

Internet of Things (IoT) to the rescue

How IoT could improve supply chain risk management

Up until early 2020 the global business market was resolutely reliant on complex supply and demand chains. Organizations in practically every nation were beholden to some degree, on the success and reliability of their suppliers, with products and services physically or digitally transported across the globe constantly. With capitalism's effect of driving to reduce all costs to their lowest possible levels, organizations have moved all manufacturing and costly service-based operations to suppliers to reduce internal costs. This has resulted in a global ecosystem where suppliers carry huge amounts of responsibility and risk, yet have minimal power over the organizations they supply. Despite this power imbalance, one of the greatest threats to an organization currently is its supply chain, and improving oversight is one of the key motivations behind the drive to use AI, and the Internet of Things, to provide a low-cost, efficient and effective method of delivering this supply chain oversight.

It is important to note at this point that, in light of the COVID-19 global pandemic, there have been increasing indications of countries adopting nationalistic approaches to trade. For some, such as the USA, this is just another step toward an insular nationalistic trade outlook that has been occurring since the Republicans won the White House. But for other countries, this has been a sudden and reactionary response to a global crisis, and it is yet to be clarified whether the trend toward isolated nationalism will last once the pandemic recedes. The fallout from an increased and persistent nationalistic approach to trade could cause seismic changes to the global supply chain model. Irrespective of what happens when the pandemic begins to recede and the world attempts to go back to normal, there is going to be increasing scrutiny of supply chain models. There is also a growing need in organizations to have a more resilient platform from which to trade, as the pandemic has highlighted substantial weaknesses throughout the parts of economic world hit so far, with only the limitless financial firepower of central banks being able to prevent a complete economic collapse which would have made the effects of the pandemic even worse than they have been so far.

Hands-free supply chains

One of the biggest strains on the global economy and supply chains during the COVID-19 pandemic has been the drive for organizations to keep trading, providing governments and people with tax and income, but in a manner, which limits the number of hands that are involved. The fear of contamination has been present in the minds of customers, workers, and business leaders from the start of the pandemic, and it has highlighted how reliant the world economy still is on human productivity. There have been continued cries of warning that organizations have turned to AI and robotics too much, citing the potential risks of a loss of control of equipment or data, as well as the potential impact such moves would have on the people who could lose their jobs. The fears of workforces being completely sidelined in favor of robots and AI have not been fully realized just yet, as the pandemic has shown,

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but unhelpfully for those who advocate against such a reliance on technology, COVID-19 has also shown how beneficial an interconnected, smart, robotic production and supply chain would be if a situation like this ever arose again.

The benefits of an Internet of Things (IoT) approach to supply chains are seemingly immeasurable, ranging from better data which can be used to highlight issues in real-time, to the potential of AI being able to solve complex problems without the need for human input, thereby limiting the costs of employment on the part of an organization. IoT supply chains are also theoretically able to provide faster supply chains, with processes happening at speeds at which humans wouldn't be able to operate. Yet a major facet of IoT-based supply chains is the fact that supply chain disruptions can be identified and rectified quickly and efficiently through supply chain risk management (SCRM). The larger the network of IoT-linked devices and systems in the SCRM set up, the more points of data collection there will be that can raise an alert whenever a disruption, or potential disruption, is identified. This can happen without human intervention, and can run on a network that potentially spans the entire globe.

Adopting IoT

There are substantial risks involved with adopting an IoT-based network to monitor and run a supply chain. Whilst the increasingly complex business environments around the world have caused product cycles to be shortened and increasingly volatile, IoT technology has provided a relatively cheap method of improving oversight and productivity in supply chains. Yet to make IoT adoption economically viable for organizations within supply chains, who are often those most squeezed in the pursuit of profits by the large organizations they supply, the technology is not always secured in the most comprehensive fashion, if at all. The potential for cyber-attacks has grown over the last decade, and now more than ever, the damage such attacks could cause on global supply chains could be catastrophic for affected organizations. Very few organizations, including the richest governments and corporations, are able to afford cyber security solutions that can resist such attacks. Because of this, supply chains that adopt IoT solutions to SCRM can leave themselves open to significant risks if not properly managed and secured. But these risks, it seems, are currently worth taking.

Comment

The review is based on 'Internet of Things – the future of managing supply chain risks' by [Birkel and Hartmann \(2020\)](#), published in *Supply Chain Management*.

Reference

Birkel, H.S. and Hartmann, E. (2020), "Internet of Things – the future of managing supply chain risks", *Supply Chain Management*, doi: [10.1108/SCM-09-2019-0356](https://doi.org/10.1108/SCM-09-2019-0356).

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