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THE USE OF IT SYSTEMS IN THE DISTRIBUTION OF COURIER SERVICES AND CUSTOMER SERVICE

Abstract:

The article describes the essence of information systems management to the needs of courier companies. The possibilities to use information systems to ensure the efficient flow of goods and information in the management of courier companies. Presented functionality DRP and CRM systems and the possibility of combining them with other systems available in the courier companies. The influence of the use of information systems in the distribution of courier services, and customer service. It shows the practical application of class systems DRP and CRM used in the processes of service delivery courier. Also examined the use of information systems and assess their suitability for delivery courier.

Keywords:

distribution, customer service, courier service, DRP, CRM

JEL Classification: M21

Introduction

Today's logistics is based on information obtained from different databases held by different IT systems. The use of modern information systems has become a necessity for all those involved in business who want to function effectively in the global market. Computer systems are widely used to support the logistic area¹. Managing a modern company operating in the areas of logistics is not possible without the help of information technology².

Management must be based on real and current data. The information flow is as important as the material flow and requires adequate preparation and management. For this purpose an efficient information system is necessary. The information system is made up of elements such as people, processes, information and data resources. It is designed and used in the enterprise workflow, based on the flow of information (acquisition, collection and processing of data) and sharing information (processed data) with managers³. Its main task is to satisfy the information needs of the organization, so that it can make good decisions⁴. A computerized part of the information system is a computer system. The information system is a set of cooperating devices, programs, procedures of information processing and software tools used to process data.

The Use of DRP system in distribution of courier services

Distribution Requirements Planning - DRP is the basis for organizing and streamlining the flow of finished products to the distribution network⁵. This is the schedule for determining the demand for stocks in a given period of time based on the plans of purchase generated by customers. DRP works in the distribution system of a courier company, including cells involved in the movement of goods. All links in the courier service distribution system assess their own demand for the product in the subsequent periods of time. Then, these needs are consolidated into a single estimate and transferred to the central purchase point - the warehouse, and further to the production cell. The forecasts are then associated with the expected production plan. There are two parallel adjustment processes: the process of adapting plans to market needs and the process taking into account the limits of distribution. Then the operational production plan is generated. In the DRP system, an inventory plan is designed. It indicates the future time adjustment of product delivery to individual cells (central and regional warehouses), to meet the needs of customers⁶. Important

¹ Majewski J., 2008. *Informatyka dla logistyki*. Biblioteka logistyka, Poznań, p. 52.

² Dziadkiewicz M., *Wpływ postępu technicznego na rozwój sfery usługowej [w:] Zintegrowane zarządzanie marketingowe i logistyczne w Zjednoczonej Europie*, (red.) Sobolak L., Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej, Częstochowa 2005, p. 44.

³ Detlor, Brian, *Information management*, International Journal of Information Management Vol. 30, Issue 2, April, 2010, p. 103.

⁴ Wrycza S. (red.): *Informatyka ekonomiczna*. PWE, Warszawa 2010, pp. 80-82.

⁵ Rutkowski K. (red.), *Logistyka dystrybucji*, Difin, Warszawa 2001, p. 33.

⁶ Dickersbach J. T., Passon M.F., *Distribution Requirements Planning in; Service Parts Planning with SAP SCM™*, Management for Professionals, Springer – Verlag Berlin Heidelberg 2015, p. 171.

elements of DRP are: demand forecasts - constantly updated and verified, developed for short periods such as days or weeks and timely deliveries. DRP uses the following operational rules⁷:

- schedule of temporary demand within the distribution system,
- existence of gross needs arising from the demand for the final product,
- existence of net requirements for open orders - the actual needs in a given period of time, taking into account existing inventories and supplies on the way,
- supplementary orders in the situation of actual need (at the level of net requirements or specified by the manufacturer),
- synchronization of demand concerning the precise date of the order for a given quantity of the product, knowing the lead time of a particular warehouse and the length of the production cycle,
- rolling planning.

DRP is a common and versatile method of determining the appropriate level of inventory in the system of distribution logistics. This system is usually used in combination with the ERP system which helps to manage and minimize inventory⁸. The main argument in favor of DRP is the more accurate demand forecasting, and then the use of the information to identify sales and distribution needs. The DRP system allows developing a demand forecast of each stock keeping unit (SKU). The use of DRP, unlike applying the traditional method, streamlines the process of ordering and maintaining distribution inventory. The traditional approach is based on ordering according to consumption (the principle of uplift) in batches of fixed sizes and keeping security inventories at all points in the distribution network. The result is maintaining large inventories and the lack of connection between the level of inventory and the forecast demand⁹. The DRP is characterized by the fact that demand is independent on the lowest level of the network and determined on the basis of the demand forecast; the planned demand is calculated at higher levels - internal dependent demand. The application of DRP gives the following benefits:¹⁰

- improving customer service,
- reduction of the risk of stock exhaustion,
- reduction of inventory levels,
- reduction of transport costs,
- improving the operation of distribution centers.

⁷ Banaszak Z., Kłos S., Mleczek J., Zintegrowane systemy zarządzania. , PWE, Warszawa 2011, p. 93.

⁸ Witkowski J., Zarządzanie łańcuchem dostaw. , PWE, Warszawa 2003, p. 51.

⁹ Szymonik A., http://www.gen-prof.pl/l_7.pdf, access 20:00, 2.10.2015.

¹⁰ Fechner I., *Zarządzanie łańcuchem dostaw*, Wyższa Szkoła Logistyki, Poznań 2007, p. 81.

It is worth noting that the DRP system is often equipped with a module supporting marketing activity. It allows the creation of databases related to the implementation of the abovementioned function, the management of projects undertaken in this area and transmission of relevant information in order to engage trading partners in the appropriate marketing actions.

The use of CRM in customer service

Gaining and maintaining a loyal and fully satisfied customer is a problem of almost all modern companies. Long-term customer relationships are built on customer satisfaction with the purchase and closely linked to their expectations. So they are the combination of their needs, seller's promises, opinions of other product holders, and product information. The organization of customer service system should be based on IT systems supporting the management of customer relationships¹¹. The solution that meets these demands may be a CRM system as the basis for strategic customer relationship management¹². CRM information systems are relatively new and have developed as a result of evolution of less advanced programs aimed mainly at organizing customer information and creating computer databases¹³. They are computer applications including methods, software and Internet possibilities of forming relations with customers on an orderly basis¹⁴. They are advanced and integrated software programs that support all elements of building and maintaining good relationships with clients¹⁵.

In view of the diverse roles of different elements of the system, there are three basic types of CRM software included in the system architecture of customer relationship management: operational, analytical and communication¹⁶. Operational CRM directly supports activities related to the client, i.e. sales, marketing and after-sales service. The system is focused on the acquisition and collection of data about customers, transactions conducted, contacts, products, competition, and other information necessary to ensure the automation of processes occurring at the business- customer interface¹⁷. The system enables contacting customers, as well as viewing, at any time, the database with information on cooperation with the customer. The system registers all actions in the history of contact with the customer. This information can be reconstructed at any time. Analytical CRM enables analytical data processing, transforming it into knowledge that is necessary to support the decision-making

¹¹ Łęgowik-Świącik S., Krupka M., *Obsługa klienta jako element logistyki dystrybucji w przedsiębiorstwie produkcyjno-hanlowym* [w:] *Determinanty zarządzania przedsiębiorstwami wobec zmian otoczenia rynkowego*, (red.) Ślusarczyk B., Urbańska J., Wydawnictwo Politechniki Częstochowskiej, Częstochowa 2008, p. 20.

¹² Stachowicz-Stanusch A., *CRM przewodnik dla wdrażających*, Placet, Warszawa 2007, p. 13.

¹³ Garrido-Moreno, Aurora; Lockett, Nigel; García-Morales, Víctor, *Paving the way for CRM success: The mediating role of knowledge management and organizational commitment*, Information & Management Volume: 51, Issue: 8, December, 2014, p. 1032.

¹⁴ Pedron C.D., Picoto W.Ng., Dhillon G., Caldeira M., *Value-focused objectives for CRM system adoption*, Industrial Management & Data Systems, 2016, Vol. 116 Issue: 3, pp. 527–529.

¹⁵ Pedron C.D., Picoto W.Ng., Dhillon G., Caldeira M., *Value-focused objectives for CRM system adoption*, Industrial Management & Data Systems, 2016, Vol. 116 Issue: 3, pp. 527–529.

¹⁶ Bieniek Z., 2009. *Informatyka w zarządzaniu: wybrane zagadnienia*, Vizja Press & IT, Warszawa, p. 66.

¹⁷ Wrycza S. (red.); *Informatyka ekonomiczna*, PWE, Warszawa 2010, p. 379.

process so as to optimize customer relationships. The system stores, processes and interprets data about customers, generating reports on the basis of the collected information¹⁸. The data from multiple sources, stored in data repositories, are subject to complex statistical analysis. They give the knowledge which makes it possible to understand the needs, purchasing preferences and behavior of customers. The basic value of the system application is the ability to personalize the analysis to benefit the user. Communication CRM, also called interactive CRM, supports the direct contact with the company's customers, providing a set of technologies that facilitate the contact through both traditional and electronic communication channels¹⁹. It is treated as a communication center - a network coordinating the channels of contact with customers, suppliers and business partners. All the functions performed by the interactive CRM aim at transforming relationships with customers into a long-term partnership based on interaction²⁰.

The CRM system is advanced and allows the integration of many activities related to customer service²¹. It generally consolidates and coordinates activities in the field of sales, marketing and service. In the sales department, this system includes: relationship management (customer profiles, purchase and service history), customer account management (generating quotes and orders), monitoring the status of customer and potential business contacts. The key features in marketing are: campaign management measuring its effectiveness, multi-criteria classification of customers and the possibility of segmentation. In the area of service and after-sales service, the CRM system allows automatic handling of orders for warranty and post-warranty services as well as complaints²².

In addition to the above areas, CRM systems often have most of the following modules:²³

- managing the schedule and correspondence,
- telemarketing,
- integration with ERP systems - financial management, accounting, manufacturing, human resources management and distribution,
- data synchronization – refers to interoperability between portable devices,
- e-commerce,
- call center - telephone customer service.

¹⁸ Trojanowski M., Marketing bezpośredni. Koncepcja - zarządzanie - instrumenty, PWE, Warszawa 2010, p. 40.

¹⁹ Wrycza S. (red.); Informatyka ekonomiczna, PWE, Warszawa 2010, p. 386.

²⁰ Lipiäinen H.S.M., *CRM in the digital age: implementation of CRM in three contemporary B2B firms*, Journal of Systems and Information Technology, 2015, Vol. 17 Iss: 1, p. 4.

²¹ Chang, Hsin Hsin; Wong, Kit Hong; Fang, Po Wen, *The effects of customer relationship management relational information processes on customer-based performance*, Decision Support Systems Vol. 66, Complete, October, 2014, p. 148.

²² Nowicki J., *Komputerowe wspomaganie biznesu*, Placet, Warszawa 2006, p. 72.

²³ Dyche J., *CRM. Relacje z klientami*, Helion, Warszawa 2002, p. 30.

These modules are areas in which the CRM system helps make upgrades and improvements. E-commerce and ERP systems are important areas which CRM is integrated with to improve the quality of customer service in courier services. A logistics center should expect improvements in these areas of functioning when deciding to implement the CRM system,.

Information technology is a tool for the effective use of CRM in an organization. CRM systems have developed as a result of the development of advanced technology and changes of business strategy into a customer-oriented one. The result of the application of IT tools in the CRM system is an integrated customer service system which gives a unified view of the company and one database of customer information. CRM is an integrated set of applications supporting an organization within the defined and implemented CRM strategy. IT systems supporting logistics customer service are becoming increasingly popular, not only in Poland but also in other countries. Supporting areas where customer service may build a competitive advantage through the use of information systems is a daily practice in the current activity of logistics centers. Strong competition requires constant adaptation focused on client acquisition and seeking consumer loyalty. Therefore, the need to improve the flow of information determines the level of logistics customer service and has an influence on the effectiveness of the distribution process.

Assessment of the ERP and CRM application in courier services

A key element of an efficiently functioning courier service is the use of information systems in order to improve the distribution processes of courier services and customer service. A survey was conducted in order to verify the suitability of ERP and CRM systems. It allowed examining how these systems are evaluated by courier companies that make use of their functionality in the implementation of courier activity. The use of ERP and CRM systems in courier companies is presented in Table 1.

Table 1. Use of ERP and CRM in courier companies

Does the courier company use the systems:	Percent
ERP	90%
CRM	100%

Source: Own calculations based on the results obtained.

Table 1 shows that all courier companies use the CRM system, and 90% of the respondents use the ERP system. In further analyzes, the test group consists of courier companies that use both systems. The assessment of benefits of the ERP system in courier companies is presented in Table 2.

Table 2. The benefits of application of the DRP system in courier companies

Please evaluate the benefits of application of the DRP system.					
Answers	Very good	Good	Medium	Bad	Very bad
Raising the level of customer service	90%	10%	0%	0%	0%
More accurate demand forecasting	80%	16%	4%	0%	0%
Reduction of inventory levels	73%	16%	11%	0%	0%
Reducing transport costs	84%	7%	9%	0%	0%
Improving the functioning of distribution centers	71%	20%	9%	0%	0%
Possibility of integrating with other software	89%	11%	0%	0%	0%

Source: Own calculations based on the results obtained.

Table 2 shows that as the benefits of the DRP system, the courier companies best estimate raising the level of customer service (90%), the ability to integrate with other software (89%), and reducing transport costs (84%). Improving the functioning of the distribution centers is perceived as the least beneficial (71%).

The assessment of the impact of the DRP system application in courier companies is presented in Table 3.

Table 3. The impact of the DRP system on the functioning of the courier company distribution system

Has the use of DRP system improved functioning of the courier company distribution system?	Percent
Yes	100%
No	0%

Source: Own calculations based on the results obtained.

All of the interviewed courier companies positively evaluate the use of the DRP system, claiming that thanks to it the operation of the distribution system in their companies has improved. Table 4 presents the evaluation of benefits of CRM to courier companies.

Table 4. The benefits of CRM to courier companies

Please evaluate the benefits of the CRM system application.					
Answers	Very good	Good	Medium	Bad	Very bad
Managing customer base	92%	8%	0%	0%	0%
Managing the process of customer acquisition	84%	16%	0%	0%	0%
Managing service calls	88%	10%	2%	0%	0%
Taking orders online	80%	20%	0%	0%	0%
Integration with social networks	72%	14%	14%	0%	0%
Possibility of integrating with other software	96%	4%	0%	0%	0%

Source: Own calculations based on the results obtained.

Table 4 shows that courier companies appreciate the ability to integrate CRM with other systems in the company (96%). They very much appreciate the management of customer base (92%) as well as the management of service requests (88%). The respondents evaluate the integration with social networks as the least beneficial (72%).

Table 5 shows how courier companies assess the impact of CRM on the functioning of customer service system.

Table 5. The impact of the CRM system on the functioning of courier company customer service

Has the use of CRM system improved the functioning of courier company customer service?	Percent
Yes	100%
No	0%

Source: Own calculations based on the results obtained.

Table 5 shows that 100% of the courier companies surveyed evaluate the use of the CRM system as having a significant impact on improving the functioning of customer service system in their companies. All surveyed companies claim that the use of CRM and ERP systems improved the functioning of distribution and customer service systems. Courier companies highly appreciate the benefits of application, and thus the functionality of the presented systems, which proves their high compatibility with the needs of courier activity. The benefits identified by courier companies can significantly affect the implementation of distribution processes of courier and customer services.

Summary

The distribution system in the logistics center focuses on the management of information streams that determine the efficiency of the corresponding physical distribution processes. The physical control of the flow of goods from the producer to the consumer is based on the technology of movement of goods, from the order to the physical delivery to the recipient. This kind of distribution technology includes warehouse processes, transport and handling, as well as packaging. Management efficiency in the logistics center is dependent on the correct functioning of the distribution system. A properly designed distribution system, based on efficient distribution channels, ensures the efficient flow of goods and a high level of service. Supporting distribution operations, including customer service, with information systems is the idea of adopting a customer-oriented business approach, as well as the method of operation which is part of business strategy. The CRM system is a set of processes and technologies for managing relationships with potential and current customers and business partners through marketing, sales and services independent of the communication channel. The DRP helps manage and optimize the flow of goods, creating a schedule of distribution based on purchase plans submitted by customers. Information systems are a platform uniting various areas of logistics center activity in order to focus all operations on offering logistics services of highest quality.

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