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Logistic Exection and ERP

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ABSTRACT: Logistic by itself may not mean much for some people but Logistics management is a very important part of supply chain management that plans, implement, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet user/ customer's requirements. The complexity of logistics can be model, analyze, visualized, and optimize by dedicated simulation software. The minimization of the use of resources is a common motivation in all logistics fields. A professional working in the field of logistics management is called a logistician.

Logistics is generally the detailed organization and implementation of a complex operation, in a general business sense, logistic is the management of the flow of things between the point of origin and the point of consumption in order to meet requirements of customers or corporations. The resources managed in logistics can include physical items such as food Martials, animals, Equipment, and liquids, as well as abstract items such as time, information. The logistics of physical items usually involves the integration of information flow, material handling, production, packaging, inventory, transportation, warehousing and often security,

In military science logistic is concerned with maintaining army supply lines while disrupting those of the enemy, since an armed force without resources and transportation is defenseless. Military logistic was already practiced in the ancient world and as well in modern military have a significant need for logistics solutions, advanced implementations have been developed. In military logistics, logistics officers manage how and when to move resources to the place they are needed. Greatest example of this was India-Bangladesh War. It was the biggest army surrender by any army in any war including World Wars. The supply lines were completely disrupted by Indian Army and Pakistan Army became defenseless, they had no option left but to surrender before Indian Army.

Without a sound LES (logistic execution system) the whole supply chain will get paralyzed. It bridges the communication and actiongap between different modules of ERP (enterprise resource planning).The core functions of **Logistics Execution** nearly always focus on complex goods receipt and goods issue processes. It is connected to Production Planning and Control (PP), Materials Management (MM) and Sales and Distribution (SD). **Logistics Execution** includes Warehouse Management, Shipping and Transportation.

Absence of an efficient logistic execution will completely defunct the entire operation management functioning.

I. METHODOLOGY:

The Logistics Execution System (LES), a major component of the supply chain management (SCM) application from SAP, allows an administrator to manage the information and processes involved in all stages of the supply chain, from procuring raw materials to distributing finished products. LES connects SCM processes involved in procurement, order processing, production, storage, inventory management, shipping, and sales.

SAP's LES, an integral component of the company's supply chain management.SAP's logistic execution system offers two linked applications:

- Transportation management system
- Warehouse management system.

Logistic Execution is an important tool for managing following objectives:

- Order supplies
- Manage inventory and storage
- Generate automated order processing.
- Dispatching material to sub-contractors for value addition and receiving it back.

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- Track production, customer orders, and product delivery
- Manage human resources and business assets
- Exchange information with suppliers and customers
- Make applications available online
- Integrate legacy and non-SAP applications

The logistics process can be subdivided into the following main processes: Sales Order [SO] Processing for GI [goods issue] and Ordering (PO processing) for GR [goods receipt].

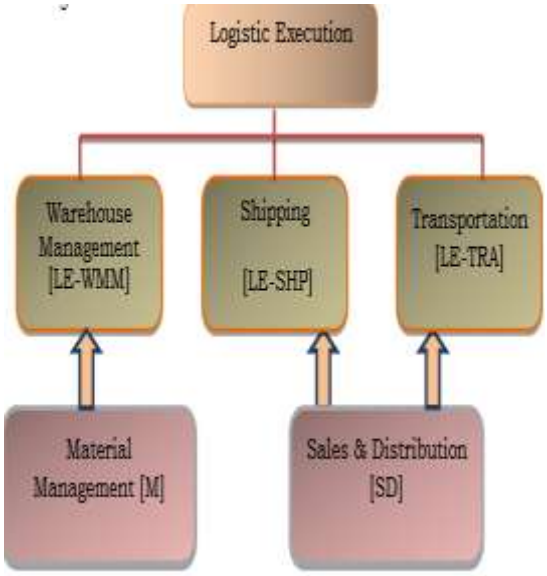
SAP Logistics Execution (LES) represents the link between the Sales and Purchase processes [SD and MM]. The link between the various components in the supply chain with the addition of LES is as follows: Information about material requirements is passed on to MRP [Material Requirement Planning] component in MM from Sales orders. Then these requirements are passed on to internal or external procurement where these requirements are processed by Procurement or Production components in Production Planning [PP] . The Inventory Management component (IM) processes [GR] goods receipts, [GI] goods issues, reservations, posting changes, & stock transfers to make required stock available in the warehouse.

The Warehouse Management system (WMS) processes the warehouse stock movements. From there the logistics movement is processed in the Shipping component. Finally the process is completed in the Billing component. The Billing component is integrated with internal Accounting [CO] and external accounting [FI]. In Invoice Verification, the "Value flow" is updated.

SAP Logistics Execution System (LES) consists of Delivery Processing, Warehouse Management, and Transportation in the SAP modules. The Warehouse Management (WM) system is integrated with Inventory Management [MM], Inventory samples [QM], Delivery processing [SD] and wages [HR].

The principal components within SAP LES (SAP Logistics Execution System) are the warehouse management module SAP WM (SAP Warehouse Management) and the material flow module SAP TRM (SAP Task and Resource Management).

The deployment of SAP LES (SAP Logistics Execution System) means external warehouse control systems (WMS/MFS) for automated and manual warehouses. Situation becomes even more complex when some of international organizations have multiple external warehouses. Interfaces, dependencies and costs are significantly reduced. A centralized control of material movement and inventory management can be maintained effortlessly and efficiently with application of SAP LES module of ERP. Also it facilitates inter-warehouse and inter-retail outlets movement of goods with accurate record keeping. And finally extending a great support to customer service and sometimes liquidating the slow or non-moving goods.Centralize purchasing would not have been possible in absence of such facility. In some formats of businesses role of LES is the key factor in business operation. Without an effective and efficient LES (logistic execution system) existence of some format of business is unimaginable.



For this cause we examine Gujarat Cooperative Milk Marketing Federation Limited. It must be appreciated the milk product is unlike any other product. Any failure or delay can totally damage the product as the self-life of the product is very small. The entire LES must function in a very synchronize manner otherwise the resulting damage will be very large. In this case flow of material is not only important, but flow of information is equally important for making weekly payment to the suppliers who are mostly villagers with limited capacity.

Some facts about Gujarat Cooperative Milk Marketing Federation Limited

- Year of Establishment 1973

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- Members 18 District Cooperatives Milk Producers' union
- No of producer members 3.6 Million
- No of village societies 18600
- Total milk handling capacity per day 35 Million Liters per day
- Average Milk collection per day 25 Million Liters per day
- Cattle feed manufacture per day 9200 MTs per day
- Sales turnover Rs.38550 Crores(US$ 5.1 Billion).
- Retailer associate 10 Lakh

With above figures, it is simple to imagine the complexity of the entire Logistic Execution System.

We shall consider one more complex case of Chain stores. A chain store is a retail company with more than one branch.There are a variety of chain stores from big-box retailers to specialty shops, from supermarkets to restaurant chains. Examples of well-known chain stores include Wal-Mart, Target, Macy's, Home Depot, Bed Bath & Beyond, and The Body Shop, KFC, Sub-way,etc.

In some cases these are over 100 attached to a central warehouse and their everyday feeding of raw material and other products has to be maintained.Stocks at the retail store are maintained on real time. At the end of the day this stock need to be replenished without fail. Quantity planning, scheduling, sequencing, and rout planning for the movement of the goods is a challenging task. This needs to be performed efficiently every day. Not only this, the inbound of material must also be maintained.

Logistic execution system software shall supportin following functions.

- Shortest path selection in the warehouse (TRM)
- Yard management
- Cross docking
- Value added services
- Reporting

Out of the above listed functions of LES, cross-docking offer cost saving and efficiency in material movement. In this case Products are unloaded from a truck or railroad, car, sorted and directly reloaded on to outbound truck or rail, cars to continue their journey. Product from different sources going to same destination can easily be consolidated into fewer transport vehicles. Also at times product from a source is to be transported to different destination and has more than sixty routescommon; in this case cross docking is an important cost saving process. Alternatively large shipments can also be broken down into smaller groups for easier delivery.The end result in both scenarios is leaner, more efficient supply chain.

SAP LES (SAP Logistics Execution Systems) has proven its worth over many years as an integrated component of SAP R/3 and the SAP product suite SAP ERP (SAP Enterprise-Resource-Planning) (ECC).

The principal components within SAP LES (SAP Logistics Execution System) are the warehouse management module SAP WM (SAP Warehouse Management) and the material flow module SAP TRM (SAP Task and Resource Management).

The warehouse management software supports with:

- Inventory maintenance
- Storage location management
- RF data transmission
- Handling unit management (support for EAN / UCC 128)
- Shortest path selection in the warehouse (TRM)
- Yard management
- Cross docking
- Value added services
- Reporting

The warehouse management software can be used as a local system which communicates with several central systems or as part of a central system.

As a manufacturer of material handling equipment, Dematic offers a unique perspective and knowledge in SAP warehouse automation.

Depending on specific requirements, Dematic also offers the direct link of SAP to the material handling equipment via Dematic Sub-driver. Here the LES can be utilized with or without TRM.

Artificial Intelligence shall change the Logistic Execution in near future

In recent years we have gotten familiar with hearing how artificial intelligence (AI) will change various businesses. Among them, logistics is also one of the industries to be affected by this new wave.

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How Artificial Intelligence (AI), is different from Machine?

A machine operates and perceives things in accordance with the logic programmed by a human. On the other hand, Artificial intelligence (AI) is defined as a computer or a program able to solve problems or learn from historical data. Unlike a simple machine or robot which recalls the solution saved for the same problem, AI can implement a new solution from what they have learned.

Then how AI can be implemented in the logistics business?

Optimized Planning

Many expect AI will allow a company to organize large-scaled data and extract meaningful information to make a decision. In the complex and dynamically changing environment, the algorithms will derive predictions on the demand patterns and potential risks that may directly impact the company outcomes. This also can be grounds for executives in logistics to allocate resources in a more efficient way, such as employee, inventory, and vehicle mobilization.

The AI system can also utilize satellite maps to seek the most efficient routes considering the traffic, which will save the trucking charges and fuel costs. Furthermore, it can seek the most optimized container and truckload plan based on the variance of cargo specifications, market situations, or assets.

Effective Warehousing

From the vast amount of data accumulated daily, AI will be able to read the trends about which items are ordered more frequently and when they will be shipped out. This data enables businesses to come up with more efficient solutions to distribute the cargo into different warehouses or the location within a warehouse.

These trends also result in reducing the amount of work and time when the goods are picked up, since the AI places them in the productive order considering the traveling route and congestion.

The other benefit we can expect by using AI is that the systematized control will help reduce human mistakes. Information about hundreds to thousands of products is well organized in its own system, allowing it to prevent the risk of picking up the wrong product.

Automated Transportation

A self-operating vehicle is one of the most notable revolutions AI can bring to the logistics business. Not only wage-wise but also it can provide better consideration for drivers' health with optimized routes and reduced driving time. A drone can also be a great shipping option to expand the delivery area to the destination where the trailers cannot reach.

Another critical part of the logistics business is tracking shipments, AI-based systems with big data management and automated trucking will make it possible to provide the real-time shipment track with accuracy, even predictions for a delay.

According to P&S Intelligence, the global AI market for transportation is expected to reach USD 3.5 billion by 2023. At this time, AI technology has a long way to develop for application to the field; however, there is no doubt that it will dramatically change the way global logistics works and improve its efficiency.

Contributor: Hana Kim

II. SUMMERY

The Logistics Execution System (LES), a major component of the supply chain management (SCM) application from SAP, allows an administrator to manage the information and processes involved in all stages of the supply chain, from procuring raw materials to distributing finished products. LES connects SCM processes involved in procurement, order processing, production, storage, inventory management, shipping, and sales.It directly supports the business operational efficiency.In some cases like Newspaper, Confectionary item, Milk etc. where the life-cycle of the product is very short, this becomes highly important. We cannot replenish the stock over such a short period. Therefore the inventory maintenance and transportation both becomes very important.

RESOURCES

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