RECENT TRENDS AND ADVANCEMENTS OF INFORMATION TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT

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Abstract

Supply Chain Management has a wide range of functions that incorporates every business and operational transaction involved. It permits trading industries to have an improved control over the product flow and information flow. Currently, business is facilitated with IT technology which has refined all features of business. This paper aims to discuss some of the recent trends in advanced applications of Information technology which are implemented in SCM.[1]

Keywords: SCM – Supply Chain Management (SCM), BCT (Blockchain Technology), IT (Information Technology), App (Application)

1 Introduction

1.1 Information Technology

Information technology involves using computers which supports communication of knowledge in various fields from engineering to business operations. In the present environment, priority is given to the electronic data. Most prominently IT is used in the context of enterprise operation and business purposes other than entertainment applications. It comprises layers of physical equipment and applications, generally known to be hardware and software.[2]

Because of the robust development of IT, all business organisations choose machine-driven, automations and business applications like SQL server, Apache, ERP etc. These applications deliver a whole range of instructions to do business in a new way. Storage technology that holds data as knowledge has seen vast developments. IT architectures have evolved to incorporate virtualization and cloud computing, wherever physical resources are abstracted and pooled in several configurations to suit application needs. Cloud Computing could also be distributed across locations and shared with different users.

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1.2 Supply Chain Management (SCM)

It is the backbone of any industry. In simple terms, it helps planning and execution of every activity from the initiation to completion of any business / product. It includes the whole process of acquisition of raw material, manufacturing a product, quality control, warehousing/stocking of produced goods, product sales to distributor/reseller/customer and after sales service.[4]

2 Recent Trends & Advancements

As today's world is approaching digital and electronic way of handling things, there exists always the demand for advanced technologies, which allow several application-developers to implement and arrive at complex supply chain services and products relying on improved speed. Whilst several of new technologies are implemented in SCM, a Team of Supply Chain Management can build several complex models and a strong methodology of supply chains using a constructed data-driven approach, with the top 10 below listed recent trends and & advancements in 2019 & 2020. [5]

1. Artificial intelligence (AI)
2. Internet of Things (loT)
3. Blockchain
4. Cloud Computing
5. Mobile Computing and Applications
6. Big Data Analytics
7. Automation

8. Virtual Reality
9. Augmented Reality
10. Cyber-Privacy and Security

3. Recent trends and advancements of Information Technology

3.1 - Artificial intelligence (AI)

Artificial intelligence (AI) is an area of an invention and implementation of intelligence in machines, which work like humans. In the common world it's made easy to access and experience the AI world.[6]

Examples: Siri, Alexa, Google assistance etc.

3.2 Internet of Things (loT)

It is a technology which exchanges data with unique identifiers and advanced algorithms, which doesn't need human-human interactions or human-computer interactions. [7]

Examples: Smart Surveillance, Transport Automation, Smartwatches etc.,

3.3 Blockchain

Blockchain is a new technology which involves conversion of real-time transactions into chains of blocks. The database of the Blockchain information is not stored in any unique location, i.e., the database is completely public and verified easily. The system is hosted by millions of computers at the same time; records can be used by the public. It is a kind of self-monitoring system of modernized value. [8]

Examples: Bitcoin, Cryptocurrency

3.4 Cloud Computing

Eliminating any local data storage application / hardware like Floppy, CD, DVD, Blue-ray, USB Drive, tape drive, etc., Cloud computing enables the users to access a remote server hosted on the internet to store, manage and access a large amount of data. According to recent IT related statistics 90 percent of enterprise applications will be in the cloud by 2020 [9]

Examples: Gmail, Yahoo Mail, Drop Box, Face book, Amazon Web Services

3.5 Mobile Computing and Applications

Without any physical links i.e. any wireless or portable device which enables users to access any application, transfer of data or any computing activities is referred to mobile computing.[10]

Examples: Pocket Computers, Smartphones, Tablet PCs, Apple iOS.

3.6 Big Data Analytics

The process of analysing large sets of data to discover unknown, hidden facts, statistical and meaning trends is referred to Big Data Analytics.[11]

Examples: Location Tracking, Fraud Detection, Entertainment & Media

3.7 Automation

Any process in business activities, which is handled by machine, algorithm or coding with minimal or 0% human intervention is referred to as Automation.[12]

Example: ATMs, Currency Deposit Machines, Excel VBA Macros

3.8 Virtual Reality

A world of artificial intelligence, without really having an object or moving to a desired location, and Virtual reality technology enable users to interact via three-dimensional, computer generated environment.[13]

Examples: Play Stations, HTC Vive Pro Eye

3.9 Augmented Reality

Augmented reality is a more flexible and practical version of virtual reality, a technology that overlaps a computer-generated image on a user's view of the real world, thereby giving a composite view.

Examples: Weather Channel Studio Effects, Robotic Operations in Hospitals, Flight Simulations

3.10 Cyber-Privacy and Security

The protection of sensible & confidential information while handling any electronic/communication devices is interpreted as Cyber-Privacy and Security.[14]

Cyber Security protects confidential information, integrity and any available information; Privacy is more about privacy rights with respect only to personal information

Example: Access to our own handheld mobile phones.

Benefits of implementing above 10 IT advancements in SCM [15]

· Cost Optimization: Reduction of the costs of operational processes (manual work).

· Result's Quality

· Faster turnaround

4 Conclusion

Information Technology and advancements are really essential nowadays, especially in the business sectors and Supply Chain Management. Faster turnaround, Better Quality Results, accident-free work, budgeted outputs/products are key benefits of implementing several new applications in industries. This paper gives the readers a short overview of IT as an enabler in Supply Chain Management, highlights the benefits to companies with a comprehensive IT strategy.

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