Artificial Intelligence and Machine Learning Assists Supply Chains

- By David Rogers

Standard procedures for conducting business are no longer satisfactory. They cannot keep up with the increasingly evolving technology that is penetrating every industry and every marketplace. These technologies create seamless integrations from end-to-end, enhancing business practices, operations and logistics, user-interfaces, customer satisfaction, and more.

Enter artificial intelligence, the computer science that has revolutionised technology and is rapidly infiltrating industries and companies alike. Most importantly artificial intelligence and machine learning have increasingly been implemented in supply chain activities. Though introduction can be pricey, the return on investment is unmatched. Digitising your supply chain lifecycle is not the way of the future, it's happening now.

To not implement such technologies could negatively impact businesses big and small. Why though, is this technology so pivotal?

What is Artificial Intelligence and Machine Learning?

Simple technologies are a thing of the past. Artificial intelligence has moved in and changed the way we do business forever. Artificial intelligence creates the ability for a machine to think, to take on the role of a human brain. It is the overarching science behind building computers and machines that are capable of completing tasks that would normally require human intelligence.

Machine Learning is a subset of artificial intelligence. It is the action that occurs due to the presence of artificial intelligence. Machine Learning is programmed to respond by algorithms to learn and predict. Machine learning can dissect large data sets into actionable information for improved operations.

Predictive analytics is a key part of machine learning. It is the analysis of machine learning and associated data to forecast and predict future outcomes based on historical data. Predictive analytics can drastically improve business operations.

How Can These Technologies Assist Supply Chains?

As discussed, artificial intelligence and machine learning can aid in the improvement of supply chain activities and lifecycle. It's not a process that will occur over night, but as these computers and machines analyse the data, becoming smarter, significant results will be seen. These results include, but are not limited to, smarter inventory management, enhanced quality control, improved supplier relationships, superior customer satisfaction, and an overall streamlined supply chain.

Smarter Inventory Management
Inventory management is a crucial piece within the supply chain management process. It is essential that proper inventory levels are maintained at all times. Having low or non-existent inventory can cause gaps in production and customer dissatisfaction, and overstocking inventory can create unnecessary costs and/or amass of unused inventory.

AI does not completely replace the need for physical human interaction in the process, as management will still be necessary. It does, however, increase the success of proper inventory management. As data is analysed and machines enhance in intelligence, the management turns into supervision.

It is crucial that inventory levels are at appropriate levels where efficient business operations occur. Predictive analytics can be used to identify future supply and demand to ensure proper inventory levels at respective periods. This intelligent, real-time analysis will not only improve inventory management, but also supplier relationships, respective processes of the supply chain, and ultimately, customer satisfaction.

Improved Supplier Relationships
With administrative tasks automated and improved in addition to other related activities, supplier relationships can expand and advance. Supplier relationships may suffer when communication is not at the forefront of the relationship. AI aids companies in enhancing their communication efforts by providing real-time, up-to-date information quickly and efficiently.

In addition, supplier data can be key data analysed with AI. The insights received from the analysis can drastically impact the logistics and activities. When insights become available, it provides companies better opportunity to improve these supplier relationships through better communication, stronger understanding of needs, and real-time decision making.

Superior Customer Satisfaction
With smarter inventory management and enhanced quality control, customer satisfaction can increase dramatically. This coupled with faster deliveries, transparency and visibility, and improved tracking, can be a game changer for a company. Satisfied customers not only create loyalty but offer the opportunity of spreading the word and emerging customers to be gained.

Through improved processes within the supply chain, the customer wins. Predictive analytics can be used to forecast customer demands and ensure proper stocking of inventory, order fulfillment, and quicker deliveries. In addition, machine learning and AI can more accurately enhance quality control. With the removal of the manual actions and the implementation of reliable automated checks, the business can be confident that the end user is less likely to receive a defective product.

Each of these pieces of the supply chain activities work collectively to create a superior process and improved output. Improved end-product delivered on-time and with little to no defects will increase customer satisfaction.

Streamlined Supply Chain
AI and machine learning will greatly improve and streamline the supply chain lifecycle. These technologies will advance production planning in a way that optimises existing planning, identifies inefficiencies and gaps, and aids in avoiding disruptions. These technologies will also be significant in leading to a reduction in costs as it will identify those existing inefficiencies and any waste.

A full-scale digitisation strategy will ensure that inefficiencies and gaps or silos no longer exist, creating the seamless supply chain. These technologies also give way to more flexibility to be able to handle disruptions in the process or between vendors. These improvements create an environment for operations to thrive.

Conclusion

During a time when technologies are rapidly evolving and improving, it's vital to digitise supply chains. Adopting a full-scale strategy to digitise through AI and machine learning automates certain processes and predicts to optimise where necessary, cutting down on waste and increasing on quality and customer satisfaction. When these processes are working in unison, the process works for itself. The reduced costs and related activities will bring returns over time and subsequently increased profits.

Understanding the overall strategy of digitisation of your supply chain is not a simple task. A trusted partner who is experienced with these strategic initiatives is a wise investment. It's not only about the technologies, but the manpower to take the helm when needed. Taking the time to work with a partner on goals and opportunities and training and development will make a difference.