

How Supply Chain Automation is Changing the Landscape In 2020

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When the term automation comes up, most people experience a brief sci-fi laden slideshow in their heads. It's the year 2020, humanoid robots take to the streets disrupting life as we know it and clashing with their old human masters. Lucky for us, when it comes to the world of supply chain automation, robots are more about increasing efficiency and less the whole enslaving humanity angle.

It's no secret that demand for flexible, accurate and nimble supply chain logistics is on the rise. As consumer and client bases continue to grow at rapid rates, supply chains will need to adapt to larger, more complex methods of information and product transportation. However, there are many time-consuming processes that go along with managing a successful supply chain.

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Supply Chain Trends to Watch

Supply chains are always on the lookout for new technology that can give them a competitive boost. We've done our research and found some upcoming trends in supply chain management to keep an eye on.



Robotization

Robots are being adopted into more and more warehousing operations.



Automated Trucking

Before long, we will see completely automated trucking fleets making deliveries.



Augmented Reality

Augmented reality may find its way into supply chains to help boost efficiency.



Improved Machine Learning

As supply chains become more complex, our machines need to learn to keep up.



Global Trade and Regulations

Chaotic global trade is sure to have an effect on large international supply chains.

source:  SelectHub

Here is where automation steps in. Time-wasting processes can fall into automated workflows, and human employees can spend more time forecasting, analyzing trend data and developing relationships with clients.

With so many benefits to adopting automation, it may come as a surprise that a recent [BCI study](#) shows that nearly 63% of companies do not use technology to monitor their supply chain performance.

In this article, we will discuss why to adopt, why not to adopt and how the trends in automation are affecting supply chain management around the world.

Key Takeaways

- By the end of the year, only 17% of companies will be out of the supply chain automation loop — compared to 40% four years ago.
- Optimized supply chains generally have 15% overall costs, less than 50% inventory holdings, and a faster cash-to-cash cycle by nearly three times compared to under-optimized supply chains.
- A recent report shows that by 2020, 65% of e-commerce operations will leverage automated robots within their fulfillment practices.
- Automated storage and retrieval systems can increase accuracy in orders by up to 99%
- Manually traveling to and picking an order can account for more than 50% of picking time.
- Automation increases the efficiency and accuracy of mundane tasks, but human employees are still very necessary for higher-level planning and relationship formation.

How Does Automation Work in a Supply Chain?

Supply chains are complicated, but that's something of an understatement, isn't it? If you consider all of the many moving parts of a successful supply chain, it's similar to studying the variety of processes that keep an organism alive.

Manufacturing and assembly providers create products that travel down the supply chain. These products go to warehouses where they are organized and stored, and then they make their way to their final destinations where clients receive them. All the while, vital data related to the supply chain's performance is gathered and studied by professionals in order to further optimize the chain as a whole.

Much like a complex living organism, you wouldn't expect all of these processes to be controlled manually. Imagine having to section off a portion of your conscious mind to command your stomach to digest or your lungs to process each individual molecule of oxygen. You would end up standing still all day every day focusing on keeping yourself alive. Luckily, your body has already adopted widespread automation of vital tasks to give your mind room to work on the rest.

Supply chain automation seeks to accomplish the same thing. There are processes like picking and packing that gobble up valuable time employees could spend on higher-level tasks that require a human touch.

We spoke to Lisa Anderson, the founder and president of LMA Consulting Group Inc., about her thoughts on automation in the supply chain. "Automation is coming, whether or not we get on board. To thrive in today's Amazon-impacted business environment,

customers expect rapid deliveries, 24/7 accessibility, last minute changes and easy returns with innovative service options such as Amazon Key In-Car Delivery. To meet these ever-increasing expectations while increasing profitability and cash flow, executives are looking to technology such as robotics, IoT, artificial intelligence, automation equipment and predictive analytics to accomplish these objectives.”

So, how does automation help tackle some of the problems we discussed earlier?

Common Problems Supply Chains Face

Supply chains run into snags all the time. Preventing them or dealing with them before they arise are preferable ways to handle the situation. However, if employees are stuck spending their time on mundane tasks, it can be hard to see them coming.

Here are some common issues supply chains are running into today:

Customer Expectations

If there is one universal truth about shipping, it is that customers want their products as soon as possible. Now that we live in the world of Amazon, customers expect quick and accurate delivery with stellar service should any problems arise.

According to a [recent survey](#), nearly 20% of operations identified fluctuating customer demand as the biggest challenge they face. This number is only expected to rise, and consumer demand shows no signs of slowing down anytime soon.

Keeping Up With the Global Market

Regardless of where you stand, the global economy has been quite chaotic recently. Not only are all of the normal processes in a supply chain much more difficult on a worldwide scale, but there are a wide array of regulations an operation has to follow when working globally.

A supply chain needs to be very agile and able to quickly conform to changing global requirements. When the future is as uncertain as it is in the current international market, you need to be able to change direction quickly.

Choosing the Right Channels

Right now, there is already an overwhelming number of options available when considering the order and delivery channels for your supply chain to leverage. A supply chain must have the ability to organize orders coming in from a wide array of channels without slowing down.

Possessing enough data visibility is another critical part of this issue. You need to be completely in tune with how your supply chain works in order to find the best possible

channel to serve your operation's needs.

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Benefits of Supply Chain Automation

Supply chain automation is being adopted by more and more operations as the complexity of operating in today's market continues to rise. Supply chain managers are constantly looking for ways to improve the efficiency and accuracy of their supply chains. So, how does automation fit into the picture, and how can it help?

By 2023, over 30% of operational warehouse workers will be supplemented, not replaced, by collaborative robots.



source: Gartner

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For starters, let's take our examples of problematic issues that many supply chains are dealing with right now:

Solving Problems With Robots

Let's go back and look at our first example of a common pain point many supply chains face. How does supply chain automation help with a ravenous customer base that demands speed, accuracy and stellar customer service?

Better Customer Service

Once a customer orders a specific product, its journey through the supply chain begins. However, there are a few bottlenecks where human labor lags behind what an automated warehouse can accomplish. For example, an employee receives a notification that a product has been ordered and that it needs a pickup. The employee in question would need to make their way to the product, find the correct object, pick it up and transfer it to be shipped out.

With supply chain automation, these tedious steps can be removed from the equation in a few ways. Automated warehouses have begun implementing small pick and pack robots that can quickly traverse a warehouse and find the correct object via SKU, UPC or even

RFID in some cases. These warehousing robots are ready to go at a moment's notice and do not have to drop other tasks in order to grab the product they need to move. But there are even more (and less expensive) ways to implement automation in your warehouse.

For example, a Massachusetts-based company employs a different method that has radically increased its productivity. Instead of warehousing robots, a system of conveyors carries all products that need to be palletized above the warehouse floor to their final destination to be shipped. Supply chain automation gives them the option to employ smart technology that can identify the number of products that need to be shipped and move them almost 75% of the way through their journey. Even simpler solutions make use of no hardware at all, simply optimizing the pick, pack and ship route so your workers don't take inefficient paths through the warehouse.

Outside of picking and packing, supply chain automation serves the customer in other ways, too. When an order is received, it automatically triggers the fulfillment process, while providing the customer with constant information on where their package is, when it should arrive and any other information they may need.

When you are feverishly refreshing your shipping status on Amazon to see when that fancy new TV is expected to arrive, you can thank automation for keeping you up to date.

Protecting Your Supply Chain

While I'm sure many of us wish this were true, no one can tell the future. Sure, we may be able to forecast and make some educated guesses, but surprises are always lurking around every corner. Sudden difficulties can damage an entire supply chain depending on what they affect. These types of problems can range from a bad storm knocking power out in an important area, fire at a manufacturer or something more mundane.

Damage from disaster can be mitigated, but speed has everything to do with it. An employee may receive a notification about a problem with a manufacturer and be able to forward it to the necessary people, but time is already being wasted.

Supply chain automation can put systems into place that immediately react to adverse conditions. If there is a problem at a manufacturing plant, an automated system could instantly place orders for integral equipment or parts from another partner without having to run the request up the normal chain of command. Suddenly, your supply chain is saving you hundreds of thousands of dollars when those critical parts (*that your system's already ordered*) jump in price after word of the slow-down reaches the rest of the world.

Not only are you eliminating the need for a team that monitors and reacts to situations like this, but you are also ahead of the game at the same time.

Keep Up With Shipping Demands

Warehouses are integral parts of any supply chain, but the transportation of goods and data is equally vital. We'll go into some of the more radical trends beginning to take off later in the article, but for now, we can focus on some less intrusive automation that affects the transportation leg of a supply chain.

Trucking plays a vital role in how a supply chain functions; people actually want to receive the products they pay for after all. Many small to medium enterprises still rely on outdated methods when managing transportation aspects their supply chains, and while it may work for them, they could reach new heights with a little bit of automation.

Instead of employees spending time figuring out the optimal way to pack a truck, plan the most efficient route, report transit status to clients and connect the right truckers to the right shipments, supply chain automation can streamline it all. A little bit of supply chain automation can go a long way: A recent study shows that nearly 25% of supply chain professionals report delivery costs as one of their top issues.

Supply chain automation can take the entire transportation process and streamline it with the hopes of cutting down on delivery costs. Without the need for a complex team to figure out trucking details, employees can spend time on other more pressing issues while your automation keys in the best routes and automatically reports to your consumers.

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Limitations of Supply Chain Automation

Supply chain automation comes with a host of benefits, but our little robot friends still cannot compete with a human employee in a variety of vital functions. While many enterprises are embracing supply chain automation, there are some holdouts waiting to see how things shape up.

We spoke to Cathy Morrow Roberson, Manager of Logistics Trends & Insights LLC, about her thoughts on supply chain automation. "I think like any new technology, there is an uncertainty in how robots and AI will affect an organization's supply chain. For example, for some folks, robots conjure up images from Isaac Asimov classics such as 'I, Robot' in which robots took over the world. There is a significant concern that workers could be replaced by robots. However, there are numerous articles that counter one another. Some say robots are indeed taking over jobs, while other articles indicate otherwise. So, this has bred confusion for some and opposition from labor groups."

Automation does have some drawbacks, let's take a look at how employees still come out on top over robotics:

Menial Tasks

While small robots are very helpful in a warehousing environment, they are far from able to completely replace a human employee. Warehouse robots in current supply chain automation set-ups are very efficient and accurate when it comes to navigating their environments and grabbing the right products, but they lack dexterity.

Most need specially finished surfaces to operate correctly, and if you need something from upstairs, then you are going to have to grab a human. Employees are also more suited to making real-time decisions based on stimuli around them.

One major downfall of our little mechanical friends is their inability to do any kind of managing. Sure, artificial intelligence can handle specific workflows and other streamlined processes, but they lack the very human ability to cultivate relationships, plan correctly and make quick judgment calls.

Supply chain automation is a great foundation to boost your efficiency, but you're still going to need a human touch to stay competitive. An AI assistant does not have the power or forethought to speak with a sales representative and knows that a big purchase is coming down the line due to how the conversation went.

The HR world is another area where robotics has no place yet. A computer can't deal with things that require empathy like sick days or other problems in an employee's life. Companies will always need someone to help untangle sticky interpersonal issues, and a robot is nowhere near that point yet.

Cost of Robotization

Another one of the main reasons some operations are holding back on supply chain automation is the cost of entry.

Roberson had this to say on the subject, "Costs may be contributing to slow adoption rates. At a minimum, [the] average cost of a new industrial robotic could range from \$50,000 to \$80,000. According to [RobotWorx](#), once application-specific peripherals are added, the robot system costs anywhere from \$100,000 to \$150,000 each."

This price tag can cause some hesitation. If you aren't sure about adding robotics to your operation, such a costly gamble may not seem like it is worth it yet.

This idea also includes the use of AI, "AI costs are also a concern. Based on a survey from [MarketMuse](#), 80% of IT and corporate business leaders want to learn more about the cost of implementing existing AI technology in an enterprise; 74% are interested in how much more it would cost over present expenditure levels to implement AI in their enterprises; and 69% want more information about how to measure return on investment (ROI) for a new AI solution."

Until we have more data on how much implementing this kind of technology costs, there are going to be more than a few enterprises that hold back on robotization. Once an accurate ROI for such an undertaking is available, you can expect supply chain automation adoption rates to rise.

Anderson had this to say on the subject as well, “Most executives do not want to be the guinea pig for new technology as they cannot afford disruption and risk. Thus, as new technologies such as robotization and AI advance, they are starting to put their toe in the water to test these technologies and partner with experts to find ways to utilize these technologies to achieve bottom-line improvements. Most executives are so busy trying to keep up with Amazon-like customer expectations while meeting Board financial objectives, they are waiting until these concepts are proven and implementable before jumping in. Yet, we are seeing a definite uptick in interest, trials and small implementations in the last six months.”

Now let’s take a look at the future of supply chain automation and any interesting trends that are gaining ground.

Automation Trends to Watch Out For

We’ve talked about how supply chain automation can cut costs, boost speed and increase accuracy. However, technology is always improving and innovating; so what emerging trends should you keep an eye out for in the world of supply chain automation? We took a dive into the automation market and dug up what to watch out for in the coming years:

Automation and Labor Shortages

A recent [report](#) shows that labor shortages are continued to rise as we move through the rest of 2019 and into 2020. As the world of e-commerce continues to grow exponentially, warehouses are having trouble finding enough employees to keep up with demand.

As demand continues to rise, warehouses are going to continue to seek ways to stay relevant in the face of labor shortages — enter the robots. More and more warehouses are going to be turning to robotization to alleviate some of the pressure labor shortages are causing. Although, some believe that this is only a short-term solution and that companies need to change their recruiting and retainment methods to survive.

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Automated Trucking

You are probably already familiar with this topic thanks to autonomous trucks slowly making their way into the news cycle. It is also no secret that the trucking world is facing its own labor shortages, so how do supply chains contend with this in a world where

consumer demand is constantly rising?

The answer is driverless trucks. Multiple companies are trying to break into this market, but we are still a ways out from convoys of driverless trucks being spotted on the highways. Right now, this technology is still being tested in combination with a human riding along to mitigate any unforeseen issues.

While this tech is still going through development, onboard truck automation can be expected to work in tandem with drivers to boost vehicle control and safety for drivers and other vehicles on the road. These automated inclusions will be able to pass significant amounts of trucking and driver data back to managers, who can then forecast and plan out even more efficient trucking practices.

Improved Machine Learning

Supply chains inherently come with massive amounts of important data that travels alongside products. In order to make the most out of this information, and to keep up with demand, automation that are already in place will need to be able to quickly scale as time goes on.

Whether this is adapting to a constantly changing warehouse or giving users more visibility into their supply chain, machines are going to need to be able to adapt. As supply chain automation improves, more responsibilities will be passed on to autonomous processes. In the near future, supply chains will be closer to living breathing organisms as automated functions will be able to quickly ramp up or scale down a product cycle as demand waxes and wanes.

Other Emerging Trends in Supply Chain Management

Outside of automation, there are other trends to look for that could make a splash in the world of supply chain management in the coming years:

Rise of Virtual and Augmented Reality

When the word virtual, or augmented, reality comes into play, most people think of the booming VR gaming industry. This tech has uses outside of letting you pilot giant robots through space, however. Picking accuracy in the warehouse is one of them.

Imagine this: A customer orders a product, and a notification is sent to an employee that the pick and pack process is ready to start. The warehouse employee throws on a pair of augmented reality glasses that immediately displays where the item is located and any pertinent information about it. If a complex order comes in, more information can be passed through the wearable to guide the employee to the most efficient path to take.

These types of wearables can also be used to help monitor the time employees spend traveling to and from products and managers can make adjustments as needed to help speed things up.

Impact of Global Trade

Things are a bit of a mess in the political realm right now, and these issues affect global supply chains around the world. As more tariffs are passed and varying trade wars continue, supply chains need to be ready to react.

As things go back and forth, regulations could change at any moment. Disruption of supply chains is almost a given in this type of climate, as things keep moving supply chain managers should be on the lookout for sudden changes in the global environment.

Widespread Digitalization of Supply Chains

As consumer bases continue to grow, supply chains can be expected to continue moving toward digital environments to remain competitive.

Obtaining visibility into your supply chains is quickly becoming a necessary criterion when considering how to run a successful chain. Older analog methods of data storage have been left in the dust along with the human errors that go along with them.

This valuable gold-mine of data is vital when looking for ways to improve the efficiency and accuracy of a supply chain, and those that do not jump onto this bandwagon are going to be left behind.

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Identifying Your Perfect Supply Chain Management Solution

Supply chain automation is on the rise, and there really is no stopping the adoption of [supply chain management software](#) as time goes on. As we learn more about how to produce more affordable robotics and fine-tune them to meet the needs of our operations, you can expect to see their usage spread like wildfire.