Logistics And Distribution Channels: The Correlation

Logistics and Distribution Channels – The co-relation.

So far, we have seen that we use distribution channels to distribute goods from one point to another like for example from manufacturer to wholesaler to retailer and finally to end customer. In doing so each company tries to achieve the most affordable way to move their goods, thus calling distribution simply ‘transportation’ would be wrong. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfilment, logistics network design, inventory management, supply/demand planning, and management of third-party logistics services providers. When your logistic and distribution management team is sizing up distribution vs. logistics, one of the key differences is that logistics deals with the overall strategy of optimizing the inward and outward flow of goods from various manufacturing warehouses to the final destination. Distribution, on the other hand, is a subset of logistics, and its main goal is to ensure that goods are delivered as efficiently and cheaply as possible. In other words, logistics takes an overall view of the entire process of improving distribution channels and warehouse management to ensure the smooth flow of the supply chain. In the distribution vs. logistics debate, it’s important to understand that logistics begins when goods are at the raw material stage and continues all the way through the physical transportation of those goods to their final destination. Logistics includes transportation management, fleet management, warehouse management, proper handling of materials and inventory management. Distribution includes things such as packaging, storage, order fulfilment, and handling customer and vendor returns.

Real-Time Logistics – Digitisation of Logistics.

The control of logistic and production systems is consistent today organized hierarchically. Also decentralized and convertible systems with embedded fractal or adaptive elements or control loops can be combined in their entirety attributed to timely central planning. 'Realtime Logistics' refers to in contrast, the real-time material flow control based on autonomous, self-directed handling of the mission implemented in the single logistic object. For this purpose, mobile software agents are used, which are synchronized with the object, and embedded in the logistic object, will run in the future. Nowadays, logistic and production systems are controlled consistently hierarchically. Decentralized and changeable systems with embedded fractals or adaptive elements or control cycles are the results of precise timed central planning. In contrast to this, 'Realtime Logistics' is a real-time material flow control where the mission of the single logistic object is carried out autonomously and self-controlled. Mobile software agents are used for this purpose which at first intends to operate synchronously to the object and in future wants to be embedded in the object.

Motivation and state of the art

In today’s world complexity in global economy has increased and also the talent required to manage logistics at a very complex level. It has become necessary for the logistic executives to have skills which are state of the art in the market. It has become very necessary to have the technological innovation to have a competitive advantage in logistics, respond to competitive

challenges throughout the value chain, build a large network of logistics with real time data to build a partnership across various parts of the world and to create high level strategic plans. When a company's logistics breaks down at critical moment, it put itself in a riskier position of its survival. All the components of logistics such as inventory management, warehouse management, storage, transport etc. are in real time and require constant 24/7 event management and quick response. Managers and the team of logistics expect every data without any delay to not only manage logistics but also to make prediction about the problems which they may face in future. In a big organisation supplier located at another part of the world affects the planning of the company in a big way. The expectations of supply chain executives are enormous and to meet this demand huge amount of accurate data is needed at a desired time.

With the help of RFIDs, Barcodes, satellites, fibre-optics huge amount of data is collected and the new question is raised- what do we do with such a large data? This data now offers us an advantage to make real time decisions and to plan for the better future. It's been seen that in doing warehouse management assets like forklifts are sitting idle most of the time. When doing mixing of juices or any dairy products half of the times the transport runs are empty. Also due to the large expansion of e-commerce returnable stock has been increased. Most of the time logistics managers sitting at the plant are spending a good amount of time gathering data from various sources. The customer demands are also increasing nowadays where customers are demanding the real-time tracking and shipment of their products. Logistics executive wants to plan their production based on the delivery they are expecting. Real-time logistics in as industrial revolution which is also referred as 'Smart manufacturing' or 'Industrial Internet'. In a factory or complex organisations, the solutions are first simulated and then implemented but it takes a lot time and they do not provide results on actual scenarios, much of the time is spent to develop such solution. The industry is looking for a solution which is easily deployable with a very low cost and provide results which would maximise productivity. Real-time logistics provides synchronisation between various objectives of logistics by providing data without any delay. Real-time logistics has now reached its golden era because of the modern technologies with huge computing powers and such cutting-edge technologies are discussed below.

There are a vast variety of technologies used for Real-time logistics but it's necessary to understand them by putting them into different themes which are as follow-

Hardware Technologies-

The transportation of perishable goods such as foodstuffs, vegetables, dairy products are now becoming a big part of logistics. On daily basis more than 50000 trailers carrying these items travel across the highways. These lines of business have great applications for sensors and actuators. The EU regulation now legally demands for monitoring these parameters. Sensors can only sense the temperature or nature of the environment in which products are kept, If a product gets damaged it's only revealed once it reaches at the final destination thus a real-time visibility is required. For dairy product such as ice cream it's necessary to monitor the temperature of the cream once the ice cream is damaged there is no further action which we can take but we can take real-time decisions based on the sensors sending real time data this could be well avoided. The next generation of sensors provides ''on-the-road' access to sensor data which gives an upper hand. Each product has to be maintained and consumed in a specific amount of time also correct temperature needs to be maintained to increase the shelf

life of the products. Automatic sensors can sense the varying temperature which is getting affected by the environment and can quickly adjust the temperature of the trailer automatically thus not needing any manual intervention. To handle the necessary protocols the sensors are equipped with microcontrollers which acts as the brains for maintaining crucial temperatures.

There are vast variety applications for RFID which stores UID for each product this UID can be stored.

On the databases and easily be accessed to determine its location. RFID are also used to manage item into a single pallet. Scanners located at the warehouses can scan these RFIDs and let us know at what time the product exited the outlet. This can also allow us to spot theft or misdirected shipments very quickly and provide the solution. The RFID also provides us the real time inventory management by letting us know exactly how much amount of product is left in warehouse. The best advantage of RFID is the ability to work with wireless network. The new age RFID can be scanned on entire basis and provide the tracking info at an instance.

Integration and Flexibility

Integration of various suppliers, manufacturers and customers is one of the key factors of real time logistics. ERP solutions like SAP provide integration of various company codes lying in an organisation the companies share their financial, sales data warehouse data on a real time. Not only that within a company code sales, material, warehouse and financial department are integrated with each other. With the introduction of HANA in SAP we are able to make predictive analysis of the sales also do the forecasting very easily. SAP has also introduced logistics solutions such as transport management which makes business partners to work with each other makes the transportation, storage and packaging of products very easy. Safety stocks optimisation has also now become part of SAP integrated business planning. The SAP solution is also a cloud-based solution which allows us to exchange logistic data with business partners allowing them to save time as well as money. In future SAP is also planning to include gate reservation functionality at warehouse to save time and avoid long ques of trucks. Due to their expertise in ERP software, the SAP software is always flexible, the migration of data, introduction of new process is always a smooth process.

Electronic Data Interchange

Electronic data interchange i.e. EDI it’s an exchange of electronic data between two computers, it can be within an organisation or outside an organisation. One of the first industry to adopt this technology was transportation, transportation which also used to run on lots of papers had to make use of EDI technology to develop the automation. EDI is a standard which is used by many business operations to transfer trade data electronically. The data sent is at very fast rate and is directly saved in the database table which is then accessed by the end user. The core difference between e-mail and EDI is that emails are handled by the people while EDI is handled by the end users. The most common documents processed by the EDI are advance ships, invoice and purchase orders, the EDI shortens out the time taken to process these documents by a very large amount and reduces the human errors. Since this is the standard format EDI eliminates the problem of users communicating different language and in different time zones. The EDI transaction also called ANSI X12 uses following commonly used transaction sets-

- 204 – Motor Carrier Load Tender: Used to send request to carrier for a shipment pickup.
- 990 – Response to the Load Tender: Used for sending response to 204
- 211 – Bill of Lading: In a transport management system it is used for sending detailed Bill of Lading for a shipment.
- 212 – Delivery Trailer Manifest: The signal contains list of contents of a trailer in a multiple shipment.
- 214 – Shipment Status Message: This carrier contains set of transactions which are sent to consignee to provide up-to-date information on your shipment like time date, route and document reference.
- 210 – Freight Details and Invoice: Has the information related to charges.
- 820 – Payment Order/Remittance Advice: Has payment and remittance information.
- 997 – Functional Acknowledgement: Acknowledgement for the payment received.

Communication Technology

The invention of GPS tracking has revolutionised the transportation business in logistics. By the use of advance tools along with GPS process like shipping, transportation storage has become very easier. The GPS technology provides top quality mobility solutions to the customers. Many of the leading organisations are now depending upon GPS monitoring for their fleet management, vehicle tracking and route identification.

GPS in fleet management- GPS allows us to constantly stay in touch with our shipment with a two-way communication, it provides real time tracking of the shipment which can also be changed to some another location so that it’s picked up from another location. The change is quickly notified to the driver in an instance who also takes necessary action to divert from the route. It also makes us plan our delivery in well advance we can schedule or cancel a delivery or update a delivery location from time to time. GPS technology is absolutely cheap and considering this we can integrate it with a software in order to get better results. Earlier it used to take hundreds of calls to manage this but due to GPS it has become very quick. Environment and traffic play very important role while delivering a product.

Internet of Things

In terms of providing real-time data for logistics IoT promises better payoff to its business customers and end customers. The IoT has been extended across transportation management, fleet management, warehouse management, proper handling of materials and inventory management whilst also providing additional impact areas such as customer experience, operational efficiency, safety and security. The IoT provides very exciting and innovative ways to solve difficult business scenarios. IoT promises a profitable impact on logistics and value chain. IoT is nothing but different technologies communicating with each other over the internet thus we can get the real time status of our parcel anytime we want. We can also redirect or change the process as per convenience and on real time basis. IoT also allows us to automate business processes and avoid manual intervention and lower the cost. In the world of IoT logistics is about sensing and sense making where we could say sensing is monitoring different asset of supply chain and sense making would be making fact-based decisions based on vast amount of gathered data. But is this the right time to adopt IoT the answer is really simple, du to the technological advancements in 5G networks and big data analytics also push from the industry revolution it has become really easy to implement in logistics.

IoT in Logistics

Logistics would be one of the top industries which would receive high benefits by the implementation of IoT. Logistics and IoT will always be a perfect match considering millions of shipments moved, tracked and stowed by a variety of machines, vehicles and people. The unique quality of IoT is that it connects different supply chain assets together in the most meaningful ways and gathers data which in future provide better solution and insights and due to which logistics managers obtain high level of operational efficiency. The falling prices of sensors actuators, faster internet and network facilities, ability to garner and process huge amount of data IoT has become a top trend in logistic industry. We are already using IoT technologies such as sensors, actuators and handheld scanners thus we need to go a step further and make sure that these technologies are used beyond their primary use. With the smart thinking a simple logistic process can be leveraged to become a smart logistic system.

We have now seen how IoT is best suitable for real time logistics, following is a case study of IoT implemented by DHL which describes how easy logistics operations has become by the implementation of IoT.

Cloud Solution

In cloud solution many organisations share and process data with high analytics giving rise to new field of research. One of the services provided by the cloud-based platform is to help companies develop forecasting by combining data from its suppliers. Cloud database multiple data from different suppliers which provides source and procurement sourcing such as acquisition, inspection and receipt of goods. Efficient supplier which are providing appropriate material can be searched and contacted quickly using cloud-based solution. This also helps vendors and supplier to develop a long term contract. The cloud solution is basically used not only create a solution but provides enough data so that every operation of logistic can work on real time basis.