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LOGISTICS MODELS IN E-COMMERCE

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Abstract

The rapid development of digital technology and its applications in almost all business areas has resulted in the emergence of new terms such as e-supply, e-administration, e-CRM, e-sport, m-commerce etc. This paper describes one of the logistics models in e-commerce based on outsourcing of logistics services, i.e. dropshipping. Presented are logistics processes in e-commerce, various logistic models, applied IT technologies and innovations, as well as principles of functioning and determining marketing methods for this type of trade. The research was conducted on the example of an online store selling toys and children's articles, which operated on the market based on the dropshipping model. A comparative analysis of the dropshipping warehouse offer was the main part of the research.

Key words

Logistics processes, logistics models, e-commerce, dropshipping

INTRODUCTION

The twenty-first century is primarily the age of computerization and cybernetics in all aspects of our lives. The pace of life is increasing, and we have less and less time to shop. It is more convenient to sit at home at the computer and choose goods from thousands of offers at attractive prices. Another advantage for buying online is the quality of customer service and time of delivery being constantly improved by experienced e-commerce traders. Articles from the other hemisphere of the Earth can be bought online. Distance and delivery time is no longer a problem.

E-commerce market research shows that consumers require delivery the same day after ordering. This is a huge challenge for the industry from the logistics side and currently intensive work is underway to meet this demand. Customers are currently very demanding, they pay attention to many details. With growing competition and millions of online transactions, retailers need to constantly improve the level of customer service. They do this by improving logistics in the company or improving IT tools, e.g. their own websites.

The number of transactions on the Internet keeps increasing year by year. Sellers involved in this type of trade must constantly invest in new technologies, improve sales platforms and invest in sales innovations - not to be left behind.

The competition is huge; it is not enough to appear on the web, it is important that customers find us. Building loyalty among existing customers is another important aspect. The timeliness of deliveries, convenience of shopping at any time and on any carrier with internet access as well as the quality of service are important here. Some customers pay attention to the availability of advisors when choosing a given product and the number of days to return - if the product does not meet expectations. To meet these requirements, you need thoughtful marketing, positioning, researching customer needs, and thus human resources that are costly. Enterprises that want to conduct long-term operations in the network should have strategic plans that primarily have to strengthen the company's position in the existing market. External companies are often used for this type of tasks - logistics outsourcing.

DEVELOPMENT OF E-COMMERCE AND A NEW CHALLENGES

E-commerce is an increasingly popular concept and online shopping is attracting a growing number of recipients. Online sales bring a lot of benefits to customers - convenience, time saving and a wide range are just some of them. Sales of e-commerce are also beneficial for entrepreneurs who can reduce the costs of doing business and reach a wider range of customers. The developing e-commerce market should be researched and analyzed in order to improve its operation, so that it brings ever greater benefits to entrepreneurs and makes life easier for consumers.

In his book, Dave Chaffey presents the following definition of mobile commerce, it is "electronic communications and electronic transactions carried out on portable devices such as laptops, palmtops and mobile phones, usually using different types of wireless connections" [Chaffey 2016, p. 12]. In his book, you can also find definitions of e-commerce, according to him, e-commerce is "all electronically sent information exchanged between an organization and its external stakeholders" [Chaffey 2016, p. 13]. Another important concept is e-business; Beata Borycka and Ewa Kempa inform that "e-business is an economic activity that in its existence uses the Internet. The factor favoring the creation of such enterprises is the rapid development of technology, including Internet networks, as a result of which such entities become an important part of the economy." [Borycka i Kempa 2012, p. 18].

Continuous and dynamic technological development has led to the emergence of an e-economy. It is an economy in which information and communication technologies as well as knowledge and information resources are the foundation. The basic determinants of e-economy development can be mentioned [Małachowski 2005, s. 21]:

- effective development and spread of information and communication technologies,
- active changes in the organization and functioning of business entities,
- consumer market, strong customer orientation,
- globalization of the economy and markets.

Nowadays, the Internet has become a way of fast information flow. More and more companies, apart from selling in stationary stores, are also selling their products via e-commerce. By posting their offers also on the Internet, they have the opportunity to reach far more people interested. The changes taking place in the market resulted in an increase in sales via Internet connections, which contributed to the popularity of e-commerce. According to M. Brzozowska-Woś, "the term *electronic commerce (e-commerce)* appeared in 1997 and is most often related to electronic commerce. In general, however, the concept of e-commerce is narrowed down to buying and selling via the Internet. In a broader sense, mention should be

made of the transfer of orders and confirmations, and the handling of non-cash payments via the network." [Brzozowska-Woś 2014, p. 5].

E-commerce is a relatively small trade sector whose importance in the global economy is steadily increasing. In Poland, according to data from 2016, the number of Internet users accounted for 25.8 million people, of which 47% make purchases in Polish e-stores, and 10% in foreign e-stores. The largest percentage of respondents are the people up to 34 years of age, with secondary or higher education, living in urban centers, as well as declaring good financial condition [Report of e-commerce 2016].

Research shows that the most important factor for making online purchases more often is lower delivery costs [Iwińska-Knop 2015, p. 139]. It can therefore be concluded that online shopping is directly related to logistics. Therefore, also in the e-commerce sector, logistic customer service plays a role. Logistics are based on three aspects in e-commerce [Antonowicz 2016, s. 11]:

- goods management,
- storage,
- delivering goods to the customer.

Logistic customer service in e-commerce includes, among others adequate flow of information between the customer and the seller and between all links in the supply chain. What's more important is the use of warehouse and distribution centers that will be adapted to online orders. Logistic customer service should also include the use of IT systems throughout the entire order delivery process for the picking of goods, receipt of shipments, as well as for handling returns [Antonowicz 2016, p. 11]. Users of e-commerce websites have specific transaction requirements. To a much greater extent than traditional clients, they pay attention to the elements related to transaction service. The quality of logistics service is a basic indicator of customer satisfaction [Radziszewska 2015, pp. 862–863]. Logistics customer service and meeting customer requirements will definitely be a new challenge for e-commerce. The growing needs and awareness of clients are creating new forms and channels of access to clients. Currently, traditional online shopping is no longer enough to meet customer requirements. There are more and more new ways of reaching customers and making shopping easier. Hence, new solutions and models appear in the area of e-commerce, which meet the new challenges posed by companies.

LOGISTICS MODELS IN E-BUSINESS

Every entrepreneur who decides to trade on the internet faces a dilemma about choosing the right logistic model for their business. What model will be used is influenced by factors such as: financial and housing capabilities, knowledge and the possibility of using information technologies. Possible online trading models that a potential online store owner can use are:

- Own Warehouse,
- Quasi Just-In-Time,
- Dropshipping,
- Extended shopping,
- Freight brokering,
- Fulfillment.

Own Warehouse. The most famous model, derived from stationary stores. It consists in the fact that the goods are ordered from suppliers/wholesalers and offered for sale what is currently available in the warehouse. An undoubted advantage of this model is the possibility of rapid order processing. The result will be satisfaction of the customer who will gladly come back and recommend the store to their friends and become independent of suppliers and avoid problems with a shortage of goods and meet delivery times to the customer. The negative

aspects of such a solution are the need to engage and freeze considerable financial resources, which at the start of business, when the entrepreneur has not yet developed trade credits and payment terms, is a big barrier. The risk of buying the wrong item is another downside of this solution, as well as the need for a large storage area and the cost of maintaining it (protection, insurance). [ekommercyjnie.pl, access 25/02/2019]

Quasi Just-In-Time. Undoubtedly, this logistic model will be a cheaper solution. It is now very often used by online stores. It consists in the fact that the owner of an online store issues a full offer from his own suppliers, of course specifying the availability dates for individual items. The warehouse is practically empty, because the range is ordered only when the customer places the order. The big advantage of this solution is a small cash commitment, no need to have a warehouse and no risk of making unsuccessful purchases and thus freezing money. When choosing this solution, the store must be integrated with the supplier's warehouse. However, it often happens that even the best integration with the warehouse does not guarantee full security of the assortment availability, as there are inventory errors. This will result in the cancellation of the order or an attempt to persuade the customer to buy other goods, as well as delay in delivery. It is not difficult to conclude that this translates into customer dissatisfaction and unnecessary stress in its service. [ekommercyjnie.pl, access 25/02/2019]

Dropshipping. Another interesting logistic solution for the owner of an online store is the so-called dropshipping. It is a model similar to the Quasi "Just-In-Time" model, but with one significant difference. The goods ordered by the online store are sent by the supplier directly to the customer. The advantage of this solution is the lack of the need to have your own warehouse and the involvement of financial resources in the goods and the speed of order processing, which is comparable to that of the "own warehouse" option, i.e. up to 24 hours. The disadvantages of this model are the lack of guarantee of product availability due to errors inventory, as in the previous model, and an additional, more complicated financial settlement procedure, caused by the fact that the store and not the wholesaler is a seller and it is obliged to issue a receipt or invoice. Usually, an invoice is sent by e-mail, but when the trader is required to issue a receipt, the matter gets complicated. An additional difficulty is that not all droppshipping wholesalers offer the service of packing with the use of company ordering tape, adding online store marketing materials, gift vouchers or loyalty cards. [ekommercyjnie.pl, access 25/02/2019]

Extended shopping. This model is recommended mainly to owners of large online stores who have already generated a lot of website traffic. In addition, they would like to expand their business to include a new department or related store that would bring additional profit and to people who would like to earn extra money after working hours. Here the customer service is handled from the beginning to the end by the supplier, i.e. delivery, fiscal settlement and returns. The disadvantages of this way of selling are: lack of control over the quality of customer service, often lack of control over prices and lower profit due to additional service costs for the supplier, which usually represent a percentage of sales. [ekommercyjnie.pl, access 25/02/2019]

Freight brokering. This is probably the least used logistics model. Here the supplier has a small amount in stock. Goods are usually ordered directly from the manufacturer only after placing orders through online stores. Because it has a large volume of orders, it receives rebates from producers, which it is able to share with its websites. This method is similar to brokerage of courier services. [ekommercyjnie.pl, access 25/02/2019]

Fulfilment. The next model is fulfillment. The company from the outside runs a full range of online store magazines. All deliveries flow into the warehouse. The company operating the warehouse deals with the sending of parcels and packaging. The payer pays for individual services performed for him. It can be, among others accepting products into the warehouse, storage itself, e.g. charges per item, packaging a package, packaging. In many cases, this is a beneficial solution, especially for websites that sell seasonal products, because you do not have

to constantly maintain storage space and incur costs with hiring employees to operate it. In the case of large websites that trade all year round with a large assortment, the costs of fulfilling the service may exceed the costs of maintaining their own warehouse. In this case, a detailed calculation and cost comparison is needed. [ekommercyjnie.pl, access 25/02/2019]

Table 1 A list of pros and cons of individual logistics models in e-commerce

Model	Pros	Cons
Own Warehouse	Instant order processing, Higher level of conversion, Independence from suppliers,	The need to freeze cash, Narrower product range, Risk of money drowning in missed products, Warehouse, personnel, insurance, security costs etc.
Quasi Just-In-Time	Low entry threshold, The opportunity to present a larger range, Relative safety of "drowning" of money in commodity miss,	The need to integrate with the supplier, Delays in deliveries, Possible shortages of goods, Lower level of conversion,
Dropshipping	Low entry threshold, The opportunity to present a larger range, Relative security of "drowning" money into missed goods, Instant order processing, Higher level of conversion,	The need to integrate with the supplier, Possible shortages of goods, Mistakes, It's harder for suppliers working in this model, It's even harder for suppliers who will adapt the service to the needs of the store, More complicated fiscal settlements,
Extendig shop	Such as dropshopping, plus no need to deal with customer service,	Difficult to acquire and retain customers, Salary lower than in other models, When running on proprietary software, the need for two-way integration with the supplier,
Freight Brokering	Simplification of logistics, A wider range, Cheaper shopping possible.	Even longer delivery time, The possibility of more mistakes and shortcomings.

Source: www.ekomercyjnie.pl/modele-logistyczne-w-sklepie-internetowym/ access 02/03/2019

To limit the costs of entering the e-commerce market, the entrepreneur decided to start selling in a logistics model called dropshipping, which consists in the fact that the goods ordered by the customer are sent to him directly by the supplier or dropsipping wholesaler. The bobo-shop.pl online store did not have its own goods or warehouse. The store's activity was limited only to obtaining the orders from customers, which were then redirected to the supplier or wholesalers. The supplier packed and sent goods on behalf of the online store directly to the indicated customer.

ATTAINED RESULTS – LOGISTICS PROCESSES IN E-BUSINESS

To understand the problems and obstacles encountered in running an online store, it is worth knowing how the sales process in the dropshipping model go - from the moment the customer orders it to the moment he receives the goods. The diagram below shows the order processing diagram in the dropshipping system.

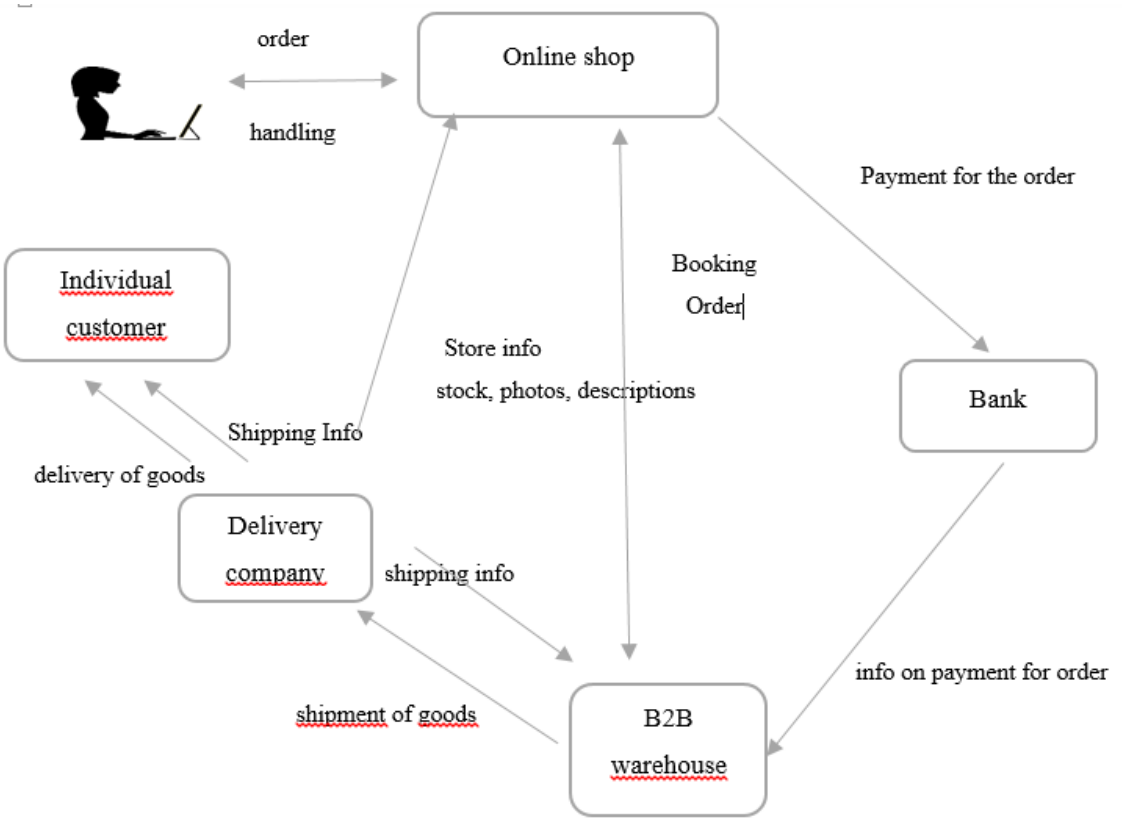


Figure 1 *Flow chart for dropshipping*

Source: own study based on https://www.centralazabawek.pl

The main problems in running such a store can be presented as follows:

- When selling goods to one customer who selected several items from different suppliers, the products were delivered from different warehouses. This caused complications in the ordering process and required synchronization and care of the entire ordering process so that all ordered items finally reach the customer. In this case, the sales margin for the store was lower than usual, because when ordering several items, the customer expected only one shipping fee. If the store ordered goods from more than one warehouse, the cost of shipping from the others had to be passed on.
- Updating inventory is another important problem. For your own warehouse, it would be easy to keep your inventory up to date. In the case of dropshipping, when working with many wholesalers that also support other sellers, stock levels change constantly. Even with frequent synchronization of stock levels with the warehouse, errors often occur, e.g. the store sees that the item is available in the warehouse and accepts the order from the customer. When placing an order to the wholesaler, it turns out that this assortment is not in stock. The seller then has to quickly look for this item from other suppliers, often paying a higher price that levels out the entire margin. If he does not find the goods from another supplier, the seller contacts the

customer informing him about it. The store, however, tried to avoid such situations so as not to expose to negative feedback from buyers.

- Another important problem is the small margin for the seller. Dropshipping wholesalers sell products at a higher price because they need to include packaging and shipping costs on behalf of the store. The store, however, cannot impose a higher margin to compete with other online sellers.
- Wholesale dropshipping does not support returns. Returns therefore go to the store. Although the store operated only on the basis of dropshipping, goods began to appear due to returns in stock. To freeze cash, the store had to display returned goods at a promotional price or at Allegro auctions, sometimes at a lower price than the purchase price. Although there were not many returns (as for example in the case of clothing or shoes trade where returns oscillate around 50%), when the store did not generate high sales yet, they were a problem and brought losses.

CONCLUSION

To sum up, the trade based on the logistics model of droshipping in e-commerce is undoubtedly a low risk undertaking. This is due to the fact that it does not require the involvement of large financial resources to start, i.e. the involvement of cash in the goods, having own storage space or employing people to pack and ship the goods. The advantage of this type of activity is also that in case of failure it is very easy to leave the market. It is good to prepare well for starting this type of business, because without implementing the right solutions, you can run the risk of unnecessary stagnation. This may involve, among others with the costs associated with conducting business, i.e. fees for the server, domain, internet platform, social security, etc., as well as the loss of valuable time and unnecessary work done.

When launching this type of business, it is definitely worth focusing on choosing the best wholesalers that work in the dropshipping system for cooperation, because the success of the business will largely depend on them. Customers are now becoming more aware and demanding. Numerous e-commerce sector studies show that the decisive factor for making a purchase in an online store is currently not the price but the delivery time, but also the possibility of a trouble-free, preferably free return of goods and the quality of customer service. In addition to customer service, these activities are assigned to the warehouse, not the store owner. It is also worth taking care of proper marketing and advertising of the store. Lack of advertising and activities related to SEO and SEM, i.e. the use of appropriate keywords, entering the URL of the store inside the search engines, registering the store in Google My Business, content marketing activities may cause that the store will not be visible to customers. The structure of site construction is also important, because consumers do not like to "click" a lot to find the product they are looking for, as well as the selection of an appropriate internet platform that is easy to integrate with wholesalers.

To sum up, despite the fact that dropshipping is just a dynamically developing logistics model in the e-commerce sector and there are still few wholesalers that have decided to operate in such a system, it is worth considering trade based on this logistic model. Dropshipping can be a good idea for start-up companies as well as for those that already exist and would like to raise funds from additional activities, or people who already work somewhere full time and would like to earn some extra money after hours. A good solution for an online store can be combining several logistic models, e.g. dropshipping with a model based on your own warehouse or just-in-time method.

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