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ANALYSIS OF THE IMPACT OF ONLINE PAYMENTS ON THE SECURITY OF BUSINESS DIGITALIZATION¹

*Shkarupa Olena, Dr. Econ. Sc., Prof.
Kalchenko Ihor, postgraduate student
Sumy State University, Ukraine*

Today, digitalization is a global trend, which is the introduction of digital technologies in all areas of business: from interaction with customers to automation of industrial production, from product marketing to logistics solutions and more. Based on the question of what the digitalization of business is, we can say that this process is deep for the company. Its main objectives are: improving the product (quality of the product or service, its attractiveness, ease of use, delivery); automation of production and other internal processes of the company; simplification of internal and external communications (Mazurenko et al., 2021; Bozhenko, 2021; Starchenko et al., 2021; Samoilikova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvykh and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021; Oleksich et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020).

Digitalization of business is aimed at optimizing business processes, the use of digital technologies and improving the accuracy of economic systems, including the transition to electronic platforms and contactless ways of conducting business operations (Security Risk, 2017; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020; Gallo et al., 2019). Statistics show that the number of contactless payments in Ukraine last year increased by more than 45%, if we analyze certain categories - the rapid growth in transport services - by 60%, in the food trade - by more than 100% (Alrawais, 2020).

In the context of digitalization of business processes, an alternative to cash payments is the use of innovative contactless technology NFC tags (Near Field Communication). With the rapid development of the Internet and wireless technologies, it has gained high popularity and has become the most common tool for digitalizing business operations (Dudchenko, 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019). Specialists of the payment systems company ACI Worldwide, which is the leader in software development focused on simplifying electronic payments over time, published a rating indicating the ranking of countries in the use of NFC technologies. The figure shows the leading countries

¹ The material was prepared within the framework of the R&D "Modeling of eco-innovation transfer in the enterprise-region-state system: impact on economic growth and security of Ukraine" (№0119U100364), which is financed from the state budget of Ukraine.

and the volumes of the payment market for 2020 for 48 world markets (Fig. 1). According to statistics from the transnational financial corporation MasterCard, among all non-cash payments in Ukraine in 2020, 72% of payments were made contactless, while in 2019 this figure was 51%. Today 46% of all contactless payments in Ukraine are made using NFC tags in smartphones and gadgets (Alrawais, 2020).

The size of the world market for the use of NFC technology has been growing dynamically since 2014. Figure 2 shows the forecast data of the market size of the contactless payment system, indicating that over the next 3 years the volume of its use will almost double (from \$ 25.5 billion in 2021 to USD 47.3 billion in 2024).

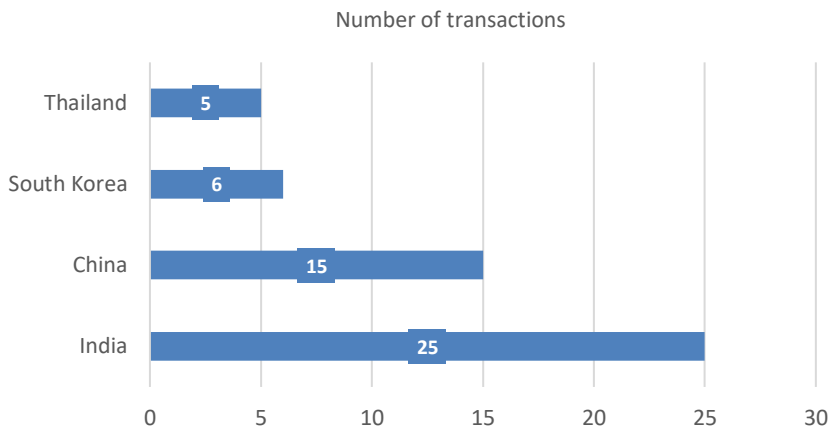


Figure 1. Number of NFC payments for 2020

Sources: developed by the authors based on (Statgraphics, 2021).

It should be noted that the use of NFC technology, according to scientists and experts, can be a source of problems associated with the leakage of personal data in the business sector. The main threats when using NFC technology are: eavesdropping (attackers "listen" to the air of devices during the NFC-transaction), data modification, MitM-attack (a situation where the cryptanalyst is maliciously able to read and modify at will the messages exchanged by correspondent none of the latter can guess its presence in the channel), theft of the device and errors in the program code. Electronic device security experts have also proven the vulnerability of NFC tags. They used the NFC tag to redirect victims' smartphones to malicious websites through the Android Beam app. This led to the redirection of electronic payments from the legitimate recipient site to sites that received payment illegally. In this context, the issue of coverage of online payments for the security of

digitalization of entire enterprises is becoming important. In the conditions of the growing market of use of innovative technologies it is necessary to solve a problem of safety of use of NFC-labels in the field of small business for the purpose of preservation and increase of level of protection of business interests.

In this regard, for the development of digitalization of business it is necessary to pay much attention to the problem of information education of entrepreneurs, technical support for digitalization of business processes and legal protection of business structures.

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