

## Possibility of Order Delivery from e-Shop Within Last Mile. Practical Example from Slovakia

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### Abstract

*The paper focuses on the possibilities and methods of delivering orders from e-shops to customers within the last mile. There are currently many ways in which goods can reach the customer directly. In addition to the traditional postal and courier services, dispensers with lockers, drones, autonomous vehicles or various shops and stores have been used. The theoretical part of the paper focuses on an overview of such possibilities of delivery of goods to the customer within the last mile. In the results is then a example of four e-shops selling books in Slovakia and comparing just the possibility of order delivery to the customer from the perspective of delivery options orders, prices for these delivery options, order delivery time, and order delivery accompanying services. Based on the comparison, it was concluded that e-shops offer customers good order delivery services, but some things can still be improved.*

**Keywords:** Delivery, e-commerce, e-shops, last mile,

### INTRODUCTION

The e-commerce revolution and the emergence of e-shops have significantly changed the „traditional“ supply chain. This change, ranging from speed to delivery, was largely driven by consumers. The boom of e-shops over the next decade will therefore not be surprising because consumers are increasingly accustomed to the easy way to shop online ‘Bringg Team (2019).’ The gradual introduction and expansion of e-commerce and e-shops goes back to the time when Amazon was still nothing more than an online bookstore. And now it is just so. „The Amazon effect“, which has fundamentally disrupted the logistics industry, has automated many operations in the supply chain, forcing them to work more efficiently ‘Rajamanickam (2019).’ The systems introduced during 2019, which also include robotics and automation, were able to fulfill more orders during the 2019 holiday online shopping season, which has therefore become a record breaking point for many online retailers ‘Shaw (2019).’

In the US, e-shop sales currently account for more than 10% of total quarterly retail sales. Nearly half of US residents mainly buy products online ‘Bringg Team (2019).’ Global supply in the last mile for the e-commerce market was valued at \$ 3020 million in 2019. For 2020, the last-mile CAGR supply growth is expected, representing the rate of return needed to grow the investment from its initial to final balance, provided that profits were reinvested at the end of each year of the investment life, by 10.5% from In addition, global shipment within the last mile is expected to reach \$ 5403 million by 2025 ‘Kenneth Research (2019).’

The last mile distribution process is quite complicated, but there are several ways in which goods can be delivered to a customer within that last mile. The content of various industry reports shows that organizations around the world are testing various new trends in last mile delivery. These include drones (unmanned aircraft), lockable parcel boxes, supplies supplied from various sources, delivery using autonomous vehicles or one of the forms that streamlines processes within the last mile is also the transfer of end points of the postal network to the delivery centers ‘(Vakulenko et al., 2019; Joerss et al., 2016; Madleňák & Madleňáková, 2015).’

One of the delivery methods is self-service delivery. This method of delivery has many advantages over traditional delivery of goods. Consumers have attracted unnecessary traffic when delivering orders within the last mile ‘(Zhou et al., 2020; Lucas, 2012).’ The delivery method itself is carried out by introducing an efficient mobile model of large-scale crowd deployment, using a large number of ordinary citizens ‘(Zhou et al., 2020; Wang et al., 2016).’ Consumers have the option of sending or picking up a package by means of a so-called package. automatic parcel boxes instead of being delivered by courier to their house ‘(Zhou et al., 2020; Chen et al., 2018).’

Large companies like Amzaon, Mercedes-Benz, United ParcelService and DHL plan to use drones to deliver orders. The general idea is that the order will be delivered from the starting point to the preselected destination. These drones or otherwise unmanned aircraft can deliver orders separately or in collaboration with other land transport vehicles where the drones would be released from the truck for delivery to a specific customer and then returned to the truck for another shipment. The number of drones is increasing because both retailers and large companies have promoted their use in the so-called. same-day home delivery ‘(Torabbeigi, Lim and Kim, 2020; Dayarian, Savelsbergh and Clarke, 2020; Murray & Raj, 2020).’

Often used are lockable parcel boxes. For example they exist in Slovakia under the name BalíkoBOX and are equipped with technology that allows the customer to open the door by means of a code sent to him in the form of an SMS and can also pay for the cash on delivery by credit card. Such cabinets are located in publicly accessible locations and are open 24 hours per day ‘Macko (2019).’

## **METHODOLOGY**

The aim of the paper is to compare and evaluate different ways of delivery of ordered goods within the last mile from e-shops. E-shops currently use different ways to deliver goods to the customer and these individual delivery options tend to vary in individual e-shops. In addition, in individual e-shops these delivery options differ also in the length of delivery to the customer.

The paper was focused on the territory of the Slovak Republic and specifically on e-shops with books. The following e-shops were compared: martinus.sk, pantarhei.sk, megaknihy.sk and najlacnejsie-

knihy.sk. The comparison was made on the basis of real orders in each of the four selected e-shops. The comparison concerned:

- offers of goods delivery to the customer in case of selected four e-shops (delivery to the store, delivery by courier home, etc.),
- charging for delivery of goods to the customer in specific four selected e-shops,
- the length of time the order is delivered to the customer by using the services of the Slovak Post,
- accompanying order services (order check, customer communication, etc.).

## RESULTS

The range of delivery options to the customer within the last mile is currently expanding. As mentioned in the introduction, the various companies whose business consists of selling finished products to the customer are still striving to improve the delivery methods of these products and look for new, more efficient delivery methods. To this end, various researches and analyzes are carried out to find out what customers want and what suits them best.

In the past, there was only one way to deliver goods to a customer. The customer ordered the goods they were interested in and delivered them to a specific dispensing point. It was mostly post or, if possible, a store shop of a particular e-shop. The customer was forced to leave the house and go to one of these places for the goods.

Later, they became popular courier services that provided the delivery of goods ordered by the customer directly to his home. As a result, courier services are still used today. Nevertheless, delivery of ordered goods by courier to home does not suit everyone. There are also some problems with courier services nowadays, the biggest being road blockage due to the high number of cars.

Many E-shops therefore use several ways to deliver goods to customers within the last mile and it is up to the customer who chooses the delivery method. Four e-shops (martinus.sk, pantarhei.sk, megaknihy.sk, najlacnejsie-knihy.sk) which provide customers with the same kind of goods and that is books were chosen for this paper.

### Compare order delivery options

All four selected e-shops offer customers several options for how the goods will be delivered. A detailed overview of delivery options in individual e-shops is in the table below

**Table 1: Possibilities of delivery of the order to the customer from the selected four e-shops**

E-Shop	Mail delivery	BalíkoBOX	Postal courier	GLS	Personal collection / shop	Personal collection / Zásielkovňa	Others
<b>martinus.sk</b>	yes	yes	yes	yes	yes	x	x
<b>pantarhei.sk</b>	yes	yes	yes	yes	yes	x	x

<b>megaknihy.sk</b>	x	yes	yes	yes	x	yes	Geis
<b>najlacnejsie-knihy.sk</b>	x	x	yes	x	x	yes	DHL

Author

As can be seen, of the delivery options that selected e-shops offer to their customers, all four e-shops use only courier delivery to. The remaining delivery options are no longer found in all of the selected e-shops.

If the order is delivered to the post office, this option is not offered by megaknihy.sk e-shop. This is because orders placed with them are automatically handed over to customers via the Slovak Post Service, BalíkoBOX. This is a locker for shipments that are located in one or more locations in Slovak cities. The disadvantage is that the shipment is stored in the BalíkoBOX locker only for four working days, while shipments delivered to the post office have a pick-up time of up to 20 days. This gives the customer less time to pick up the shipment, which may not suit some customers. Also, this option is not primarily offered by e-shop najlacnejsie-knihy.sk. If the customer chooses delivery to the Slovak Post on their e-shop page, the shipment is automatically delivered by courier to the customer's address. The fact that the customer cannot choose to have the order delivered to the home address or to the post office may not suit everyone again. Some customers are unable to adapt to receive the shipment at a particular time at a particular location. However, if the shipment is automatically delivered by courier, it will contact the customer on the day of delivery. Or, the customer may contact the courier on the day of delivery and agree on the details of the delivery. If, however, the customer could choose when ordering to have the shipment delivered to the post, on the day of delivery he would receive only a notification SMS and he would pick up the order in his spare time and no additional communication with the courier.

Delivery via GLS does not use only e-shop najlacnejsie-knihy.sk. But there is a substitute in his offer, which is DHL. In this case it is again courier services, so it is mostly chosen by those who can arrange things so that they are able to take delivery of the shipment from the courier on the day of delivery.

As far as personal collection is concerned, it is also a service used in a way by all four e-shops. In the case of martinus.sk and pantarhei.sk s-shop customers can have their order delivered to shops in the towns where the shops are located. The order is stored in Martinus stores for five working days and in Panta Rhei stores for seven working days. Delivering a consignment to the shop is a time advantage. The parcel is delivered to the shop before it is delivered using postal services. E-shops megaknihy.sk and najlacnejsie-knihy.sk use the services of Zásielkovňa, which delivers orders to any of the 732 cities in Slovakia. The customer has 7 working days to pick up the order.

In conclusion, the best choice of delivery options is offered by martinus.sk and pantarhei.sk.

### **Compare prices for order delivery options**

The following table compares prices of individual delivery methods in selected e-shops.

**Table 2: Prices of delivery options from four selected e-shops**

<b>E-Shop</b>	<b>Mail delivery</b>	<b>BalíkoBOX</b>	<b>Postal courier</b>	<b>GLS</b>	<b>Personal collection / shop</b>	<b>Personal collection / Zásielkovňa</b>	<b>Others</b>
<b>martinus.sk</b>	2,49 €	2,49 €	2,49 €	3,99 €	zadarmo	x	x
<b>pantarhei.sk</b>	2,49 €	2,49 €	2,49 €	2,49 €	0,79 €	x	x
<b>megaknihy.sk</b>	x	2,99 €	2,99 €	2,99 €	x	2,49 €	Geis 2,99 €
<b>najlacnejsie-knihy.sk</b>	x	x	3,49 €	x	x	2,39 €	DHL 2,89 €

Author

If the customer prefers delivery of the services of the Slovak Post, the best choice of delivery options is in the e-shops martinus.sk and pantarhei.sk. Both e-shops offer all delivery options through the Slovak Post and the price of these services for both e-shops is set uniformly for the amount of 2.49 €. E-shop megaknihy.sk provides the delivery of the shipment through the BlíkoBOX and delivery by postal courier to the customer's address. The price of these two services in the case of e-shop megaknihy.sk is set at 2,99 €. The last e-shop najlacnejsie-knihy.sk offers with the services of the Slovak Post only delivery by postal courier to a specific address and this service is charged with the amount of 3.49 €.

Delivery via GLS offers all e-shops except e-shop najlacnejsie-knihy.sk. The price is different for each of them. It is most worthwhile to have goods delivered via GLS from the e-shop pantarhei.sk where this service is charged with the amount of 2.49 € as it was also in the case of the services of the Slovak Post. This is followed by e-shop megaknihy.sk where delivery via GLS is 50 cents more expensive and the last is e-shop martinus.sk where this service costs up to 3,99 €.

If the customer does not have a problem with personal collection, the most advantageous for him is the purchase in the e-shop martinus.sk where this service is not charged at all. The e-shop pantarhei.sk charges the amount of € 0.79 when personally picking up a consignment at the shop. The increased two e-shops use the services of Zásielkovňa for personal collection, while the e-shop megaknihy.sk charges it in the amount of 2.49 € and the e-shop najlacnejsie-knihy.sk in the amount of 2.39 €.

Overall, it can be assessed that the differences in prices of individual services are not significantly different. The differences are within a maximum of € 1. For this reason, many customers do not seem to take the price of delivery much into consideration and choose the option that suits them best and is most convenient for them.

As can be seen, in the case of mail delivery using mail services, the best prices are e-shops martinus.sk and pantarhei.sk. But book prices are higher than the other two e-shops. The books in the e-shops megaknihy.sk and najlacnejsie.knihy.sk are in many cases cheaper by up to one third of the amount.

It is best to compare the price with a specific example. The book Vládca vlkov by the Slovak writer Juraj Červenák has the following prices in four selected e-shops.

**Table 3: The price of the book Vládca vlkov in four chosen e-shops**

	
E-shop (order delivery method)	Price of the book Vládca vlkov
<b>martinus.sk</b>	11 €
<b>pantarhei.sk</b>	10,45 €
<b>megaknihy.sk</b>	7,62 €
<b>najlacnejsie-knihy.sk</b>	7,69 €

Author

The following table shows the total price the customer pays for the book, including the parcel delivery service. Of the delivery options, the cheapest delivery option that a particular e-shop offers to customers has been chosen.

**Table 4: Total price for ordering the book Vládca vlkov in four selected e-shops**

E-shop (order delivery method)	Celková cena knihy (book price + delivery price)
<b>martinus.sk</b> (personal collection)	$11\text{€} + 0\text{€} = 11\text{€}$
<b>pantarhei.sk</b> (personal collection)	$10,45\text{€} + 0,79\text{€} = 11,24\text{€}$

<b>megaknihy.sk</b> (personal collection – Zásielkovňa)	7,62 € + 2,49 € = <b>10,11 €</b>
<b>najlacnejsie-knihy.sk</b> (personal collection – Zásielkovňa)	7,69 € + 2,39 € = <b>10,08 €</b>

Author

If customers were to decide solely on the price that they order a particular book, the best price would be the e-shop najlacnejsie-knihy.sk. In the case of personal collection, however, the differences in the price of the order are not so high between individual e-shops. There would be a greater difference between them in the case of delivery using the services of the Slovak Post, where the price of delivery is approximately the same for all four selected e-shops.

### **Comparison of the length of time the order is delivered to the customer through the services of Slovak post**

The following table compares the length of order delivery in selected e-shops using the services of the Slovak Post. The table focuses solely on the services of the Slovak Post, because all four selected e-shops deliver orders via it. The length of the delivery period is also shown on the basis of the actual purchases made in the four selected e-abilities.

**Table 5: The length of time the order is delivered in the four selected e-shops**

<b>E-shop</b>	<b>Order delivery time</b>
martinus.sk	5 – 6 days
pantarhei.sk	5 – 6 days
megaknihy.sk	6 – 11 days
najlacnejsie-knihy.sk	2 – 9 days  (it also depends on the availability of the book)

Author

Based on the length of delivery, the best e-shops are martinus.sk and pantarhei.sk.

### **Comparison of accompanying order services in selected four e-shops**

Regarding the accompanying services when ordering in the four selected e-shops it is possible to confirm that they all use the same services. The customer is informed by e-mail about the receipt and processing of the order, the customer can monitor the status of the order, the customer is sent an SMS on the day the order is or will be delivered to the desired location. Regarding complaints and contact with e-shop operators, it is not possible to fully compare all four e-shops, as there was no need to communicate with

them for any reason. It is only possible to highlight the quick reaction of the operators of e-shop megaknihy.sk to the sent question via e-mail.

## CONCLUSION

As can be seen, in the described example of four e-shops focused on the sale of books, e-shops in Slovakia currently use several ways to deliver ordered goods to the customer. In most cases, the customer has a choice of several options how the goods will be delivered or where they can pick them up. However, as can be seen in this example, not all e-shops offer customers the choice of all delivery options that are currently widespread and used. The biggest drawback is that even though the e-shops use the services of the Slovak Post to deliver the order to the customer, not every e-shop has the choice to have the order delivered to the post office, home or left in a locker using BalikoBOX services. However, as far as the prices of order delivery options or accompanying delivery services are concerned, in this particular case the e-shop is not a big deal. Prices of services are approximately the same and accompanying services such as informing the customer about receiving and processing the order via mail, the ability to monitor the status of the order or timely informing the customer about the time of order delivery are provided by all selected e-shops and work smoothly. All in all, at least the four selected e-shops are working reliably over the last mile and provide customers with sufficient services that can still be improved.

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