Successful online learning for sustainable last mile logistics

TECHNOLOGIES MOST FIT FOR LMD

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Distribution also includes its physical side represented by transport and storage, which has become the traditional solution to keep the flow of goods moving. We are talking here in a broader sense about the material flow in a company, but this cannot be addressed without sufficient and timely information. For a company, it is necessary to know the customers' requirements for the goods and services provided, as from these it can determine the distribution plan. These factors give rise to the need for a perfectly functioning, fully integrated information system, without which few businesses can imagine their existence in the market. A good information system can significantly reduce costs and thus free up funds which the company can then use to finance its further development.

It is not enough to possess information resources, but we need to have the skills and abilities to be able to extract the necessary information from these resources and to be able to use it appropriately. The aim is to create an information highway. The supplier base is shrinking as only a very limited number of suppliers can be worked with effectively. There is a growing internal dependence of each member of the chain on the others. Two-way integration contributes to greater flexibility, which is a prerequisite for prompt communication with the market.

Information

The value of information is subjective and is attributed to it by its user. If the recipient of the data is unable to interpret the information, then it has no value to him. In today's world, the art of working with information and knowledge is becoming the basis for creating new competitive advantages in the longer term

The right information reduces inventory and safety stock costs. They can shorten the lead time between a company and its suppliers by providing timely information. The use of electronic transactions can also make communication between a business and its suppliers, customers or partners faster and cheaper. Information may not only help a business to reduce costs, which is done by eliminating activities or by making savings, but it also helps to increase revenue. It creates a competitive advantage as it can improve the product and service offering to the customer. Examples include information placed on a website, ordering goods from a catalogue via the Internet, and doing so without time constraints.

Characteristics of the information flow

Information flow can take the form of orders, invoices, demand forecasts, customer feedback. The more efficient, acceptable the communication method to the customer, the more it
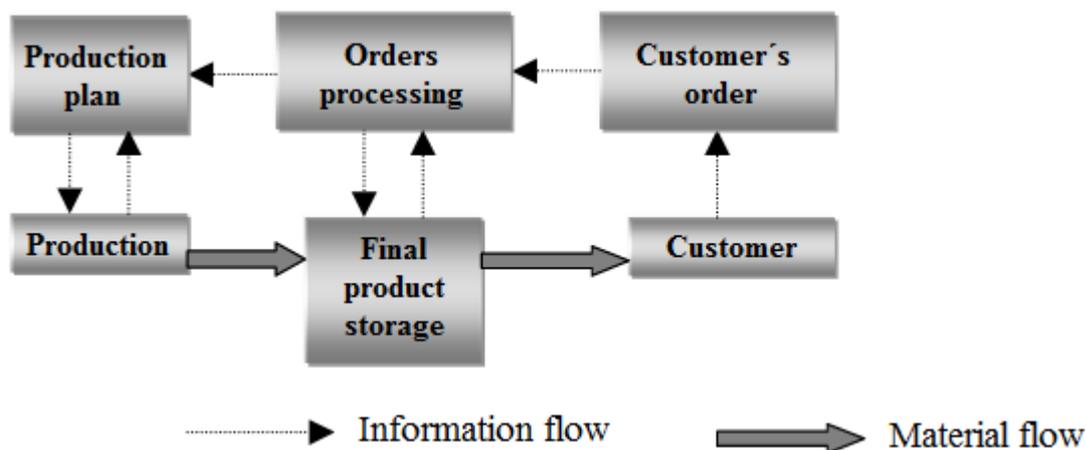
contributes to the overall service to the customer. Poor communication leads to errors, delays, and duplication of effort, all of which can increase costs both in terms of financial resources and customer dissatisfaction.

Information flows in storage

The speed and quality of information flows affects inventory levels. Information transfer during storage relates to inventory levels, goods in motion, stock location, inbound and outbound deliveries, customers, staff and malt space utilisation. Computers and their networking play an important role in data exchange. A variety of information systems are involved in speeding up, streamlining and improving the transfer of information needed to support all warehousing functions.

Business-to-customer information flows

Customers are the source of the sales and marketing information that flows to the manufacturer. This information on sales or the market situation helps the manufacturer to find out important facts about its products. Therefore, enterprises maintain a direct link with consumers. If this communication is lacking, then the business is forced to take steps that are costly for both parties.

Enterprise information systems

"An information system is a set of people, technical means and methods, ensuring the collection, transmission, processing, storage of data, in order to present information for the needs of users active in management systems."

"Information technology is the set of certain tools, methods and knowledge that are required to process data from which information is subsequently generated."

Information systems acquire, process, transmit and store information for the needs of the management system. It consists of technical and support resources, equipment and people. An information system is required to provide information at the required place, at the required time, to the appropriate extent and in the appropriate form.

Information systems are currently used to facilitate the use of various databases. They must deliver accurate and timely information, cover all customer requirements, and respond to immediate changes in business processes. The abbreviation IS/IT is often used, which was introduced because the relationship between information systems and information technology merges.

For the correct implementation and use of an enterprise system, it is necessary to perceive it as comprehensively as possible, coupled with an understanding of the different perceptions of enterprise IS from the technological perspective of IT specialists, different user groups and from the perspective of the process organization of the enterprise. A prerequisite for such an understanding is a good knowledge of the capabilities of specific enterprise IS, an understanding of their principles, interrelationships and trends.

Modules of information systems

CRM (Customer Relationship Management) module

Customer relationship management integrated directly into your information system. Every day, up-to-date information from business processes remains clearly and securely documented.

Purchasing module

Recording and processing of data related to the procurement of materials or subcontracts required for the execution of orders. The process begins with the search for a supplier, followed by the ordering and storage of the goods received. Evaluate the effectiveness of purchasing activities, purchase statistics and evaluate refunds.

Sales module

Complete order recording and execution - from its inception in the form of an order for goods out of stock (linked to purchasing) to the processing of all data necessary to ensure delivery of goods to the customer. Flexible price and discount calculations, sales statistics. Planning of trips, evaluation of sales representatives.

Warehouse Management module

Acquisition and tracking of stock levels, recording of goods orders, determination of insurance premiums, calculation of minimum, optimum, maximum stock levels, booking of goods according to orders, reordering, consignment stock records, management of stock locations, use of EAN, flexible layout models. Inventory and closures.

To illustrate an example of a warehouse management system, watch a three-minute video:

[(30) What is Warehouse Management System? How WMS Works - YouTube](#)

Customer service module

After-sales customer care, especially in case of delivery of goods or services requiring maintenance or servicing. Installation cards, service contract management, complaints and maintenance. Technician deployment and reporting, statistics and history. Records, inspection and calibration of meters. Direct link to warehouses and contracts.

Example of **WEBFLEET information system**

Each in-vehicle tracking system has an integrated GPS receiver for tracking vehicles via GPS and a GSM transmitter for sending vehicle position coordinates. Fleet managers can then simply log into our fleet management solution, the secure online WEBFLEET application, in the office and track the movements of all vehicles equipped with a vehicle tracking system. With location data updated every minute, you'll always have the up-to-date information you need to make important operational decisions.

The GPS vehicle tracking system uses a transmitter in the vehicle's navigation device to send a signal that is then received by satellites in orbit. In this way, GPS tracking can determine the exact location of the vehicle - its latitude and longitude, direction of travel and speed. A passive GPS vehicle tracking system tracks the position of the vehicle and stores the data, which can then be downloaded for analysis. An active GPS system automatically sends this information to a central database for real-time vehicle tracking.

GPS vehicle tracking has a number of advantages for fleets:

- Optimized route planning for increased efficiency and productivity.

- More accurate arrival times, resulting in happier customers.

- Non-stop access to real-time location data, helping to detect theft or unauthorized use and respond quickly to such situations.

- Access to important reports that help improve operations and profits.

- Reduced administrative burden through less paperwork and fewer calls with drivers.

Sources:

BASL, J. Podnikové informační systémy. Praha: Grada Publishing, 2002. 142 s. ISBN 80-247-0214-2

CHRISTOPHER, M. Logistika v marketingu. Praha: Management Press, 2000. 166 s. ISBN 80-7261-007-4

MAJARO, S. Základy marketingu. Praha: Grada, 1996. 308 s. ISBN 80-7169-297-2

PERNICA, P. Logistika. Praha: VŠE, 1995. 210 s. ISBN 80-7079-820-3

SIXTA, J., MAČÁT, V. Logistika teorie a praxe. Brno: CP Books, 2005. 315 s. ISBN 80-251-0573-3

https://data-norms.cz

https://www.webfleet.com