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The smart supply chain stuff is really tricky

Traditional supply chains are getting increasingly smart with more sensor-based objects and improved connectivity, smart decision-making and automation technologies, meanwhile the modern smart supply chain provided excellent incentives to reduce costs and improve productivity.

So, what is Supply Chain Management?

Supply chain management is the managing of the whole supply flow of products or services to optimize efficiency, distribution, customer satisfaction and profitability.

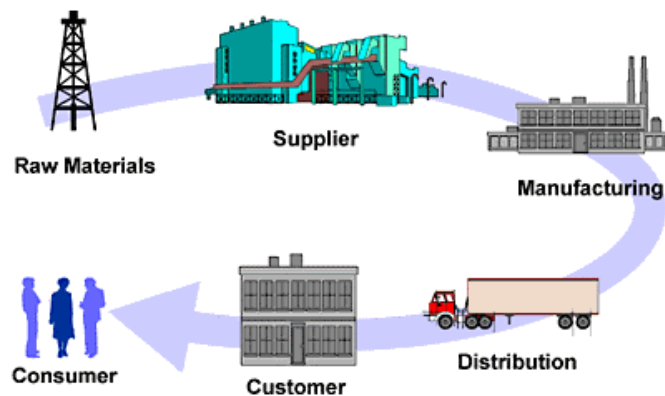


Figure 1: Process of Supply Chain Management

(Source: <https://www.pe-energy.com/tag/process/>)

The supply chain is the method of transporting goods from the order of the customer to the stage of the raw materials supply, production and distribution of goods to the consumer. Mostly in evaluation of technology, the information systems used in this area are structured to achieve the intended advantages of controlling the supply chain. It explains how information technology impacts the management of the supply chain and how it can be used to handle the supply chain more efficient manner. The combination of actual sensor data, GPS & RFID information and environmental data will provide knowledge to all stakeholders in the ecosystem.

Smart Supply Chain focuses, thus, to raise awareness of efficient decision-making, tap data obtained by IoT devices and provide accurate analysis of products, from manufacturer to distributor. Through Smart Supply Chain, consumers would not only automate distribution and

fulfillment, and moreover reliably forecast the status of goods in real-time, and track crucial data that drive the overall effectiveness of the supply network. In the next few years, smart supply chains would have a huge effect on economic growth. The paradigm shift has already been ongoing as linear and sequential supply chain processes migrate to a digitized, open platform segment of Industry 4.0 that greatly increases system capability with high throughput and scarce resources.

Then its better to know what is mean by industry 4.0?

As Siemens and the German Government developed the philosophy of Industry 4.0, they played a major role in the idea of a smart factory in which the whole plant is interconnected and linked to intelligent analytics aimed at eliminating downtime and pollution.

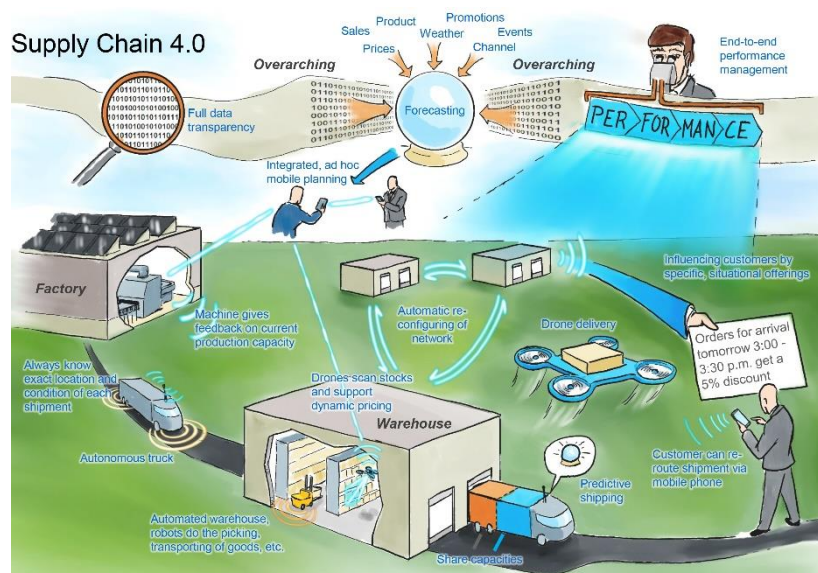


Figure 2: Concept of Industry 4.0

(Source: <https://www.mckinsey.com/business-functions/operations/our-insights/supply-chain-40--the-next-generation-digital-supply-chain>)

Industry 4.0 generates interruption which allows businesses to reconsider their supply chain design. So many innovations have arisen that are modifying the conventional way of operating. On top of that, the game changes mega-trends and consumer preferences. In addition to the need to evolve, supply chains now have the ability to hit the next horizon of operating performance, to exploit new digital supply chain market models and to turn the enterprise into either a digital supply chain. It further keeps manufacturers at risk of getting out of touch with companies that are adopting the factory of the future and smart systems that are critical to international competition.

So how will factories truly accept the idea of a smart factory? One of the key moves is integration of sensors into equipment to attach them to the Internet of Things (IoT). Communication alone, even so, is not enough for a plant to identify itself as a truly intellectual factory if communication is restricted to the production line. Better decision-making at all levels of the production and delivery process, as well as the supply chain, could be accomplished by using advanced software that do not need human interaction. They will control emerging digital supply chain market models to turn the enterprise into a digital supply chain.

The many mega trends have a heavy effect on supply chain management. This consist of a continuing growth of the rural areas worldwide, with operations generated wealth shifting addicted to areas that have not been served earlier. There is correspondingly a pressure to reduce carbon emissions in addition to regulations of traffic for socioeconomic reasons that add to the challenges that logistics and supply chain are facing. Nevertheless, changing demographics as well cause to reduced labor availability in addition to growing ergonomic requirements that arise as the workforce age increases. Simultaneously, global consumer expectations are growing and the internet trend during the last few years has sparked higher quality expectations combined with a much greater order granularization. Internet based visibility and quick access to a variety of alternatives generates competition from supply chains. Supply chains would have to be much faster and more efficiently, more granular and also more specific in order to adapt to these trends and to satisfy the alerting market requirements.

Although this much-vaunted technical trend is offering new organizational efficiency levels and sales prospects, IoT often raises major transitional obstacles through existing supply chain management, computer networks and organizations across a broad variety of industries. Handling these challenges adversely could lead to losses or lower returns. IoT technologies collect data in the supply chain through authentication chips, detectors, data networks, cloud computing networks and analytical engines, all working on such fuel automation, continuous feedback and better decision-making. Besides that, thousands of pre-Internet resources tend to provide value to global supply chain operators, however lack IoT access, although stated in Automation Nation. Perhaps, any of these assets can be upgraded to IoT using cloud storage and gateways that convert communications protocols and physical interfaces. The spread of IoT further tends to raise security risks that need to be resolved at every organization. Most of these compare this to the "bring your own device" growth in the recent years, saying that IoT

Supply Chain Management Policies should also be established which are similar to their policies describing what mobile devices can connect to their networks.

Strongly, supply chains have the ability to be much smarter. But other than that, this is not going to be just if they can. Smarter supply chains emerge when they have to. In order to succeed in the global economy, businesses would have to invest in smart supply chain management. The below changes will take place by way of they do:

Digital transformation efforts will increase - End-to-end automation and value-added flow supply chain management becomes necessary for company's success. Thus, dynamic industrial operations management becomes more digitalized, the technical components of companies will become more robotic-driven.

Data quality will win over quantity - Businesses would realize that smart supply chain management is about getting the best data, not all data. Organizations will then continue to invest in technology that streamline and unify attempts to optimize data.

Bottleneck management will improve - By means of predictive analytics take hold and allow end-to-end visibility, businesses may be prepared to handle and resolve challenges until they arise. In addition, programs that detect, rate, and eliminate problems would be automatic, accurate, and reliable putting an end to human error.

Sales and operation planning will become more effective - Linked devices that collect data in real time will offer a more precise view of demand than ever before. This strengthens sales and organizational readiness by verifying that current plans are feasible and provides businesses with the knowledge they need to realign immediately as circumstances including inventory management and transport capability planning change.

To conclude, while several businesses are now moving to a smart supply chain 4.0 management system with ML and AI in the supply chain, more and more will get on board within the next several years. Investment became well worth the effort and the funds needed, since even small improvements in productivity offer a significant return on investment. So that, the smart supply chain stuff is also really challenging.