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IMPROVING LOGISTIC NETWORK CAPACITY MANAGEMENT WITH ARTIFICIAL INTELLIGENCE & DEMAND FORECASTING IN SUPPLY CHAIN

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ABSTRACT

Logistic network operations has advanced over a period of decade, with the implementation of Artificial Intelligence, machine learning, breaking in to capacity management, with Artificial Intelligence, considered as advanced analytics, as they are constantly used in supply chain in many of the organisation. The technology has improved very much, as being surpassed by the inefficient traditional process of forecasting in supply chain.

Advanced Analytics that is managed by Artificial is becoming an important technology for many of the large organisation, also many of the small organisations, taking advantage of the latest development, in machine learning, as the biggest companion in smaller organisation, as they are placed in a highly competitive market in supply chain.

The main issue of the logistic network is the capacity of large consolidation, by volume, as that every shipping are distributed from one point to another point, as some of the consignment are shipped to various other destination or locations by choice by cross-docking, the consignments in different locations, by consolidation of the products, in order to prove that the delivery of the shipping volumes, capacity is utilized properly in supply chain.

Supply chain logistic demand forecast organisation, can anticipate planned shipments, products, across the supply chain. Logistic organisation need to implement forecasting to evaluate capacity demand based on Data including inventory ordering in supply chain.

Key Words: Logistic network: Artificial Intelligence: Machine Learning: Capacity: Demand forecast: Shipments

INTRODUCTION:

Supply chain in order to utilize the capacity management, with proper use of Artificial Intelligence, demand forecasting, of Key Performance Indicators, becomes necessary, to predict network, performance, that can be qualitative, quantitative, in supply chain. Qualitative methods are available with historical data, the needs forecast based on mathematical data, subjective to proof in many factors, in the context of forecast relevance available with historical data at the desired level of accuracy in supply chain.

Supply chain creating implementation, forecasting demand, the organisation can achieve accurate forecast in different ways, with the help of organisations, understanding how stock is required to create capacity to facilitate, in order to meet the unexpected demand, using logistic demand situations, thus help to maintain less stock, increase cargo utilization, increase utilization of the stock available, with better shipment, trucking, intermodal systems using Artificial Intelligence system in supply chain

Supply chain speed, decisions, making to reduce cycle time, speed in operations, speed in continuous operations, is expected to reach level in machine automation in supply chain, process with the recent trend on Internet of Things, with growing organisation in adopting forecasting in supply chain.

PURPOSE OF THE STUDY:

ANALYSIS: Global supply chain have become increasingly, complex, with error of margins coming down, thus increasing competition, in the digitalization, as it becomes critical, to maximise productivity, by reducing uncertainties with many mounting operations, which is considered to the speed, efficiencies, between the suppliers, customers consumers, Business, as the need of the manufacturing organisation, to leverage the power of Artificial Intelligence forecast in logistic supply chain.

Artificial Intelligence, machine learning, are already delaying the potential of the supply chain, with better facilities, calling for deep rooted inefficiencies, uncertainties, for better forecasting in supply chain.

Artificial Intelligence, Machine learning with wide visible in all aspects of supply chain, with human chain interference is unable to meet the requirement, as supply chain opting to deliver all the capabilities with accurate capacity, improved productivity, with high quality, lower cost, greater out-put, which is forecasting for safe, better concepts in logistic supply chain.

Supply chain called Big Data analysis in supply chain management is creating better attention, as it is used in various applications in supply chain management, which includes customer behaviour, trend analysis, value chain, Omni-channel, demand prediction, to investigate Big Data analysis, in demand forecasting, is classified into an application, process, to identify the purpose, so as to verify the future bring improvement of research in supply chain, classifying their application, to provide supply chain in time-series, forecast network, predictive analysis, on a proactive basis, to improve the capabilities, with data analysis for demand forecasting in a closed loop in supply chain.

LITERATURE REVIEW: (CITATIONS)

Demand forecasting, in the field of predictive analytics is the process of escalating the forecast of customer demand, by analysing, historical data, as organisation, demand forecasting methods, to avoid inefficiencies, caused by the misaligned of supply chain demand, across business operations, with demand forecasting methods, as organisation can improve their decisions, making process, cash flow risk assessment, capacity planning, workforce planning by improving with better system of Artificial Intelligence by 75% in supply chain.(Economic Times 2019)

The accuracy of demand forecast can be improved by average capabilities with machine learning technology, as they becomes applicable, for instance applying technology can also mitigate the effect of Bullwhip in some cases to an extent especially in industries of continuous production, where the product required is not on the 60% of the seasonal requirement in supply chain. .(Business Standard 2018)

Artificial intelligence in supply chain have predictive capabilities, helping demand forecasting, when inventory demands for better future requirements in organisation, as they suffer loses, Artificial intelligence, does improve the efficiency of network, planning, predictive demand, logistic application, allowing organisation, to become better in performance, capabilities, proactive by knowing the expectation in supply chain, that can adjust to maximum requirement to demand with lower requirement of operational cost by 50% in supply chain.(The Mint 2019)

RESEARCH METHODOLOGY:

Artificial Intelligence have researched the relationship between customer's logistic providers, in order to personalize logistic providers, who can also necessarily personalize relationship with Chat bots, defining the customer's support in all engagements of handling activities of supply chain.

Supply chain research for cutting costs, keeping consumers in better positions, forecasting is vital for organisation, in supply chain management helping organisation to fill orders on time, to avoid necessary inventory expenses plan, for price fluctuations. Artificial Intelligence in supply chain is helping to deliver the powerful organisation, capabilities required for accurate capacity planning better network, improved productivity, high quality lower cost, greater output while forecasting safer working conditions in supply chain.

Supply chain having researched on better inventory system with proper management, can ensure the right flow of materials from the warehouse, as they are likely to be very many variables in order processing, proper picking, proper picking, as they are found to be liable to be very high time consuming, also with the high tendency of common errors, in supply chain.

Supply chain has now come to conclusion on research, on giving preference to trucks, trains, ships, embedded with sensors enabled, for the performance of speed, arrival, failures, with Big Data captured from the best of the transportation, also able to track the position, conditions, time to reach, the destination in supply chain. Supply chain captured data significantly, notified delays, loading, unloading, activities, delivery requirements, in supply chain, so as to ensure minimum delay, to be fulfilled by customer in supply chain. Smart logistics using Artificial Intelligence gives help to ports, shipping companies, suppliers to optimize the response of utilization in supply chain.

DISCUSSION AND FINDINGS:

Supply chain accuracy in inventory can prevent overstocking, inadequate stock, unexpected stock out, the ability to handle data, with Artificial Intelligence, can conclude to prove to be of highly effective in inventory management, with capacity to analyse, interpret data, faster by providing proper guidance, on forecasting supply, with proper demand in supply chain. Supply chain with the application of algorithm, will be able to discover better consumer habits, with improved logistic network, proper capacity to forecast seasonal demand. The application of Artificial Intelligence helps to anticipate future consumer demand trends limiting cost of overstocking inventory in supply chain.

Artificial Intelligence will improve with global logistic in supply chain management, transportation management, while it is likely to go through all the expected massive transformation, in supply chain, as the on-going evolution in areas of technological development, in Artificial Intelligence, machine building learning, is likely to bring disruption innovation with capability of improvement in supply chain.

Artificial intelligence with computing techniques will select large quantities of Data collectively, in logistic supply chain, as such methods can be put to use analysed to get the best results with good initiate process, with good innovation, providing capabilities for a complex functions in supply chain.

Supply chain logistic operations are cost oriented, as supply chain needs to optimize stock, to less financial risk involved in supply chain, has only complete with the use of technology, predictive network analysis, as they become applicable in supply chain. Supply chain is now being used in automation in different sections for demand forecasting, replenishment, also use of big data, predictive technology to improve the capability in supply chain.

FUTURE WORK AND CONCLUSIONS/RECOMMENDATIONS:

Recommendations: Supply chain excess stock, out of stock, has become a serious problem, to supply chain. Excess Stock can cause revenue loss, capital intensive problem, in surplus stock, as Excess inventory can lead to increased storage, multiplicity of labour, insurance, quality reduction degrading, depending upon the type of stock held in supply chain. Out of stock products can result in lost sales, reduced customer satisfaction, storing in supply chain.

Supply chain experiences difficult if products are not stored in warehouse shelves, as they are likely to shift to other competitors, or substitute of items in supply chain, especially among prominent consumers, customers, considering the competitions with difficult financial strain in supply chain, as this become very crucial to have accurate demand forecasting inventory control with proper network, capability to control effective management in operation in supply chain.

Supply chain predictive analysis, can also identify the completed deliveries, on-time delivery, in-full-delivery, as this ensures proper transportation, arrival on time, goods received, moved on time, as the shipments are to be delivered to customers as per the requirement in supply chain.

Machine learning, Artificial Intelligence based techniques are the next generations of the broad spectrum in logistic, supply chain management, with the upcoming technological changes, now under development, in supply chain, where the most significant part is that machine learning, artificial Intelligence, contribute to solving, complex contracts, cost, delivery, predictive analysis, surge pricing, predatory pricing, price discrimination, which can improve the organisation, that are liable to incur, with the significant contribution of machine learning, providing supply chain a significant insight, as to how supply chain can be improved, by anticipating problems in logistics, costs, with better performance as they occur in supply chain, as machine learning will provide a provision for automation, which can deliver significant advantages in supply chain.

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