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THE INFLUENCE OF THE COVID-19 CRISIS ON THE FORMATION OF LOGISTICS QUALITY

Natalyia Chornopyska, Lidiia Bolibruch. *"The influence of the COVID-19 crisis on the formation of logistics quality".* Relevance of research. COVID-19 crisis has led to an unequal consequence. Some industries collapsed, some - reached the top of their development. Thus, E-commerce passed a three-year path during the pandemic. Such rapid growth has led to logistical reconsideration of the e-commerce market, which raises the issue of logistics services. Despite the presence of many methodological and applied developments, the issue of measurability of logistics quality, a set of evaluation criteria for the quality of logistics services remains debatable, and due to recent events caused by the COVID-19 pandemic, suitability of applied evaluation criteria to variable environmental requirements. Thus, the problem of market value transformation of logistics needs further research.

The purpose of the study is to further develop guidelines for assessing the quality of logistics in view of current post-COVID-19 challenges. For this goal achievement it was necessary to solve the following tasks: to conduct marketing research on the quality of logistics of e-commerce in quarantine and, on this basis, to make conclusions about the transformation of the value of logistics and B2C market, which will be reflected in a set of evaluation criteria for logistics quality.

Methods: express survey of 240 e-consumers in 19 regions of Ukraine during April-May 2020 on the basis of an online-questionnaire created on Google Forms platform and shared on social networks like Facebook, Instagram, Telegram and Viber.

Conclusions and value added. The results of the study have showed that in modern conditions the formation of the quality of logistics in the B2C market is influenced by the following criteria: flexibility, timeliness, completeness, wholeness, security and E2E-interaction. It is important for consumers to be able to independently choose additional delivery functions - place, time, delivery period, method of payment, which indicates the need to develop flexibility in the services of logistics operators. The modern consumer values his time, respectively, so the logistics service provider doesn't have the right to make a mistake in completing the order or improper

storage of goods. The transformation of the value of logistics services, in the post-COVID-19 conditions, concerns online interaction and speed of data exchange with the logistics service provider: contactless technologies, gadgets and applications that provide seamless online work, regardless of location. Online interaction, in particular online shopping, according to the study, attracts them with its simplicity, the ability to compare prices on different platforms, the availability of a wide range of goods and saving time. Thus, the value of the benefits of digitalization increases. Those logistics providers that are more technologically advanced have a significant competitive advantage. E2E determine the value.

Keywords: COVID-19 crisis; e-commerce market; online shopping; e-consumer; quality of logistics; logistics provider; methods for evaluation the quality of logistics; evaluation criteria; value; E2E-interaction; logistics services

Наталія Чернописька, Лідія Болібрux. «Вплив кризи COVID-19 на формування якості логістики». Актуальність дослідження. Криза COVID-19 розподілилася нерівномірно. Окремі галузі занепали, інші – досягли свого піку. Так, e-commerce за період пандемії пройшла трьохрічний шлях. Такий стрімкий ріст призвів до перегляду логістичної складової ринку e-commerce, що актуалізує питання якості логістичних послуг та дослідження проблеми трансформації цінності логістики з погляду ринку.

Метою дослідження є подальший розвиток методичних положень оцінювання якості логістики з огляду сучасних викликів Post- COVID-19. Для досягнення поставленої мети необхідно було вирішити такі завдання: провести маркетингове дослідження якості логістики інтернет-торгівлі в умовах карантину і, на цій основі, зробити висновки відносно трансформації цінності логістики та ринку B2C, що знайде своє відображення в наборі оцінних критеріїв якості логістики.

Методика дослідження: експрес-опитування 240 e-споживачів у 19 областях України протягом квітня-травня 2020 р. на підставі створеної за допомогою Google Forms та розповсюдженої у таких соціальних мережах як Facebook, Instagram, Telegram та Viber анкети.

Висновки. Як показали результати проведеного дослідження, в сучасних умовах на формування якості логістики на ринку B2C впливають такі критерії: гнучкість, вчасність, комплектність, цілісність, безпечність та E2E-взаємодія. Трансформація цінності логістичної послуги, в post-COVID-19 середовищі, стосується он-лайн взаємодії та швидкості обміну даними з постачальником логістичної послуги: безконтактні технології, гаджети та додатки, що забезпечують безперебійну он-лайн роботу, незалежно від місця знаходження. Он-лайн взаємодія, зокрема он-лайн покупки, за результатами дослідження, приваблюють їх своєю простотою, можливістю порівнювати ціни на різних платформах, доступністю широкого асортименту товарів та економією часу. Підвищення рівня діджиталізації спровокувало зміну фокусу цінності логістичної послуги для споживачів, тому власна мобільність та можливість економії часу для сучасного клієнта стали пріоритетними. Отже, збільшується цінність переваг, що дає діджиталізація. Ті логістичні оператори, які є більш просунутими технологічно, мають суттєву конкурентну перевагу. E2E визначає цінність.

Ключові слова: криза COVID-19; ринок e-commerce; інтернет-покупки; e-споживач; якість логістики; логістичний оператор; методи оцінки якості логістики; оцінні критерії; цінність; E2E-взаємодія; логістичні послуги.

Наталія Чернописька, Лидия Боллибрux. «Влияние кризиса COVID-19 на формирование качества логистики». Актуальность исследования. Кризис COVID-19 распределился неравномерно. Некоторые отрасли упали, другие – достигли своего пика. К примеру, e-commerce за период пандемии прошла путь на три года вперед. Такой стремительный рост привел к пересмотру логистической составляющей рынка e-commerce, что актуализирует вопрос качества логистических услуг, исследования проблемы трансформации ценности логистики с точки зрения рынка.

Целью исследования является дальнейшее развитие методических положений оценки качества логистики с учетом современных вызовов Post- COVID-19. Для достижения поставленной цели необходимо было решить следующие задачи: провести маркетинговые исследования качества логистики интернет-торговли в условиях карантина и на этой основе сделать выводы

относительно трансформации ценности логистики и рынка B2C, что найдет свое отражение в наборе оценочных критериев качества логистики.

Методика исследования: экспресс-опрос 240 е-потребителей в 19 областях Украины в течение апреля-мая 2020 на основании созданной с помощью Google Forms и распространенной в таких социальных сетях как Facebook, Instagram, Telegram и Viber анкеты.

Выводы. Как показали результаты проведенного исследования в современных условиях на формирование качества логистики на рынке B2C влияют следующие критерии: гибкость, своевременность, комплектность, целостность, безопасность и E2E-взаимодействие. Трансформация ценности логистической услуги, в post-COVID-19 условиях, касается он-лайн взаимодействия и скорости обмена данными с поставщиком логистической услуги: бесконтактные технологии, гаджеты и приложения, обеспечивающие бесперебойную онлайн работу, независимо от места нахождения. Онлайн-взаимодействие, в том числе он-лайн покупки, по результатам исследования, привлекают их своей простотой, возможностью сравнивать цены на разных платформах, доступностью широкого ассортимента товаров и экономией времени. Повышение уровня диджитализации спровоцировало изменение фокуса ценности логистической услуги для потребителей, так собственная мобильность и возможность экономии времени для современного клиента стали приоритетными. Следовательно, увеличивается ценность преимуществ, которые дает диджитализация. Те логистические провайдеры, которые являются более продвинутыми технологически, имеют существенное конкурентное преимущество. E2E определяет ценность.

Ключевые слова: кризис COVID-19; рынок e-commerce; интернет-покупки; е-потребитель; качество логистики; логистический провайдер; методы оценки качества логистики; оценочные критерии; ценность; E2E-взаимодействий; логистические услуги

Introduction. The world was gripped by an unpredictable coronavirus pandemic that forced quarantine restrictions on more than a third of the world's population. Such drastic actions have led to unpredictable consequences for the economy and development of many countries at the global level, as well as the purchasing power of the population and its mobility. In particular, the pandemic has a great impact on the logistics industry, which is now demonstrating its flexibility and importance in the general state of countries' lives. In such extreme conditions, humanitarian logistics has become critical [2].

COVID-19 crisis wasn't smooth. Some industries collapsed, some - reached the top of their development. The COVID-19 pandemic has led to the accelerated growth of e-commerce. Analyzing the e-commerce market in Ukraine, it is tracing the rapid development of the industry in recent years. In particular, in 2018, the Ukrainian market was ranked second in Europe in terms of growth rate (30%), in 2019 it was 17%, and, according to preliminary forecasts, in 2020 - 15% [3]. However, an external factor became unpredictable - the coronavirus pandemic,

which stimulated a sharp increase in demand for online shopping. In April 2020 the E-commerce market reached the mark of 2023 (within 8 weeks the path has been covered in 3 years) [4]. Such rapid growth has become a serious challenge for logistics, which has highlighted the problem of quality logistics services.

The works of such founders of logistics science as Lambert D., Bauersachs D., Pfohl H. and domestic classics - Krykavsky E, Grygorak M., especially their latest ones, are devoted to theoretical and applied issues of logistics quality [5,6]. Logistics quality assessment methodologies have been developed by leading think tanks and consulting centers, including the World Bank, which calculates and publishes the Logistics Efficiency Index (LPI), where quality is one of the six sub-indices [7]. The following scientists made a significant contribution to the coverage of the method of assessing the quality of enterprise logistics: Meffert G. [8], Parasuraman A. [9], Bruhn M. [10], Voźniak J. [11], Fraś J. [12], Nakonechna. T., Gryniv N. [13].

At the same time, despite the availability of many methodological and applied works,

the issue of logistics quality assessment, a set of evaluation criteria for the quality of logistics services is still debatable (there is no united approach or view, lack of coherence and formalization), and due to recent developments and the question of the suitability of the applied evaluation criteria for the changing requirements of the environment. Thus, the problem of market value transformation of logistics needs further research.

The purpose and objectives of the study. The purpose of the study is to further develop guidelines for assessing the quality of logistics in view of current post-COVID-19 challenges. For the achievement of this goal it was necessary to solve the following tasks: to

conduct marketing research on the quality of logistics of e-commerce in quarantine and, on its basis, to make conclusions about the transformation of the value of logistics and B2C market, which will be reflected in a set of evaluation criteria for logistics quality.

Primary materials and results. The marketing research was conducted in April-May 2020 and included an express survey based on an online questionnaire created on Google Forms platform and shared on social networks like Facebook, Instagram, Telegram and Viber, which served as the main research tool. The research methodology provided details of objectives, search questions and hypotheses (parameters) that should be defined (Table 1).

Table 1

Objectives, search questions, hypotheses (parameters) of study

Objectives of the study	Search questions	Hypotheses (parameters)
1. To assess the demand in the online format in the Ukrainian market and to determine the impact of quarantine on the online shopping intensification.	How often do consumers shop online?	In the structure of trade, online sales are still inferior to offline sales, but there is a significant increase in demand for online services during quarantine restrictions.
	Did consumers make online purchases during quarantine?	
	Will consumer buying behavior change after quarantine?	
	What types of factors affect online shopping?	The main advantage of online shopping is a wide range of hard-to-reach products and time savings.
2. To identify the main logistics operators that deliver online stores goods, method of delivery and determine the level of quality of logistics services.	What goods are in demand during quarantine?	The largest share of online shopping structure is accounted for by expensive appliances, clothing and restaurant meals, but during quarantine the demand for food and household chemicals rose sharply.
	What platforms are used for goods ordering?	Most often, orders are placed on specialized online trading platforms or social networks.
	How was the delivery carried out?	The service of goods delivery to the post office is popular, but on quarantine conditions consumers more often use courier delivery.
	Which postal operators are serving e-commerce market?	"Nova Poshta" has the largest volume of deliveries to the branch and via courier in Ukraine, but "Ukrposhta" makes international shipments.
Which courier services are the most popular?		

End of Table 1

	What evaluation criteria can be used to determine the quality of logistics services of a postal operator or courier service?	It is assumed that the most important for buyers are the timeliness of delivery, its completeness and flexibility, but in quarantine, these criteria may change.
3. To clarify the profile of the target audience, whether it is possible to change the structure of consumers after quarantine.	Sex?	Most often, online stores orders are made by progressive young people under 25 who live in large cities, study or work there. Most consumers are women. In the fast life pace, orders are used to by smartphones.
	Age?	
	Activity?	
	Type of settlement?	
	What electronic device do you use to make online purchases?	

Complied by authors.

Questionnaire questions were developed based on the search questions transformation.

The survey started at the end of April 2020 and covered 240 respondents, the breadth of the geography of the study - 19

regions, of which the largest number of participants are from Lviv (61%), Kyiv (17.4%) and Ivano-Frankivsk (8.3%) regions. Geographical coverage and profile of the target audience of the study are presented in Fig.1a-1b.

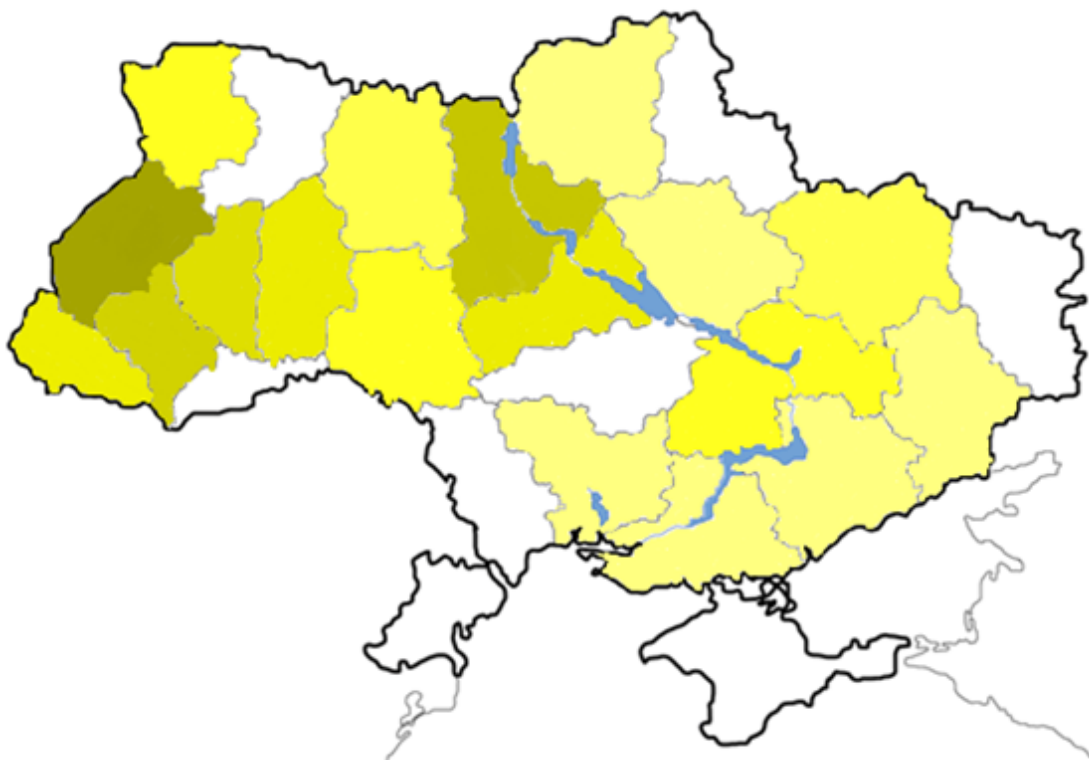


Figure 1a. Geographical coverage and profile of the target audience of the study

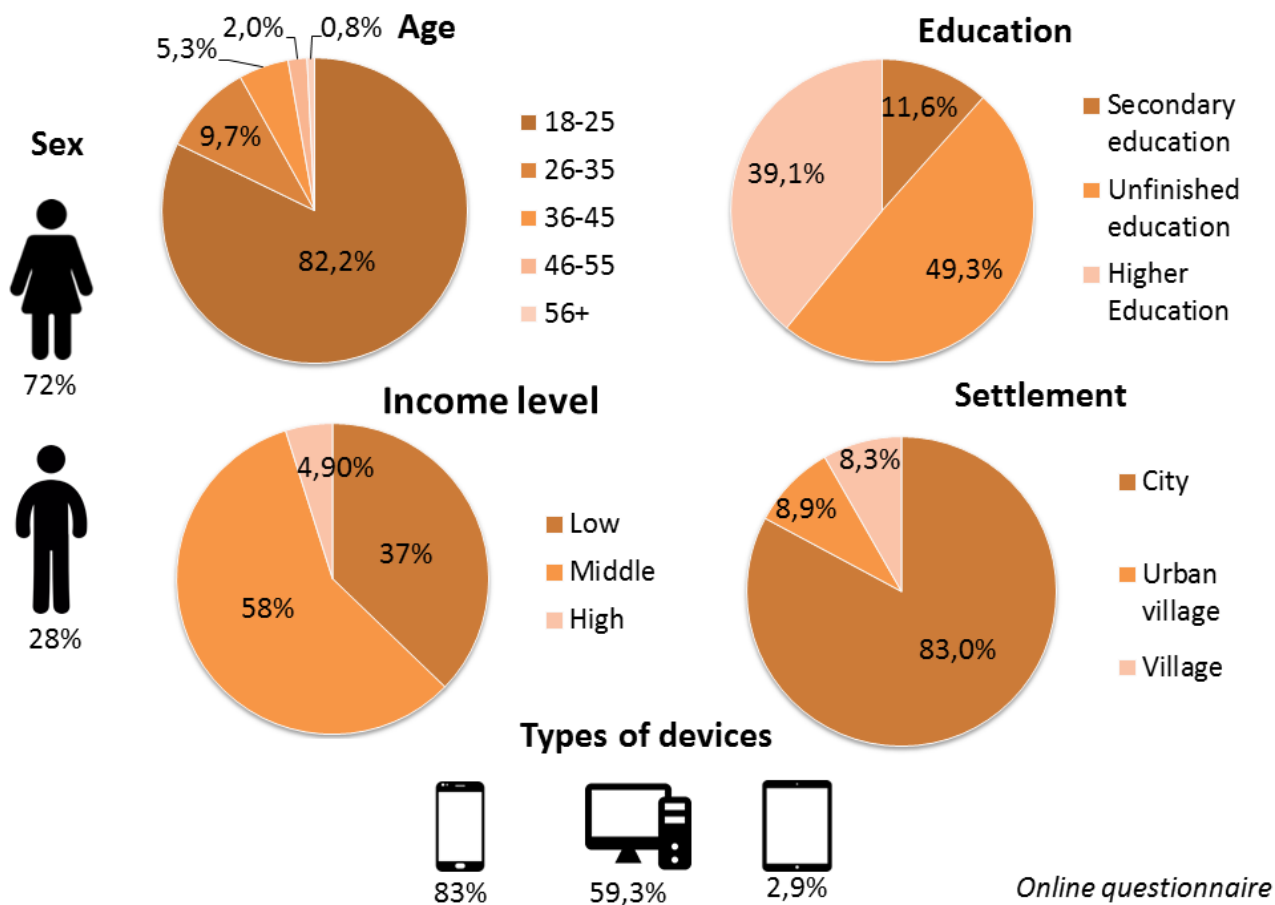


Figure 1b. Geographical coverage and profile of the target audience of the study
 Complied and calculated by authors based on results of provided survey

The profile of the target audience of online commerce confirms that the majority of respondents are women aged 18 to 25 who study or work and have an average income. Virtually everyone lives in cities where more logistics operators are available, and uses smartphones (83%) and computers (59.3%) for online shopping.

An infographic of the survey results on the demand for online shopping in the Ukrainian market during quarantine is presented in Fig.2. According to it we can conclude that online shopping in Ukraine is

quite popular (58.3%). Despite the fact that online shopping has entered the domestic market quite recently, today it has its target audience, which uses such services both under normal conditions and during quarantine restrictions (19.6%). Now we can see some growth in demand for online products (76.6%), but according to most respondents, their shopping habits will not change after quarantine, and only 20.6% are convinced that they will use online services more often.

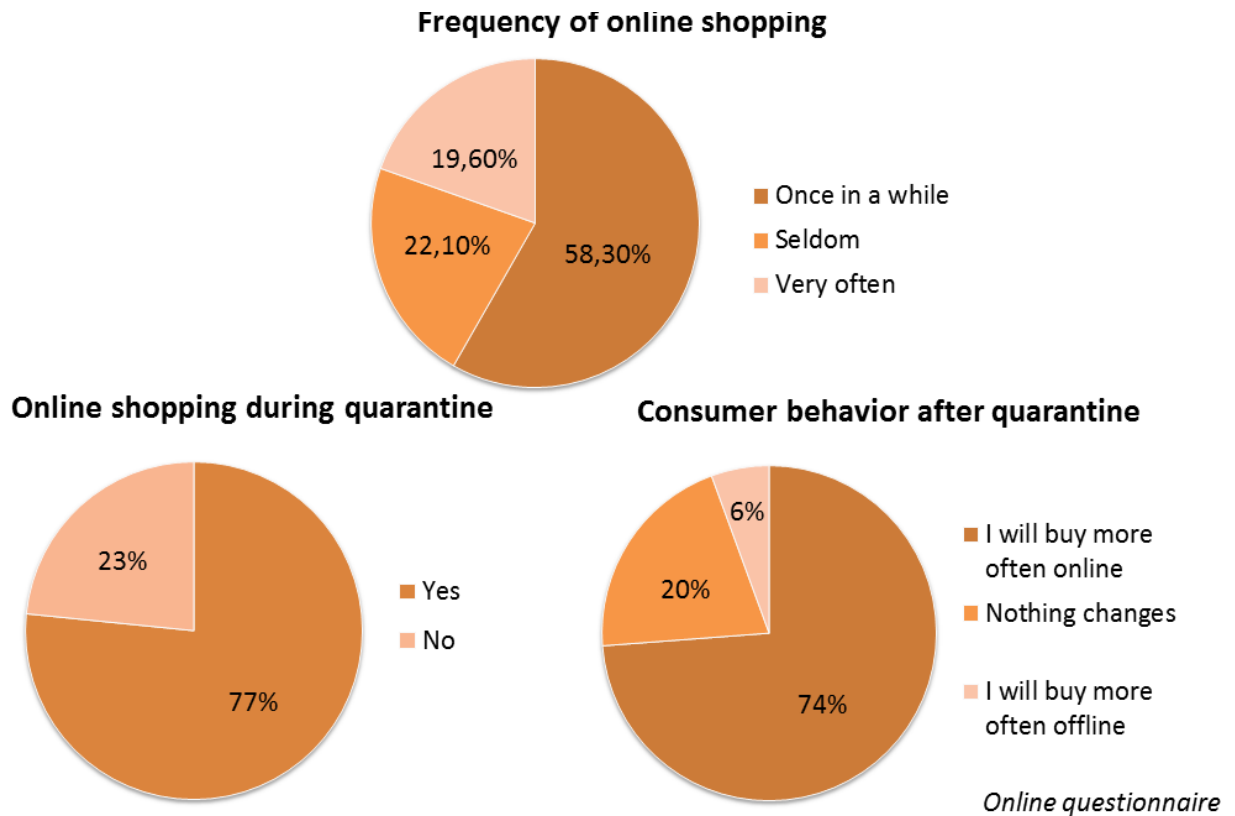


Figure 2. Buying behavior during quarantine
 Compiled and calculated by authors based on results of provided survey

Online shopping provides those consumer values that are difficult for ordinary offline stores to provide, and what are the most valuable for shoppers (Fig. 3). It was assumed that in the conditions of quarantine unpredictable circumstances (restriction of movement of people, reduction of product range due to mass purchase) will become a significant factor influencing demand, but respondents note the following criteria: convenience of ordering, simple process of ordering products (67.2%); possibility to compare prices on different platforms (57.6%); access to a wider range of goods that are limited or not represented in the domestic market (57.1%); saving time (52.1%).

At the same time, consumers of online stores more often buy clothes, shoes and accessories (56.7%), cosmetics and perfumes (39.4%) and appliances (33.3%), due to the favorable offers of online stores for these

goods, a wider range and increase in the total time spent at home.

The infographic of the results in Fig. 4 shows the results of the survey on the quality of services for ordering and delivery of goods, as well as determines the most commonly used methods of provision.

Thus, consumers equally often form their orders either on the official websites of stores, or in their absence on special online trading platforms, such as ROZETKA, OLX, PROM, Kasta (69.3%), which have a wide range of different products. Such sites contain all the evaluation criteria that determine the consumer value for consumers. Buyers often order clothes, accessories and cosmetics through Instagram accounts. At the same time, delivery services as Glovo, Uber Eats, Raketa (28.1%) have their network only in large cities and usually supply restaurants meals or food from supermarkets.

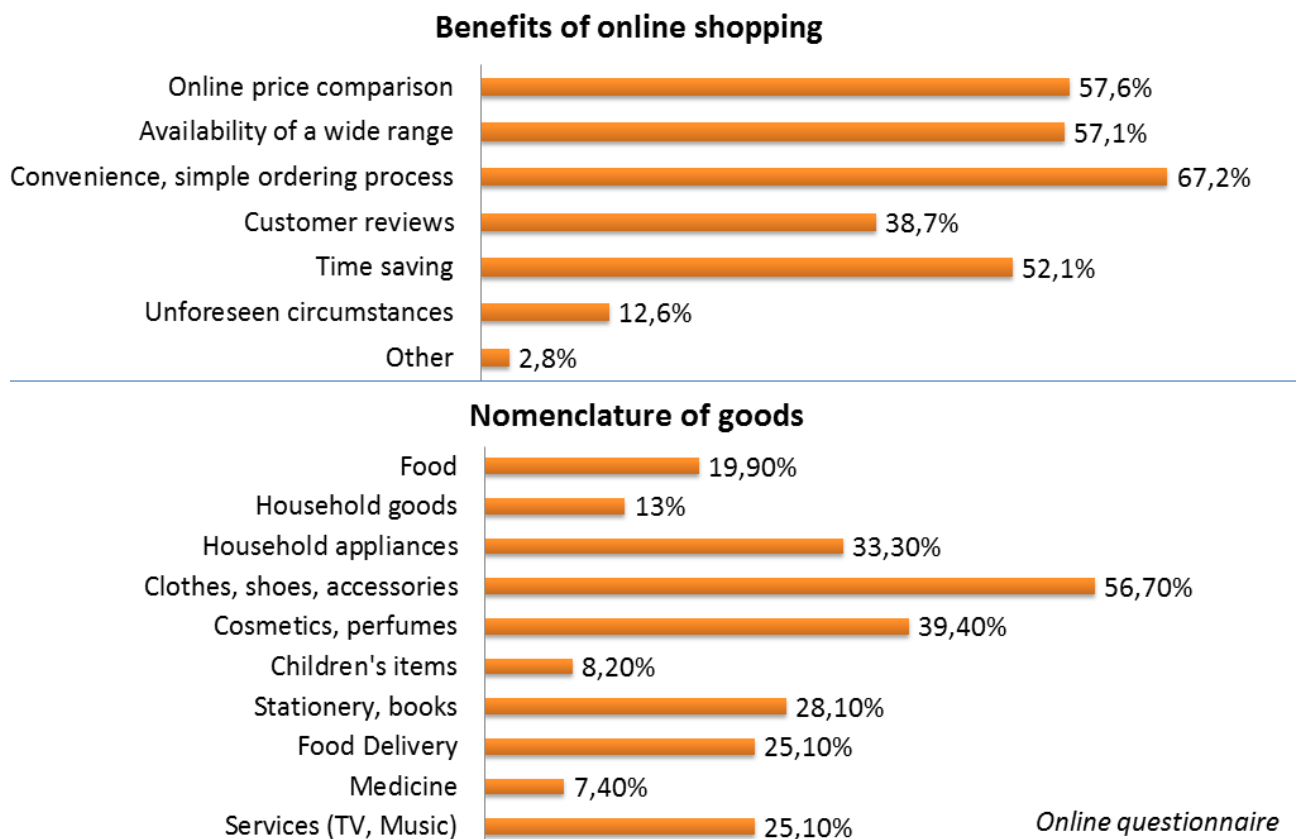
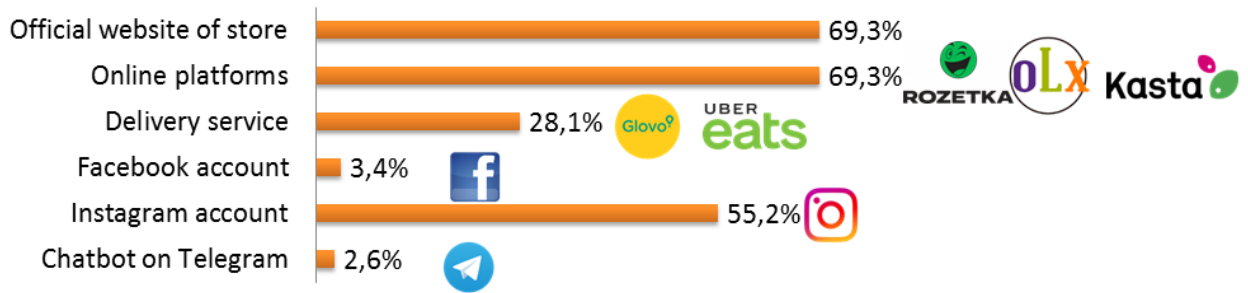


Figure 3. Infographics of online shopping during quarantine
Complied and calculated by authors based on results of provided survey

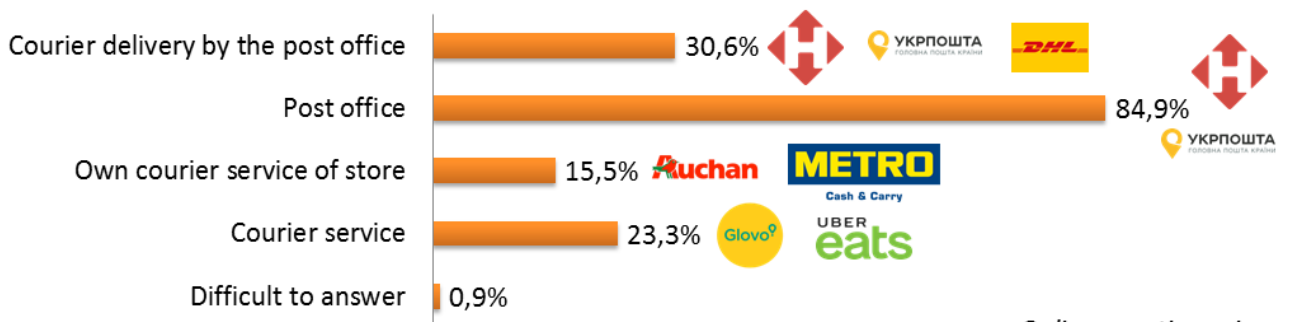
According to the survey, most orders are picked up by buyers at the operator's post offices (84.9%), the most popular of which is Nova Poshta, which delivers orders within Ukraine. UkrPoshta, Meest Express, DHL etc.

deliver goods from abroad. Despite quarantine, the services of a postal operator courier (30.6%) or a courier service such as Glovo, Uber Eats, Raketa (23.3%) are used much less.

Online platforms for ordering

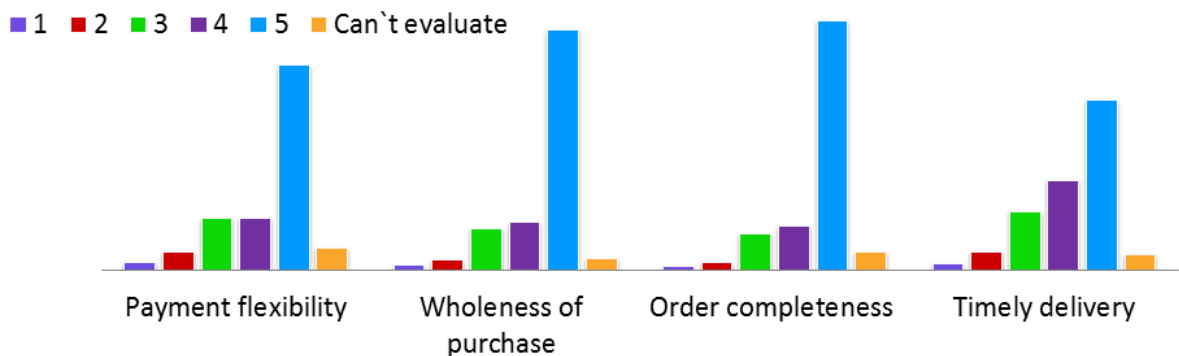


Delivery of goods

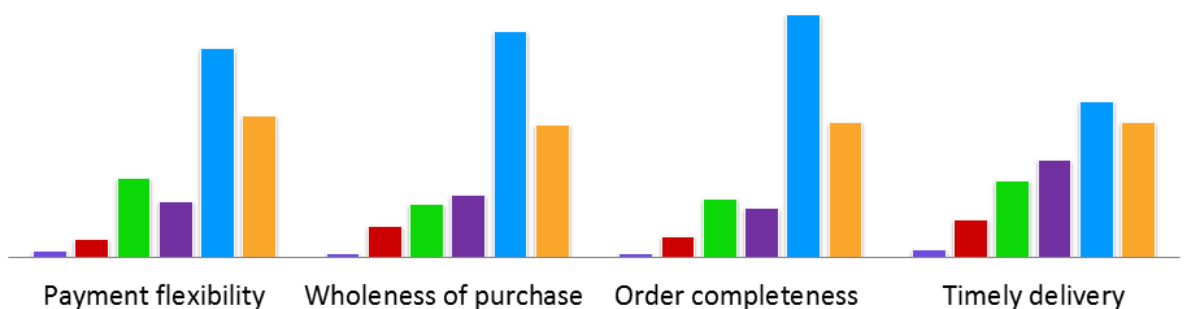


Online questionnaire

Evaluative criteria for delivery of goods to the post office



Evaluative criteria for courier delivery



Online questionnaire

Fig.4. Infographics of the quality of online shopping logistics services
 Compiled and calculated by authors based on results of provided survey

Assessing the quality of work of the postal operator of the provided courier service, consumers said that they were satisfied with the delivery services and praised the presented criteria, but the most important among them were: completion of the order according to customer requirements, integrity of the purchase, namely product appearance in the process, and payment flexibility. At the same time, due to the pandemic, the demand for online shopping has increased, which has provoked full employment of staff, loading of all rolling stock and, consequently, reduced punctuality.

Conclusions. The marketing research was preceded by the author's survey study on the evaluation of the quality of logistics. Among the ten methods studied, the choice of the authors was focused on the method of SERVQUAL, from which 22 indicators were borrowed that characterize the quality of logistics, grouped by 5 features: material aspect; reliability; satisfaction of client's requirements; professionalism of employees; empathy and knowledge of customer needs. However, at the trial stage, the researchers faced the following problems: 1) some indicators were perceived ambiguously and needed further clarification (for example, from the group "material aspect of the service"); 2) some criteria were perceived as appropriate, and this should not be asked, but should be performed as best as possible (the group "empathy and knowledge of needs" was rejected); 3) some criteria, according to respondents, do not create added value to the consumer, so they were also excluded from the list. As a result, 22 indicators were reduced to 4: completeness, wholeness, flexibility and

timeliness. And, - the criterium "safety" which provides observance of sanitary requirements (disinfection, use of protective suits, observance of social distance etc.) was added.

According to the results of the study, it is important for consumers to be able to independently choose additional delivery functions - place, time, delivery period, method of payment, which indicates the need to develop flexibility in the services of logistics operators. The modern consumer values his time, respectively, so the logistics service provider doesn't have the right to make a mistake in completing the order or improper storage of goods.

The transformation of the value of logistics services, according to respondents, concerns online interaction and speed of data exchange with the logistics service provider: contactless technologies, gadgets and applications that provide seamless online work, regardless of location. Online interaction, in particular online shopping, according to the study, attracts them with its simplicity (69.7%), the ability to compare prices on different platforms (58.8%), the availability of a wide range of goods (57.5%) and saving time (52.9%). Thus, the value of the benefits of digitalization increases. Those logistics providers that are more technologically advanced have a significant competitive advantage. E2E determine the value.

The obtained results change the understanding of the fullness of the quality of logistics evaluation criteria that are valuable for the target market, but do not solve the problem of measurability of the quality of logistics services, which will be the prospect of further research.

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