IMPACT OF IT ON IMPROVING SUPPLY CHAIN MANAGEMENT EFFICIENCY

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ABSTRACT:
Information technology and its tools are very popular in any organization.Information technology plays a vital role in decision making process. Information technology is very important for smooth functioning of supply chain process and for achieving organizational competitiveness, improving higher service level, lowering inventory costs of supply chain and decreasing electronic risks (e-risks).Information technologies (IT) is important component to Company business operations and success of business. Companies depend on Information Technology for fast communications, data processing and market intelligence. IT is a useful fororganization and integration within the supply chain. Information Technology will reducethe operational expenses of supply chain management. The organizations are moving towards IT Tools such as Electronic Data Exchange (EDI), Radio Frequency Identification (RFID), Bar Code, Electronic Commerce, Decision Support system, Enterprises Resource Planning (ERP) package, etc.This paper focuses on effect of Information technology and tools in improving supply chain management efficiency.
Key words:*Information technology, supply chain,organization*

1. INTRODUCTION:
Information technology is in revolution of the way, in which we live and are working. It is changing all spheres of our life style. By the help of digital revolution that has given mankind the ability to treat information with mathematical precision, transmit it with high accuracy and to manipulate it.Those abilities are bringing into being, a whole global within and around the physical world. The amount of calculation power that is increasing at an exceptional rate and Computers and communication is becoming integral parts.In the same way IT tools are a source of competitive power for many companies. Especially for big retailers, DHL and airline companies where they are now using information technologies them widely as a result, Information technologies have earned a significant role in many organizations (Lysons& Farrington, 2006). In supply chain management, toget information on time is very important. Correct and well-timed information will permit the organization to boom service stage and as a result decrease the cost and lead times (Bottani (2008). Along with this, many businesses are imparting information technologies primarily based services to their customers on the way to gain competitive aspect and maintain long term relationships with them.IT tools provide a supportive role for human resource activities to improve organizational (orpersonal) efficiency and effectiveness (Cohen et al, 2002). Therefore, IT tools helps to executeactivities faster, support autonomous decision-making strategies, and enable distributive operations (Huang and Nof, 1999) so that you can gain better logistics efficiency (Jack et al, 2006).

2. IMPORTANCE OF SUPPLY CHAIN MANAGEMENT:-

Supply chain management is the management of the flow of commodities and services.It includes the movement and storage of raw materials (RM), work-in-process (WIP) inventory, semi finish and finished product from location of origin to place of use. In the supply chain management flow of material from supplier to customer and flow of money from customer or consumer to supplier. A supply chain management consists of supplier, manufacturer, distributor, retailer, customer etc.SCM Main goals of thesupply chain management (SCM) are listing in the givenbelow:

- The Right manufactured goods
- To The Right-consumer
- At The Right-Place
- At The Right-time
- In The Right-Condition
- In The Right-Quantity
- At Right-Cost

Supply chain management is a crucial element to the operational efficiency. SCM can be carried out to customer satisfaction and corporation success as well as within social settings inclusive of clinical missions, disaster remedy operations and different kind of emergencies. Basically, the world is one huge supply chain. Supply Chain Management touches major issues including rapid growth of Multinational Corporation, Global expansion and Sourcing, etc. The term SCM has its historical roots within the control of success activities that aid the linear physical go with the flow of goods from suppliers to producers to distributors to retailers (Shanker, 2005).

3.OBJECTIVES:-

- Reduction of the costs of operational methods (manual work).
- Information quality enhanced by eliminating human errors.
- Rapid transfer of information between organizations

4. REVIEW OF LITERATURE:-

Mishra Kumar (September 25, 2006) said that world is shrinking day by day withadvancement of technology. Clients' expectancies are also growing and groups are susceptible to an increasing number of uncertain environment. Companies will find that their conventional supply chain integration will have to be expanded beyond their peripheries. The strategic and technological innovations in supply chain will effect on how agencies buy and sale in the future.

In July 2008 article of studies gate said that using IT for SCM purposes was studied by way of dividing the usage of IT into 3 categories, 1) transaction processing, 2) supply chain planning and collaboration, and 3) order monitoring and transport coordination. Further, the drivers in the back of these exceptional IT use types have been examined. Based on the empirical data collected for this take a look at, the 3 IT use classes proposed represent well the roles that IT plays in SCM. Similarly to clarifying this widely discussed topic, the categorization offers a basis for in further research on the use of IT in SCM.

5. RESEARCH METHODOLOGY:-

The research paper is particularly primarily based upon the secondary facts. Data is collected from related journals, books & newspapers. Especially data will examine to understand approximately the

converting behavior ofconsumer in society.

6. Impact of Information Technology in Supply Chain Management:-

- Streamlining more effectively with suppliers globally.
- Make the connection between customers want and production.
- Analyze your supply chain and manufacturing options and choose the plans that make best use of your assets.
- Improve your communication and collaboration with suppliers.
- Permitting a single point of contact for records.
- Data transfer within second.
- Enabling collaboration with partners.
- Minimized delays time for supply
- Create the optimal supply chain network and adapt the network to keep pace with changes for your enterprise.
- Optimize your day to day fleet performance to reduce costs and improve customer satisfaction.

7. EXISTING INFORMATION TECHNOLOGY TOOLS IN SUPPLY CHAIN MANAGEMENT:

7.1. Electronic Data Interchange:

Electronic records Interchange (EDI) involves the swapping of commercial enterprise documents in a preferred format from computer-to-computer. It affords the capability as well as the practice of replacing data among two organizations electronically in place of the conventional form of mail, courier, & fax.

The predominant advantages of EDI are as follows –

- Instant processing of information
- Improvised customer service
- Limited paper work
- High productivity
- Advanced tracing and expediting
- Cost efficiency
- Competitive benefit
- Advanced billing

  Using EDI deliver chain partners can conquer the distortions and exaggeration in deliverand demand statistics by improving technologies to facilitate authentic time-sharing of actual call for and deliver statistics. Main advantages of Electronic Data Interchange for supply chain management briefly described in given below:
- Statistics is transmitted from one agency to any other organization effectively and swiftly.
- Facts are entered robotically through EDI software.
- Receipt verification done very smooth with assist of EDI software program.
- Data justification is automatically completed.
- Lower administrative, resource and maintenance cost.
- Extra rapidly transport because of quicker statistics glide.

- EDI helps in constructing lengthy-term relationships with trading partners and hence helps in business growth.
- EDI is removing manual data entry and paperwork.Therefore, there are minimal chances of error.
- Very good options for storing and manipulating dataelectronically.

7.2 Barcode Scanning:-

Bar Codes are the show of a number or code in a form suitable for reading by machines. Bar codes are broadly used at some stage in the deliver chain to understand and song items at every stage inside the technique. Bar codes are a chain of different width strains that may be presented in a horizontal order, referred to as ladder orientation, or a vertical order, called picket fence orientation.

We are able to see the application of barcode scanners in the checkout counters of notable market. This code states the call of product at the side of its producer. Some other practical applications of barcode scanners are tracking the moving items like elements in PC assembly operations and automobiles in assembly plants.information on barcodes was stored in the widths and spacing of written parallel traces, but these days, they arrive in unique patterns of dots, concentric circles, and text codes. Barcodes may be study via optical scanners referred to as barcode readers or scanner. Barcodes arewidely used to put in force automated facts seize structures that improve the velocity and accuracy of computer facts access. Bar-coding quickens the flow of products and information for the duration of the commercial enterprise. Barcoding may be used in counting raw materials and completed items inventories, automatic sorting of cartons and boxes on conveyor belts and palletizers, manufacturing reporting, automatic warehouse programs, together with receiving, put away choosing and transport, bundle monitoring, get admission to manipulate and lot tracking.

The following are some of the benefits that can be gained with the use of bar code technology in the warehouse.

- Fast and accurate capture of data reduces paperwork and chance of errors. ...
- Reduced labor costs. ...
- Timely information. ...
- Productivity measurement. ...
- Reduced training time. ...
- Better decision making.

7.3.Radio Frequency Identification(RFID):

RFID stands for "radio frequency identity". It's a generation that captures virtual information encoded in smart labels and RFID tags through a reader via radio waves. RFID serves a similar cause to that of bar code or a magnetic strip of an ATM card where facts from a label or RFID Bluetooth beacon tag is captured by using the tool and then later saved in the database.

RFID (Radio Frequency identification) is a shape of extremely low-power facts conversation between a RFID scanner and an RFID tag. The tags are positioned on any wide variety of items, starting from individual elements to shipping labels. The RFID tag itself includes a microchip and antennae, usually without a battery to power it. The tags may be published using special printers, which wirelessly load the figuring out statistics to the tags. The facts at the tags may be used for a extensive type of responsibilities. While an object goes thru the RFID scanners, statistics is study

from the tag, that may consist of any quantity of records, which include:
• Order identification variety
• Product bin vicinity
• Order repute
• Serial numbers for man or woman product components
• Area logs

7.4.MATERIAL REQUIREMENT PLANNING (MRP):

Material requirements planning, or MRP, are a software-based totally choice-making device utilized in production. The tool compares present day inventory degrees with manufacturing capability and analyzes what products to fabricate, what portions are wanted, and while they may be wished — all based on the forecast generated by way of the software program.

The fabric requirements making plans machine allows manufacturers parent out inventory necessities and stability supply and call for.

Fabric Requirement planning is a business software program that enables product-based totally producers recognize necessities in the enterprise and stability deliver chain phenomenon. It manages inventory, schedules call for, and ensures the timely shipping.

These are five of the maximum important benefits your commercial enterprise should gain with an incorporated MRP system:

• stepped forward manufacturing performance
• Implementation of simply-in-time or simply-in-case techniques
• reduced buying charges
• control over inventory
• Prevention of production bottlenecks
  While so many uncontrollable external variables impact the deliver chain, it's crucial for producers and other agencies to govern each component they could to bring predictability and performance to inventory and production management. MRP is the solution.

7.5. ENTERPRISE RESOURCE PLANNING (ERP):

ERP stands for enterprise resource planninginbusinesses, the time period "organization" is regularly used to describe business tactics that encompass all departments or factors of the enterprise. Thus, organization useful resource making plans means that everyone elements of the company collaborate within the system of obtaining and handling green useful resource use.

some of the primary ERP supply chain advantages customers enjoy that result in measurable business growth include the following.

• Efficient Managing Demand & Procurement

- Reliable Processing & Documentation
- Enhanced Collaboration
- Increased Visibility
- Cloud Capabilities

7.6. ELECTRONIC COMMERCE:

E-commerce is set selling and buying goods over the net and the movement of goods between two parties. The dispatch of right quantity products at the proper time to the right individual is crucial and therefore efficient deliver chain is required

The increase of e-commerce has impacted supply chain management in numerous methods. First, it has increased the call for simply-in-time transport, putting strain on suppliers to supply products more fast and correctly.

Second, it has made it less difficult for customers in comparison to shopping offline, main to expanded charge competition amongst suppliers. And eventually, it has created new possibilities for organizations to reach clients in new and progressive methods. Way to e-commerce, companies can now sell products at once to clients without going via traditional retail channels.

E-commerce impacts supply chain management because it allows transportation businesses to trade files electronically in the course of the success technique. Additionally, it enables shippers, freight forwarders, and trucking agencies to streamline their record management techniques without making full-size monetary or time investments. E-trade enables companies to decrease universal charges, boom information accuracy, streamline supply chain offerings, shorten enterprise cycles, and enhance customer service. era, globalization, and e-trade are increasingly more entwined, and groups are seizing the opportunity to enhance their connectivity and transaction pace. Corporations can now communicate with customers immediately because of technological improvements via assembly their wishes and expertise their shopping patterns.

E-commerce offers several benefits about customer satisfaction. right here are some of the extensive advantages of e-commerce selling inside the deliver chain:

- Records Accessibility:
- Interacting With the clients:
- Reduced costs
- Reduced Overhead charges
- Boom in income
- Increasing commercial enterprise
- Exceeding Geographical Limits

7.7.DECISION SUPPORT SYSTEMSS (DSS):

Decision support systems (DSS) are interactive software program-based totally structures supposed to help managers in selection-making through getting access to big volumes of information generated

from diverse associated statistics systems concerned in organizational commercial enterprise methods, including office automation machine, transaction processing system, and so forth.

DSS uses the summary facts, exceptions, styles, and traits the usage of the analytical fashions. A selection aid device helps in decision-making but does not always provide a selection itself. The selection makers assemble beneficial data from uncooked statistics, files, non-public information, and/or commercial enterprise models to identify and clear up problems and make decisions.

Decision support systems derives various parts of the supply chain, but in well-known it is determined that DSS inside the supply chain is generally used to address suppliers, along with the choosing of providers, evaluating supplier overall performance, organizing suppliers and selecting capacity suppliers. The second one hassle that still makes use of a number of DSS methods inside the deliver chain is shipping and transportation. DSS strategies help decision-makers in supporting them to facilitate and clean the distribution flow of each enter and manufacturing output. furthermore, DSS inside the supply chain has additionally been used to optimize production and manage the general deliver chain focusing at the problems of providers, delivery and transportation, optimization of production and production and inventory, at the same time as some other artificial Intelligence massive statistics Numerical Simulation have additionally focused on issues which includes client forecasting, optimization of choice making, region willpower, making plans, scheduling, safety, danger and price of efficiency etc.

7.8.MANUFACTURING RESOURCE PLANNING (MRP II):

MRP II is a laptop-based device that may create unique production schedules the usage of actual-time records to coordinate the arrival of thing substances with machine and hard work availability. MRP II is used broadly by way of itself; however it is also used as a module of greater massive employer useful resource planning systems. MRP II is an extension of the unique materials requirements making plans (MRP I) gadget. Materials resource planning (MRP) is one of the first software-primarily based included data structures designed to enhance productivity for agencies.

A substances requirements making plans facts device is an income forecast-primarily based device used to agenda raw cloth deliveries and quantities, given assumptions of device and exertions gadgets required to fulfill an income forecast

8. CHALLENGES IN IMPLEMENTING INFORMATION TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT:

Any agency that has undertaken the task of enforcing an incorporated deliver chaincontrol strategy with the usage of IT gear knows that one of the finest demanding situations itfaces is the great exchange in internal culture that is required to make the supply chainremodel a hit. It's far difficult to re-situation humans to just accept exchange wherein a certainmindset has prevailed for many years. However it can be tough to perform, change canbe effectively applied while directed via a informed and sturdy chief, who is aware ofthe tools to be had for reaching advantageous exchange, in addition to their contribution in beginning andmaintaining these adjustments. Integrating new programs with existing and legacy structures couldadditionally pose troubles. Incompatible structures at purchaser and vendor facilities are any othercontrol project to address. Information

sharing with diverse stakeholders like providers andclients, filtering and mining statistics generated and finding "commercial enterprise" cost of the information areother troubles. Disconnected employer structures create records redundancy, errors and may result incostly commercial enterprise inefficiencies.Terrible coordination between organization structures leads to wrong manufacturing plans, expandedsupply chain pressure and terrible customer support. Loss of visibility of orders, schedules andshipments can lead to highly-priced administrative choice making methods.According to Macleod (1994), supply chain managers more and more want to automate all of the supply chain, from forecasting to distribution, and to link each element of the chain. Increasingly more agencies need an included technique to enable them to look the complete supply chain without delay. For example, they need to recognize that if they drill down to forecast, they are able to seethe demand history, that's an aggregate of facts that have come from income orderprocessing, stock management and the warehousing device. Van Oldenburg (1994) saysthat the ability to lessen human intervention but oversee minutely the glide of parts andproducts alongside the entire duration of the supply chain can help dramatically in cutting logisticsprices and boosting customer satisfaction. Sadly for many midsize agencies in thesetimes of economic recession, such readability in global distribution stays in large part restricted topredominant multinationals with deep pockets and volumes big enough to justify the hefty preliminaryinvestment in IT that could run into hundreds of thousands of dollars. Towill (1997) sums up "To live on, not to mention win, a corporation ought to be part of one or extradeliver chains producing global elegance overall performance". Subsequently groups want to work togetherand optimize the entire pipeline by means of establishing a continuing supply chain to maximize theirmarketplace proportion. only with this holistic chain idea can in addition widespread and radicalupgrades in person business performance be found out. Method producers and ITsystem companies are running to develop a filter out to sift thru the barrage of statistics fromsystem manage systems to transport crucial statistics to higher stage IT systems.

9. CONCLUSION:-

Due to globalization, outsourcing, customization, time to market and pricing pressure have compelled firms to undertake efficient and effective deliver chain control. To continue to exist, firms will find that their traditional supply chain integration will should be extended beyond their barriers to be able to combine all stakeholders. Adoption of data generation equipment is critical for such efforts. This paper discusses the position of IT as an enabler in supply Chain control with great advantages to companies with a complete IT implementation in addition to curtailing e-risks. Technology is constantly a double edged sword. Society this is structured more and more on technology, cybercrimes are bound to growth due to the fact bytes are replacing bullets inside the crime global. There'll usually be new and unexpected demanding situations to stay in advance of cyber criminals and cyber terrorists but we are able to win best via partnership and collaboration of both people and authorities. This paper discusses the function of IT as an enabler in supply Chain management and additionally highlights the giant blessings to companies with a complete IT approach. An overview and deployment of the prevailing alignments of extensively deployed IT tools like EDI, ERP, bar codes, management of inventory, and control of transportation and warehouse control systems is supplied.

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