Impact Of New Smart Technologies On Supply Chain Industry – Boon Or Bane?

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Technology has been the backbone of Supply Chain (SC) since long and the industry has also been evolving over time with advances in technology. The emergence of e-commerce and e-business, leveraging advances in information technology are examples. Currently, there is a high expectation that the SC industry is in for further revolution through the adoption of emerging and disruptive technologies like artificial intelligence, machine learning and blockchain.

The emergence of e-commerce spawned the growth of online retailers such as Amazon, eBay, Rakuten (previously buy.com) and Alibaba. These e-retailers, by reducing the overhead costs associated with traditional brick-and-mortar retailers, were in a position to offer products at lower prices than their traditional counterparts. In addition, newer platforms such as online payment gateways (PayPal and SecurePay) and online digital wallets (Paytm and MobiKwik) made payments faster, easier and cost effective. In today's economy, this offered an affordable and viable alternative for customers resulting in an online shopping boom.

Greattest Gen	39%
Boomers	44%
Gen X	55%
Millennials	61%

Struggling	42%
Mid Range	48%
Affluent	54%

Purchased FMCG Product on Line
In the last 3 months (2017)

Graphic based on AC Nielsen 2017 data

Information technology has aided in better coordination among the SC partners through the development of integrated enterprise resource planning software suites like SAP and Oracle SCM Cloud. These tools aid in sharing various information among the SC partners also termed as Supply Chain Visibility (SCV). Additionally, RFID technology has been employed by a few companies to boost SC performance. For instance, Rehrig Pacific Company (leading manufacturer of reusable transport packaging system and transportation service provider) has tagged pallets and crates with passive RFID tags for clients like Pepsi to reduce their costs.

Information technology had also facilitated novel strategies that can result in effective inventory management in the SC. Virtual pooling is one such strategy where companies manage their inventory as if it is in one location even if they are actually in different locations. This allows them to reduce their stock-out risks as well as shipping costs. An example of virtual pooling is Netflix, which offered movie DVD's to customers. When

customers order for a particular movie, they have information only about the availability of the DVD, but no idea about the whereabouts of the DVD.

A company in Chicago, Eazystock, has taken virtual inventory pooling to a new level, where local warehouses in a given region act together as a single "virtual warehouse". This warehouse is used to satisfy the aggregate demand over the entire region, resulting in effective inventory management in the SC.

AIMLA (Artificial Intelligence Machine Learning & Analytics) can be potentially useful in SC planning and logistics. Given the enormity of data that is available throughout the Supply Chain, ML has applications in forecasting demand and supply. This data can then be used in optimizing the inventory levels and delivery of goods so as to balance supply and demand. Alternatively, the demand data can also be used in varying the prices (revenue management). Oyo rooms, an Indian startup, has employed AI in boosting occupancy rates and adjusting prices.

Given the current focus of automobile companies on producing autonomous vehicles, there is also a scope for using these vehicles for shipping and logistics activities and reducing transportation lead times (as an autonomous vehicle can run without halting for a longer time than a human driver). Go-Jek, an Indonesian company that revolutionized the informal transport and logistics business has collaborations with Google regarding AI and ML. The company currently uses GPS to identify drivers close to the customers.

The blockchain is a distributed database that records and stores every transaction that occurs. The key advantage is that new records can be added, but existing records can never be deleted. This can be very useful in ensuring Supply Chain Visibility (SCV) as all information regarding various activities in the Supply Chain can be securely stored and made available to partners. This technology can potentially help in avoiding bullwhip effect. Companies that have adopted this technology include Bajaj Allianz General Insurance (to reduce the settlement turnaround time) and Bajaj Electricals (to reduce the process cycle for bill discounting).

With a lot of researchers predicting that AI will complement (replace?) human workers in future, the moot question is how the adoption of AI in the supply chain will affect the workforce - a start-up in New Zealand (Soul Machines) has replaced human workers with digital humanoids! However, given the immense benefits that can be derived from the newer and smarter technologies, they are expected to be more of a boon than a bane for Supply Chain.

The article can be read online at - http://www.businessworld.in/article/Impact-Of-New-Smart-Technologies-On-Supply-Chain-Industry-Boon-Or-Bane-/30-10-2018-163200/