

# The application of digital tools in Ukrainian pharmacies within holistic marketing

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## Abstract

The paper aimed to analyze the attitude and awareness of pharmacists to the application of digital tools in the activities of Ukrainian pharmacies within holistic marketing. A survey of 745 pharmacists from different regions of Ukraine was conducted. Many pharmacists are wary of the legalization of virtual pharmacies in Ukraine. At the same time, they have a positive attitude regarding such digital tools as free online doctor's and pharmacist's consultations and the availability of mobile applications. Almost half of the respondents rate online platforms' role in pharmacists' continuous professional development as "very important." The most popular activities are online testing (70.9%), online training exercised by mentors (51.9%), and corporate webinars (34.6%). Based on the research results, a structured model was developed to improve the customer-centricity of pharmacies within holistic marketing and the process of digitalization.

## Keywords

Digital tools, holistic marketing, online pharmacy, pharmaceutical market, Ukraine

## Introduction

The global COVID-19 pandemic has accelerated the digitalization of all business processes. The pharmaceutical industry is no exception, as it covers an integral part of our lives – our health (Jordan et al. 2021). It should be noted that the introduction of innovative digital approaches to providing the population with high-quality and timely pharmaceutical care creates additional value for customers (Yang et al. 2021). To be exact, customer orientation is the basic concept of holistic marketing. A holistic concept of marketing was proposed by F. Kotler together with K. Keller (Keller et al. 2006). Due to this concept, the inter-related work of all company's departments can create the most productive cooperation strategy with customers and

other stakeholders that will positively impact its sustainable development (Aliekperov 2021). Holistic marketing combines four critical marketing approaches: social and ethical marketing, relationship marketing, internal and integrated marketing (Keller et al. 2006; Aliekperova et al. 2020; Almahrab et al. 2022). When applying innovative marketing tools, pharmacies should consider individual customers' and other stakeholders' interests, including society. That is why integrating digital tools into holistic marketing is a relevant area of research.

Analyzing the world experience, we saw that many pharmacies use modern Internet marketing trends. For example, leaders of the US pharmaceutical market, CVS Pharmacy and Walgreens Boots Alliance (Fein 2019), have been integrating their activities into the online

environment for a long time. They have used modern digital tools to improve customer engagement (Clark et al. 2017). In the United States, online pharmacies can retail medicines at a distance. Still, they must follow specific requirements: a license for this type of activity and a prohibition on online prescription drugs. Online pharmacies may operate only in the state in which they are registered. The exception is Pennsylvania, which recognizes the pharmacy license of any other US state. The FDA controls the activities of online pharmacies, and accreditation of pharmacies is carried out under the VIPPS program – Verified Internet Pharmacy Practice Sites for compliance with the licensing conditions of the state where the pharmacy is located and where the medicines will be delivered (Brown 2014).

In the European Union (EU), according to Directive 2011/62/EU, online pharmacies are allowed to sell over-the-counter (OTC) medicines (Directive 2011/62/EC 2011). Before Directive 2011/62/EU, there were no general rules for online sales of medicines in the EU, and individual countries regulated such sales independently. For example, in Italy, the Code of Ethics of the Federation of Professional Pharmacists' Associations prohibited the online sale of prescription and non-prescription medicines (Lombardo et al. 2019).

The COVID-19 pandemic has caused changes in Ukrainian legislation, namely the introduction of online sales of medicines. On September 17, 2020, the Law of Ukraine "On Amendments to Article 19 of the Law of Ukraine "On Medicinal Products" Regarding Electronic Retail Trade of Medicinal Products" entered into force (Resolution of the Cabinet of Minister of Ukraine dated 23/03/2020 № 220).

A pharmacy can carry out online trade of medicines, provided that:

- it is included in the special list of organizations that have the right to carry out online trade of medicines;
- the information must be contained in the License Register;
- the information on the website should allow the customers to make sure that this pharmacy has the right to trade online;
- the option of providing online consultations by a pharmacist (if needed) should be available;
- the shipping cost is indicated.

Online trade of medicines that require a doctor's prescription and strictly regulated medications is prohibited. Nowadays, pharmacies in Ukraine are actively implementing digital tools in all business processes. So, for a more general study of this issue, closer attention should be paid to the digital transformation of the Ukrainian pharmaceutical market.

The novelty of the work is analyzing the use of digital tools in Ukrainian pharmacies according to the concept of holistic marketing for improving customer experience and creating customer-centered pharmacies. The study's object is the digital transformation process of Ukrainian

pharmacies within holistic marketing. The work aims to analyze the awareness and attitude of pharmacists to digitalization processes in Ukrainian pharmacies within holistic marketing.

To achieve this goal, it is necessary to solve the following tasks:

- to investigate the awareness and attitude of pharmacists regarding the legislative regulation of online trade in Ukrainian pharmacies and its possible risks;
- to analyze digital tools used in pharmacies to increase customer satisfaction and to determine the attitude of pharmacists toward them;
- to substantiate the role of online platforms in the continuous professional development of pharmacists;
- to develop the structured model of the digital tools' application in pharmacies within holistic marketing.

## Methods

### Sample justification

In this study, we used a quantitative analysis method – probability sampling techniques, particularly simple random sampling. This kind of sampling is representative because it is uniform and has typical characteristics in all cases (Kumar 2018; Walliman 2016; Aliekperova 2018). Also, it can reflect the genuine attitude and awareness of the respondents regarding the use of digital tools in the Ukrainian pharmaceutical market. The minimum required sample size was 380 participants with a confidence level of 95% and a 3.5% sampling error, based on an expected population of 745 pharmacists and an anticipated response of 50%. RaoSoft, an online sample size calculator, was used to calculate the sample size (Raosoft sample size calculator).

The respondents are pharmacists from all regions of Ukraine: the total number of respondents is 745. The minimum required sample size was 380 participants with a confidence level of 95% and a 3.5% sampling error, based on an expected population of 745 pharmacists and an anticipated response of 50%. RaoSoft, an online sample size calculator, was used to calculate the sample size (Raosoft sample size calculator). Most respondents' age range is 25–34 (74.3%). The vast majority of respondents have over five years of work experience (54.4%) and work in mega-chain pharmacy networks (69.3%). For more detailed information about the respondents, see Table 1.

### Questionnaire design

A questionnaire survey was carried out from February to April 2021 and was analyzed using Excel (Microsoft, USA). The questionnaire was created with the use of Google Forms. Because of the COVID-19 pandemic, it was distributed through direct mail, social networks, and various messengers.

**Table 1.** Respondents' characteristics.

Evaluation criteria	Number of respondents and percentage
General number	745 respondents: Male – 5.6% Female – 94.4%
Age	Up to 25 – 42.1% 26–34 – 32.2% 35–44 – 15.8% 45–54 – 8.6% Above 55 – 1.2%
Position	Pharmacist's assistant – 51.1% Pharmacist – 18.9% Head of a pharmacy – 23.5% Head of a pharmacy department – 0.3% Other – 6.2%
Education	Intermediate special (college) – 53.6% Higher education – 46.3%
Work experience	Up to 1 – 7.8% 1–5 – 37.9% 6–10 – 20.3% 11–15 – 17.3% Above 15 – 16.7%
Size of pharmacy network	Single pharmacy – 3.8% Small pharmacy chain (2–5 outlets) – 4.3% Medium pharmacy chain (6–10 outlets) – 4.6% Big pharmacy chain (11–25 outlets) – 6.4% Large pharmacy chain (26–50 outlets) – 11.7% Mega-chain (over 50 outlets) – 69.3%
Region of operation in Ukraine	Kyiv – 29.7% Kyiv region – 8.7% Western – 15.2% Eastern – 3% The South – 8.5% The North – 21.1% Central Ukraine – 13.9%

The questionnaire consisted of four main parts. First, the respondents' demographic data, educational level, and work experience in the pharmacy were studied. In the second part, we assessed pharmacists' awareness of the legal regulation of online pharmacies and the possible risks that patients may face (Lombardo et al. 2019; Alyahya et al. 2020). The third part of the questionnaire was related to the use of digital tools in the activities of Ukrainian pharmacies while interacting with customers. The final part of the questionnaire determined the role of digital tools in the continuous professional development of pharmacists.

Three experts reviewed the questionnaire to detect ambiguous items, too scientific errors in questionnaire design, and the relevance of each item to the construct. Before its application, a pilot test was conducted on 50 respondents, and the questionnaire was tested for validity using the Corrected Item-Total Correlation method (Howard et al. 1962).

The materials used in this article are the official websites of authorized organizations, regulatory documents, and scientific publications on the subject. The study was conducted using the methods of statistical, logical, comparative analysis, and generalization of information.

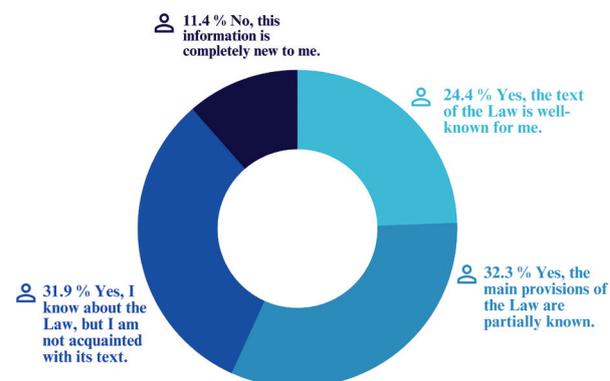
## Results

### Pharmacists' awareness and attitude toward the legislative regulation of on-line pharmacies

One of the elements of holistic marketing is **socio-ethical marketing**, which consists of supporting the company's sustainable development by protecting the environment and implementing charitable projects and social programs per applicable law. Pharmacists should know the basic regulatory requirements and clearly understand the pharmaceutical regulation.

Thus, the first stage of our research was assessing pharmacists' knowledge regarding government regulation of the e-pharmacy in Ukraine. In the process of questioning, it was found that only 1/4 of the respondents were well acquainted with the Law of Ukraine "On Amendments to Article 19 of the Law of Ukraine "On Medicinal Products" Regarding Electronic Retail Trade of Medicinal Products." However, most were heads of a pharmacy. At the same time, for 11.4% of respondents, the information was completely new. The results of the survey are shown in Fig. 1.

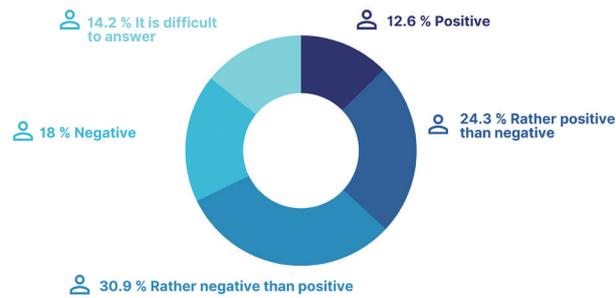
Almost half of the respondents (48.6%) fully supported it. At the same time, only 7.2% of respondents categorically don't support such changes in the legislation. About a third of the respondents (32.1%) had difficulties with the answer.



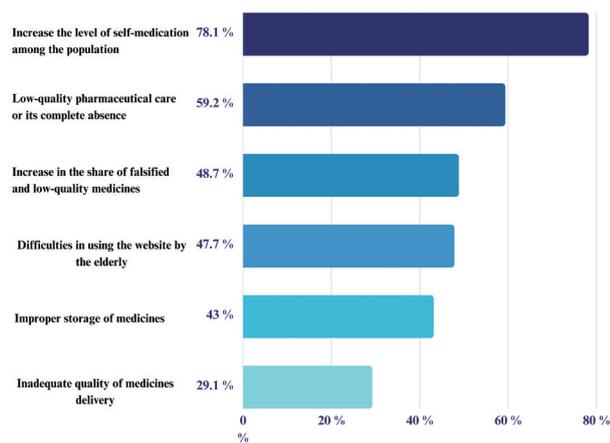
**Figure 1.** Distribution of awareness about the adoption of the Law of Ukraine "On Amendments to Article 19 of the Law of Ukraine "On Medicinal Products" Regarding Electronic Retail Trade of Medicinal Products".

Unlike Ukraine, where the online drug trade requires a pharmacy in its physical existence, in some countries in Europe, Asia, and America, remote medicine trade functions are performed entirely by virtual pharmacies (Shaya et al. 2020). The attitude of Ukrainian pharmacists regarding the legalization of such virtual pharmacies is presented in Fig. 2.

An analysis of the attitude of pharmacists to the legalization of virtual pharmacies showed that only 36.9% of respondents have a "positive" and "rather positive" than "negative" perspective. The rest of the survey participants demonstrate distrust towards this issue. According to



**Figure 2.** Distribution of the attitude of pharmacists to the legalization of virtual pharmacies in Ukraine, following the example of most countries in Europe, America, and Asia.



**Figure 3.** Distribution of risks after the legalization of virtual pharmacies in Ukraine.

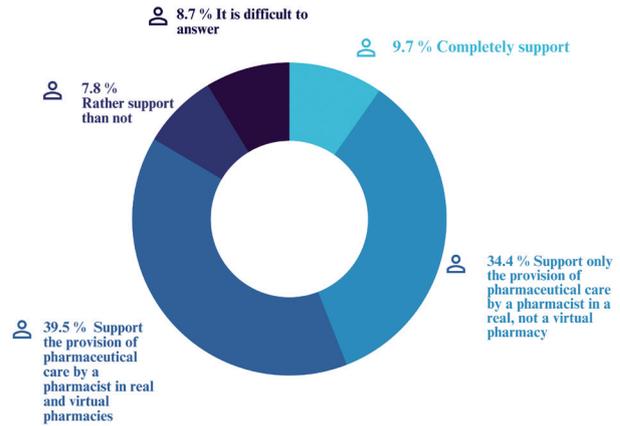
the respondents, such mistrust is related to the risks that consumers of medicines may face after the legalization of completely online pharmacies in Ukraine (Fig. 3).

According to the study results, pharmacists noted sufficiently high risks for all the proposed options. Specialists are most concerned about the increase in the level of self-medication (78.1%) and low-quality pharmaceutical care or its complete absence (59.2%).

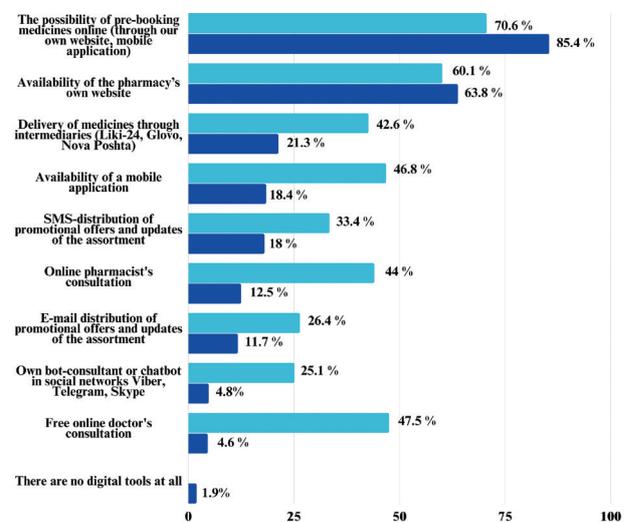
### Pharmacists' attitude on providing pharmaceutical care online

The quarantine restrictions made introducing online consultations with medical and pharmaceutical experts necessary. One of the aspects of holistic marketing is **integrated marketing** to create a brand through communication with the consumer. Assessing pharmaceutical specialists' attitudes to providing pharmaceutical care online is appropriate. The results are shown in Fig. 4.

Most respondents support providing pharmaceutical care online and offline, but more than a third of pharmacists do not trust the possibility of providing pharmaceutical care online. Experts believe that pharmaceutical care for patients should be carried out in real communication, directly improving pharmacotherapy and patient adherence to treatment.



**Figure 4.** Distribution of pharmacists' attitudes toward the provision of online pharmaceutical care.



**Figure 5.** An integrated evaluation of the frequency of digital tools used in improving customer service in the pharmacies and the level of pharmacists' attitude to their implementation in their activities.

The next item of our research was to determine the digital tools used in the pharmacies where the respondents work, as well as the level of attitude of pharmaceutical workers to their implementation in the institution's activities. The integrated evaluation of the survey results is shown in Fig. 5.

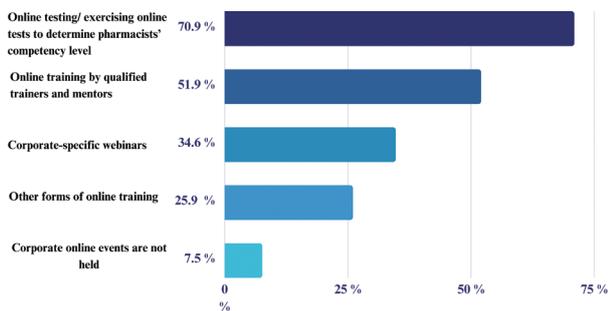
Most of the respondents believe that having their website and the possibility of online booking of medicines have a positive effect on meeting the needs of consumers in pharmaceutical care. The respondents also have a positive attitude regarding such digital tools in the activity of pharmacies as free online doctor's consultations, availability of mobile applications, and online pharmacist's consultations – 47.5%, 46.8%, and 44%, respectively.

According to the results, the lockdown affected the number of online orders in respondents' pharmacies. Almost half of the respondents (45.9%) noted that the number of online orders was considerably increased, and 27.2% indicated that the number of online orders rose, but not significantly.

## Pharmacists' evaluation of the digital tools' role in continuing professional development

One of the elements of holistic marketing is **internal marketing**, which means continuous staff training, motivation, and the creation of leadership skills. Ongoing training of pharmaceutical workers is essential to Good Pharmacy Practice and a holistic strategy tool. The next stage was the analysis of respondents' evaluation of online platforms' role in improving pharmacists' professional knowledge and skills. The majority of respondents (77.1%) believe that the part of such Internet portals is an essential step in increasing the professional competence of pharmacists.

Many pharmacies direct all their efforts to organize corporate events and online training to ensure the proper level of service and provide pharmaceutical care to the population. Only 7.5% of respondents noted that such measures are not carried out. Others pointed out that they are tested to determine their level of competence (70.9%), and they also participate in corporate training (51.9%), corporate webinars (34.6%), and other forms of online learning (25.9%). A significant number of pharmacies independently organize corporate events to improve the professional level of their employees. A study was conducted on the activities carried out in the respondents' pharmacies (Fig. 6).



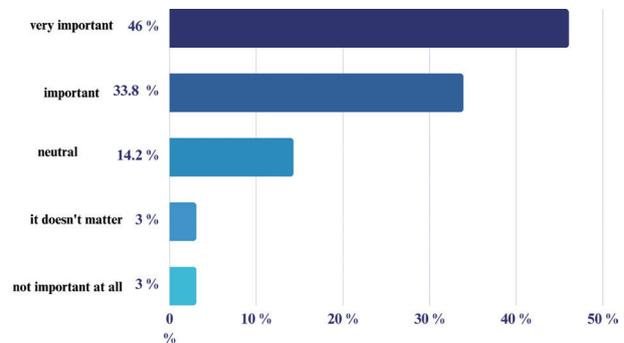
**Figure 6.** Online events that are held in respondents' pharmacies.

The frequency of these activities was divided into the following groups: 57.2% of respondents – regularly, 24.8% – occasionally, and 10.5% – very infrequently. 7.5% of respondents refrained from answering, considering the results of the previous question.

As an element of holistic marketing, **relationship marketing** focuses on building sustainable customer relationships and involves other stakeholders. One of the critical stakeholders of pharmacies is pharmaceutical companies. Therefore, analyzing the digital marketing tools in the relationship between pharmaceutical manufacturers and pharmacies is essential. Given the quarantine restrictions, pharmaceutical companies can provide online conferences and implement a variety of online training platforms.

According to the survey results, pharmaceutical companies hold events regularly (38.7%) in pharmaceutical chains. A further 35.7% do it occasionally, and 11.5% do it infrequently.

In this context, it was essential to assess the effectiveness of these activities for pharmacists. Therefore, the next and final point was formulated in the questionnaire (Fig. 7). According to the results obtained, almost half of the respondents (46.2%) estimate the effectiveness of such events as “very important,” and nearly a third of pharmacists assess them as “important.”



**Figure 7.** Evaluation of the effectiveness of events for pharmacies to increase the level of professional knowledge and skills of pharmacists.

## Discussion

Today, pharmacies increasingly use digital tools to interact with pharmacists and patients. For example, in 2020, the Netherlands introduced distance consultations with patients (video call, phone, email) to provide continuous pharmaceutical care (Merks et al. 2021). In Poland, since April 1, 2020, pharmacists have been allowed to independently prescribe an electronic prescription to a patient in a dangerous situation – for this purpose, the pharmacist conducts only a diagnostic interview with the patient (Zimmermann et al. 2021). In Ukraine, the digitalization process of pharmacies is also associated with introducing innovative tools. For example, pre-booking of medicines reduces the burden on pharmacists due to the customer's independent online choice of medicines, and the transfer to an electronic prescription ensures simple and fast dispensing of medicines, taking into account all essential options (INN, dosage, frequency of prescription, etc.) (Motruk 2019).

The introduction of digital technologies can significantly improve the service component of a pharmacy, which has a positive impact not only on increasing the number of loyal customers but also on the financial and economic metrics of the pharmacy, strengthening the brand of the pharmacy and its cheerful consumer's perception (Yang et al. 2021).

In the context of holistic marketing, online selling of medicines to the consumer is an element of **integrated marketing**, as the product is sold at a specific price (in particular, there is a flexible loyalty system), the Internet is a specific marketing platform, and mobile applications and websites provide a space for advertising and promotion of the product (Panigrahi et al. 2018). Digital technologies are improving the process of delivering medicines to consumers: using a mobile application and geolocation, consumers

find the right medicines at the nearest pharmacy and an attractive price, additionally creating their account with the ability to save the history of previous reservations and purchases, while being able to communicate online with specialists – a doctor or pharmacist (Khan et al. 2019).

However, there is a problem with dishonest websites that distribute low-quality and/or falsified medicines with violations of storage and delivery conditions (Fittler 2021). For example, in Hungary, during the 2020–2021 pandemic, it was found that patients visited online pharmacy websites, most of which were illegal. At the same time, illicit pharmacies significantly outnumbered legal ones. The majority (77.7%) of the identified online pharmacies were known to be unlawful; 55.5% of them sold medicines without a prescription (Pashkov et al. 2021). In June 2013, the U.S. Food and Drug Administration (FDA) identified 1677 websites that sold fake or substandard medicines without appropriate permits (Gabay 2015). The United States Food and Drug Administration launched the BeSafeRx program to address this issue, raising patient awareness about the dangers of purchasing prescription drugs from fake online pharmacies. BeSafeRx provides guidelines for identifying safe online pharmacies and helps patients ensure that the pharmacy is licensed by the patient's state board of pharmacy (Kumaran et al. 2020).

In addition, the United States Food and Drug Administration provides a «Warning Letter» to the website of pharmacies engaged in illegal activities related to the sale of medicines for the prevention and treatment of COVID-19 (Food and Drug Administration. Fraudulent Coronavirus Disease 2019). Taking into account the US experience in regulating the activities of online pharmacies, it is worth implementing some of its principles in Ukrainian practice, namely, creating a unique institution that will verify the legality of online portals that sell medicines or medical devices, forming a single database with open access for consumers (Lebed et al. 2020). In addition, it is important to raise awareness among pharmacists about the digital transformation of the pharmaceutical business.

A significant problem with electronic commerce in medicines is the risk of increased self-medication among the population, particularly during the global pandemic (Sadli et al., 2018). According to our survey, a relatively large number of respondents (78.1%) drew attention to this problem. The solution is to sell only OTC medicines online. Still, any pharmaceutical care should be accompanied by proper pharmaceutical care, which is almost impossible to fully ensure in the online sales of medicines. Online consultation by a pharmacist or doctor in real-time is a promising area, but it is an additional burden on staff, which directly demotivates and negatively affects work performance. Labor costs can be offset by increased customer loyalty and, consequently, increased profits (Unni et al. 2021).

The results of our research have demonstrated a significant impact of the global pandemic on the increase in the number of online orders of medicines. Almost half of the respondents in our study (45.9%) noted that online orders increased significantly during the lockdown. Accordingly, the

need for remote home delivery of medicines has increased. This service helps to protect staff from infection with the COVID-19 virus and other viral diseases. In the UK, NHS England & NHS Improvement initiated a service to deliver medicines from community pharmacies to patients who self-isolate during the COVID-19 outbreak (Allinson 2022). In the United States, many medications are dispensed to patients via mail order or drive-thru service, which was first introduced in the 1990s by Walgreens, one of the largest pharmacy chains in the United States. Its purpose is to provide faster dispensing of medicines for customers who drive up to the window and receive their orders, just like in a typical fast food restaurant. In 2008, the UK pharmaceutical giant Boots launched a similar service to facilitate access to medicines for its customers (Hussain et al. 2021).

In Ukraine, remote delivery of medicines is carried out in cooperation with mail service providers (Nova Poshta, Ukrposhta) and delivery services (Glovo, etc.). The vulnerable categories of the population with chronic diseases, the elderly, and people in self-isolation have the opportunity to receive medicines without leaving their homes (Hirna et al. 2021). In the holistic concept, this can be attributed to aspects of **relationship marketing** – beneficial cooperation between a pharmacy and a postal operator (courier service) to ensure the consumer's well-being. Caring for a healthy society and measures to counteract the spread of a dangerous disease is also a manifestation of **socio-ethical marketing** (Aliekperova et al. 2020). For example, companies care about society and the environment by using an electronic loyalty system, replacing paper price tags with electronic ones, and reducing the use of resources associated with printing leaflets and posters (Khan et al. 2021).

Staff training is about **internal marketing**, a component of holistic marketing. Despite quarantine restrictions, professionals need to improve and develop their professional knowledge. In this case, digital technologies can be used to improve the professional competencies of pharmacists and their continuous professional development (Gallegos et al. 2021). The vast majority of respondents emphasized that pharmacies conduct periodic staff testing to determine the level of competence, which includes a theoretical component in specialized disciplines and a practical part – service and methods of increasing profits from the sale of medicines. As a result, a high level of competence and professionalism of a pharmaceutical specialist leads to the loyalty of consumers and increases the level of competitiveness of the pharmacy (Nagy et al. 2021).

It is worth noting that digital tools are used not only to train specialists but also to facilitate internal communication within the company. For example, Zoom, Google Meet, and other video communication tools are used to hold meetings with the company's top management and conduct various business meetings. As a relationship marketing tool, CRM systems help establish communication with the company's main stakeholders, including the client. Another tool for the digital transformation of the healthcare sector in Ukraine is the eHealth electronic healthcare system, which ensures communication

**Table 2.** A structured model of the use of digital tools in the holistic marketing of Ukrainian pharmacies [authors' development].

Internal marketing	Integrated marketing	Relationship marketing	Social and ethical marketing
• use of online training and CDP platforms for staff;	• easy search for a required medicine with the use of geolocation;	• cooperation with pharmaceutical companies to provide online training and webinars for staff training;	• electronic loyalty card (instead of traditional plastic cards);
• reducing the burden on pharmacists through digital tools (booking of medicines, mail delivery, etc.);	• a discounts system and the creation of a personal client's office with a loyalty program;	• home delivery of medicines due to cooperation with postal operators and courier services;	• the decrease of the widespread of infectious diseases due to the move to an online marketplace for medicines;
• protection of pharmaceutical staff from infectious diseases by reducing costs;	• Internet as a distribution platform;	• CRM systems for tracking online orders and a system for internal interaction within the pharmaceutical network;	• minimization of resources for advertisements and promotional offers by placing all information on the Internet;
• formation of corporate culture through the use of intra-communication platforms (Zoom, Meet, Skype);	• mobile applications, websites, and social networks as tools for product promotion;	• cooperation with universities to train future personnel, organization of online events for students, etc.;	• replace paper price tags with electronic ones.
• financial motivation for pharmacists through increased revenues from e-pharmacy.	• ability to track the status of the order and the history of previous bookings;	• cooperation with family doctors and medical institutions through electronic prescriptions and online consultations;	
	• use of chatbots for communication with customers;	• support payment systems and cooperation with banks.	
	• drive-thru pharmacy service for buying medicines while driving.		
<b>Satisfying consumer needs for high-quality, safe, and affordable pharmaceutical care</b>			

between a pharmacist, a doctor, and a patient, for example, when dispensing medicines by electronic prescription (Kotenko et al. 2021).

As we can see, all digital tools used in pharmaceutical activities can be integrated into a unified, holistic marketing model with a customer-centered approach. The integration of critical aspects of the digital transformation of the domestic pharmaceutical market in the context of holistic marketing is summarized and schematically shown in Table 2. It should be noted that to effectively satisfy consumers' needs for high-quality, effective, safe, and affordable medicines, this model allows for the comprehensive integration of all components of holistic marketing with the use of digital tools in the activity of the pharmacies. This ensures the sustainable development of the company, its adaptability to environmental factors and competitiveness.

## Conclusion

This study demonstrates the positive attitude of pharmaceutical professionals toward applying digital tools. De-

spite the risks and obstacles associated with the online sale of medicines, experts identify several advantages that create additional value for the consumer, increase customer focus, and thus increase pharmacy profits. With the help of digital tools, pharmaceutical professionals improve their professional level, have more time to provide quality pharmaceutical care for patients thanks to online tools (pre-booking, searching for the cheapest medicines), and the pharmacy itself establishes sustainable and long-term relationships with potential stakeholders, taking care of society and the environment. And all this is a holistic approach; the elements complement each other. Based on the concept of holistic marketing and our proposed model, integrating critical digital tools into a holistic concept of managing a modern pharmacy is a priority for developing the customer-centered pharmaceutical business.

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## Supplementary material 1

### Survey for research the attitude of pharmacists to digitalization processes in ukrainian pharmacies within holistic marketing

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