently and are resilient enough to meet consumer and vendor expectations, even amidst day to day variability or unforeseen volatility.