Cognishen Focus

Industry 4.0 Supply Chain Management: Part 1

Volume 2 Issue 8, August 2023

In the previous newsletters, we saw that Industry 4.0 can enable your business to be highly flexible and resource efficient. We discussed the disruption and adoption of Industry 4.0 in the last newsletter. We saw that Industry 4.0 has the potential to disrupt your business if you do not adopt its principles. In this newsletter, we will start the discussion of how the adoption of Industry 4.0 impacts the supply chain in your company.

Digital Supply Chain (DSC)

A survey by IDC Research found that 58% of respondents felt that their business would be disrupted by either an existing competitor or a new market entry within the next year, with a further 19% expect to be disrupted within five years. Moreover, several factors such as high demands, trade restrictions, wars, factory closures, mounting freight rates have led to global shortages and inflation. Such issues can contribute to widespread disruptions in supply chain networks. To alleviate such issues and risks, firms must use a supply chain that is resilient to external political, environmental, and legal factors by either anticipating or reacting quickly to mitigate such disruptions. The digital supply chain seems to be the answer!

A Digital Supply Chain (DSC), also called SCM 4.0 or smart supply chain, delivers a smart, value-driven, and efficient process to generate new forms of revenue and business value for organizations. By using DSC, firms can leverage novel technological and analytical methods. DSC is about the way supply chain processes are managed with a wide variety of innovative technologies, for example, autonomous robotics, cloud computing, and internet of things (IoT), among others.

Companies want to be customer centric, so should be their supply chains. This means that supply chains must be dynamic and agile to meet customer needs. Firms should be able to respond quickly and still maintain the other main performance factors such as cost, flexibility, delivery, and quality. Data resides in disparate sources and DSC accesses the required data sources seamlessly.

Top Benefits of Digital Supply Chain

The digitalization of supply chain processes has advantages such as real-time tracking and optimization of all materials, goods, and services involved in all the tiers of the supply chain network. To achieve total visibility into the entire supply chain, businesses have to use real-time data and an Internet of Things (IoT) tracking and monitoring solution at all times throughout the entire supply chain. There are many benefits of a digital supply chain to a business. The main benefits of DSC are:

- Transparency,
- Accurate visibility of inventory levels, and
- Smart products and services.

Transparency

One of the biggest benefits of DSC is the transparency in the supply chain network. Better transparency leads to better decision making for all the organizations in the value chain. Transparency in a supply chain means that a business knows exactly what is happening at every stage of its supply chain. This will enable a business to communicate clearly with factually backed information about its supply chain operations internally and externally. For example, the transparency within the value chain allows a manufacturer to identify changes in customer requirements and to use those changes quickly in all of the production steps from development to distribution.

Transparency from the time a product is ordered by a customer until the end of the product life can be maintained only by an integrated digital collaboration between suppliers, manufacturers, and customers. Transparency in the supply chain helps to reduce the complexity of its processes. This is accomplished by improving the visibility of upstream and downstream supply chain operations.

Definitions

Why digital supply chain (DSC) and not just traditional supply chain?

The traditional supply chain involves estimating the market demand, the flow of goods and services to produce products, and orchestrating logistics and sales channels to provide customers with visibility into their orders. Here, goods and services flow linearly as each step is dependent on the previous one. A failure in any part of the supply chain such as lost shipments may take days or weeks to be discovered resulting in missed deadlines and angry customers.

A digital supply chain (DSC), in on the other hand, provides significant real time visibility into the supply chain because of the digital transformation of the supply chain. Here, innovative technologies that are integrated into the supply chain collect, monitor, and analyze data to make predictions and recommend actions in real time.

Practical Insight

Amazon's DSC Transparency

"Amazon is setting a new standard for visibility into consumer shipping.

One of the biggest areas of recent innovation in the consumer space has been the level of transparency and visibility available in online shipping. When you order a product on Amazon, you get real-time, to-the-minute updates regarding the status of your shipment. You can see exactly where your package is as it travels to you, and Amazon will proactively send alerts if a package is delivered or encounters a problem. Even more impressive, Amazon will send a picture of the package as soon as it is dropped at your doorstep, providing complete visibility into exactly when and where the package is delivered."

Click for More Details

Industry 4.0 Supply Chain Management: Part 1

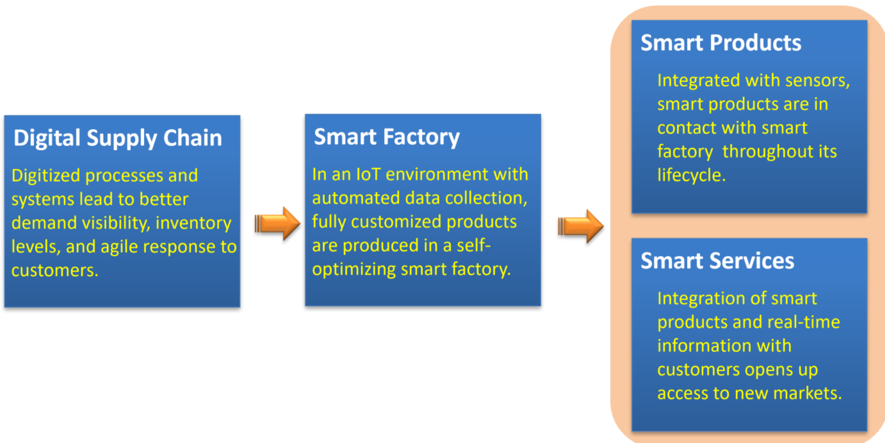
Volume 2 Issue 8, August 2023

Accurate visibility of inventory levels

Any business should have accurate information about its inventory levels to meet customer demands, minimize costs, and maximize efficiency. Moreover, such information can be used to avoid stockouts, reduce excess inventory, and improve cash flow. DSC provides such accurate information by tracking and monitoring the movement of materials and goods in real time. Because of its fully integrated system with suppliers, manufacturers, and customers, DSC provides clear visibility of inventory levels.

Smart products and services

DSC coupled with a smart factory gives rise to smart products and smart services as shown in the following figure.



From past newsletters, we have seen that a smart factory is capable of producing fully customized products to the delight of customers. A smart factory may be visualized as one equipped to collect data, analyze the collected data, and use the analysis to make intelligent operational decisions. With a smart factory integrated with a smart digital supply chain, businesses can produce smart products and smart services.

Such a combination of DSC and smart factory makes a company operationally effective and to position itself to be distinctively strategic to maintain a competitive edge. Moreover, that integration can lead to smart products and smart services. A smart product is a product that is integrated with sensors. The sensor integration helps a business to be in contact with the smart product throughout the lifecycle of the product. Smart, connected products can provide major improvements in predictive maintenance.

Porter and Heppelmann (2014) predicted that smart products and services can reveal existing and future problems that can enable companies to make timely, remote repairs. They also stated that early warnings about impending failure of parts or components can reduce breakdowns and allow more efficient service scheduling, Moreover, as companies accumulate and analyze product usage data from smart products, they gain new insights into how the products create value for customers, allowing better positioning of offerings and more effective communication of product value to customers.

Reference:

Porter, M.E., & Heppelmann, J.E. (2014). *How Smart, Connected Products Are Transforming Competition.* Harvard business review, 92(11), 64-88.

Practical Insight

Why do companies fail in their digital transformation projects?

"Nearly 68% of organizations fail to achieve their desired ROI on digital transformation of their supply chain networks. Why?

The problem is that most organizations attempt to modernize their supply chains without a good holistic digital strategy. While hardware and software make it possible to achieve the positive outcomes of digitization, a successful digital transformation is impossible without influencing the redesign of the processes and providing solutions to the relevant pain points of the people who uses them.

Knowing and mastering the balancing act between cost efficiency and supply chain resilience comes down to prioritizing and investing in the right supply chain capabilities. Such a balancing act will provide a positive return on investment (ROI)."

Is your business ready for Industry 4.0?

*Call us at **574.210.8028** for a quick assessment and how your business can be ready for Industry 4.0.*

Published by cognishen.com

Email: info@cognishen.com

Cognishen

Innovate...Grow...Inspire

https://www. cognishen.com