ADAPTING TO A DIGITAL WORLD – AGILE, COLLABORATIVE, AND INNOVATIVE SUPPLY CHAIN MANAGEMENT

This world is changing by the second. Every so often, new technologies experience a boom. In such a situation, a sector like the supply chain must adjust to the booming technology in order to establish flexible, collaborative, and inventive supply chain management.

Managing the flow of resources, products, information, and services while transforming raw inputs into finished products for end users is known as supply chain management. Consumer demands that change frequently and security worries are the issues that surround the industry; the traditional supply chain is having trouble remaining relevant due to these issues.

Here are the five digital fields that can be incorporated into the supply chain management to tackle these issues and enhance its efficiency:

1. 3 D Printing

2. VR

3. Autonomous Vehicles

4. Internet Of Things

5. Blockchain

By utilizing these cutting-edge technologies, the supply chain will experience a significant rise in automation, trust, and transparency owing to improved object tracking and internationally shared adherence records.

3 D Printing

By sequentially adding numerous tiny layers of material to a three-dimensional digital model, 3D printing reduces cost by eliminating waste while producing actual objects.

3D printing will impact the supply chain in the following ways:

• 3D printing gives companies the ability to make their production portable. As a result, they manufacture their goods close to where they are needed, which lowers the cost of materials, shipping, taxes, and many other expenses.

• As a procedure that requires no tools, 3-D printing provides manufacturers with a lot of creative freedom when designing products.

• The production process of 3D printing is both economical and energy-efficient. Nearly no waste is produced, excess inventory and overproduction are less likely, and the carbon footprint is diminished.

VIRTUAL REALITY

Virtual reality is the use of computer technology to create simulated surroundings. The user is immersed in a three-dimensional experience due to virtual reality. Users engage with 3D worlds instead of just seeing a screen in front of them. A computer becomes a portal into new realms when all five human senses are simulated.

This technology can be used in the field of supply chain management in the following ways:

• With the use of virtual reality, businesses can create 3D models of tools, machinery, buildings, and other objects so that customers can see every crevice of the product they are purchasing. The ability to change and test designs repeatedly is another benefit of this technology.

• Complex tasks will be made easier by utilizing dynamic 3D data visualization, which is not achievable on 2D screens.

• The capacity of VR to construct strong virtual environments will have a significant impact on human resources inside supply chain enterprises. It can be challenging to prepare people for high-risk situations in a variety of industries, including manufacturing, energy, and industrial products and services. In such situations when judgments must be made promptly and safely, VR can assist employees. Thus, enabling faster time to proficiency.

AUTONOMOUS VEHICLE

These days, our main priorities are lowering labor expenses and completing tasks more quickly. Autonomous vehicles are necessary for this to happen in the supply chain.

The following are some ways that this technology can be applied in the area of supply chain management:

• By continuously working around the clock without becoming tired, autonomous robots can lower labor expenses and boost production.

• Autonomous vehicles can carry out low-value, routine tasks, freeing up human labor to concentrate on more strategic tasks that cannot be mechanized.

• Each organization places a high priority on the safety of its employees. Autonomous vehicles, which can handle big and dangerous materials with ease, can boost employee safety.

• The more individuals involved in a task, the greater the possibility of errors, which can result in an organization's loss. Robots and autonomous vehicles eliminate these mistakes, resulting in quicker and more effective implementation.

INTERNET OF THINGS

The network of physical items, that are integrated with sensors, software, and other technologies to communicate and exchange data with other devices and systems through the internet is referred to as the Internet of Things (IoT).

IoT being a budding sector can be used in the supply chain in the following ways:

• Transparency and accountability are the two pillars of supply chain management. IoT offers both of these through real-time tracking. Through IoT devices, every movement of the shipment is tracked and validated. This enables logistics professionals to specifically enhance supply chain procedures as needed.

• To guarantee a seamless supply chain operation, paperwork management is crucial. But frequently, employees are accountable for completing and managing documentation. Now, comes the role of IoT in going paperless. Utilizing the Internet of Things (IoT) and Electronic Data Interchange (EDI) we can standardize data formats for easing data sharing with business partners that keep commerce moving. Thus, it helps in asset monitoring and management.

• Supply chain managers can design routes with the use of IoT and data analytics, taking into account traffic, weather, potential accidents, and other delays-causing events that may occur along the way. The Internet of Things collects all the data required to create adaptable backup plans and identify the source of any current delays.

BLOCKCHAIN

Blockchain is an internet-based technology that is coveted for its capacity to disseminate transactions in immutable, encrypted books and records and publicly validate, record, and distribute transactions.

This new method which proves to be more efficient than banks’ services can be utilized in blockchain supply management in the following ways:

• To enable decentralization and transparency, a blockchain-based supply chain management system has been developed. It aids the company in real-time activity monitoring.

• Although supply chains manage huge and complex databases, the process is overburdened due to middlemen. To end their reliance on paper, smart contracts have been developed.

• Blockchain makes it simple to provide the necessary product-related information, elevating the consumer experience to new heights. Furthermore, it enables them to verify the legitimacy of the goods.