

# E-banking: Commerce and Legal Aspects

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## Abstract

Internet banking is one of the most popular payment methods in Europe, allowing customers of a bank or other financial institution to develop a wide range of financial transactions through websites. Over time, Europeans' confidence in this electronic payment system is growing. The e-banking market in Ukraine is just beginning. A segment of this market will gain popularity in the near future in Ukraine. At the same time, this market will be shared by existing banks that specialize in servicing retail customers. But so far, large retail banks are actively attracting new customers to Internet banking. It is possible that over time they will begin to actively abandon their bank branches, when the number of Internet banking users reaches a serious level and it will be possible to issue and accept most loans and deposits only through the Internet.

## Keywords 1

Legal Aspects, E-banking, e-Commerce, payment, e-banking market

## 1. Introduction

IT technology is not standing still, and indeed, the new opportunities are simply impressive. About five years ago, the smartphone was exotic, and now it's commonplace. Everything changes. The work of banks is also changing. Banks are now trying to get into every home and keep in touch with their customers every minute. And suddenly the client decides to place an extra million on deposit, writes Alexander Okhrimenko [1, 2] in his blog on the site Korrespondent.net.

Talking about the virtual (electronic, Internet, online) e-bank [3-5], some experts, and not only experts, obviously either do not understand what they are writing about, or are simply confused in complex words and terms. Therefore, it is probably worth saying a few words about what is a virtual (electronic) bank and how it really differs from a traditional bank.

The presence of a bank's website cannot be considered an indication that it is an electronic bank. Many banks in Ukraine have such sites.

E-banking is implemented in practice in two main areas (Fig. 1):

- carrying out banking operations through the bank's website - Internet-banking itself;
- performance of operations with the use of the software and hardware complex Client - Bank with access via the Internet using a standard browser.

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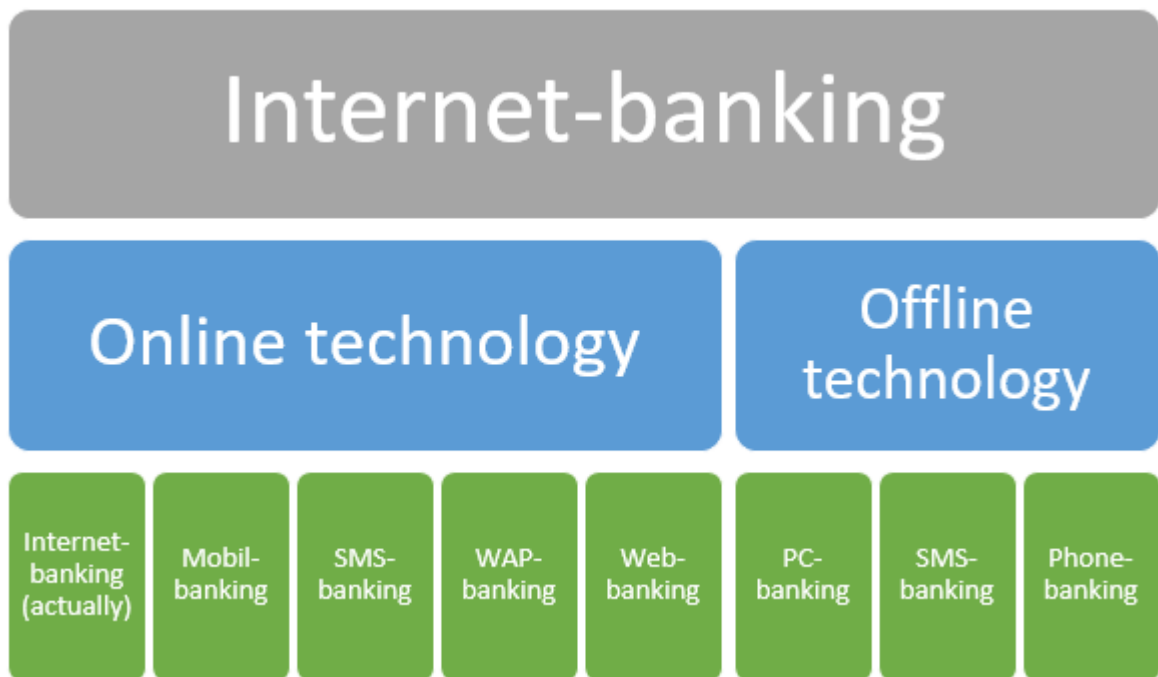
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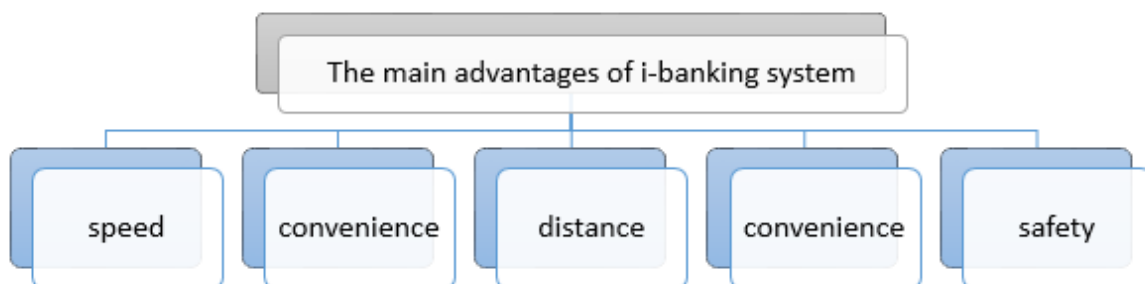
**Figure 1:** The main types of Internet-banking services

The Internet-banking system provides users with a range of banking services for managing real bank accounts via the Internet, usually around the clock in real time, from any point that has access to the Internet.

Compared to the classic PC-banking (Client - Bank), the Internet-banking service [6-8] has several advantages. The client does not have to call the bank's modem pool, it is enough to have access to the Internet. And most importantly, the customer does not need special software on his computer. All transactions and payments can be made using a browser when filling out standard web-forms.

## 2. Advantages of introduction of e-banking

The main advantages of e-banking system [9-11] are speed, convenience, distance, convenience and safety (see Fig. 3).



**Figure 2:** Advantages of e-banking

With the help of the e-Bank system [12-16, 18] the user can get the following services:

- pay for utilities free of charge
- buy and sell USD and EUR online 24/7
- create an individual login for easier access to the system [17]
- place deposits remotely, without visiting a branch
- receive information on balances

- independently create / export account statements
- make payments in national currency according to arbitrary details
- replenish deposits and repay loans
- transfer funds in foreign currency between own bank accounts
- set individual limits on different types of payments by payment cards [19]
- customize templates and regular payments
- have remote access to corporate cards
- independently manage the SMS-informing service and CVV2-code verification
- order additional cards online.

### 3. E-banking: Commerce and Legal Aspects

The National Bank of Ukraine announced the creation of a Unified National System for Electronic Remote Identification of Citizens and Enterprises in June 2016. Since then, various institutions have been gradually connected to the system. Bank ID is compared to the service "Login via Facebook" in terms of ease of use, although there are more stages of authorization.

Bank ID is a method of electronic identification of citizens through Ukrainian banks [20-23] to obtain administrative services via the Internet (another possibility of human verification along with EDS).

The user orders the required service on the service delivery site and selects "Log in via Bank ID" to receive it. Next, from the list of proposed banks, selects your bank, passes authorization, if necessary, fills out a request form for information. In response, the bank provides the site with the necessary information. For example, name, series and passport number. The user identifies himself on the portal - and receives the service he needs on the state website.

So far, 13 institutions are connected to the BankID system on the site. Today, with the help of BankID NBU centralized through the portal of administrative services available 75 types of services. The central bank is interested in expanding the participants of the system. However, until the Bank ID Resolution is approved, the National Bank may not accept applications from anyone other than administrative service portals. In a comment to the editorial office of Na chasi, the regulator said that more than 200,000 requests were made through the Bank ID of the NBU.

It is difficult to say which is more reliable is EDS or identification via Bank ID. Earlier, government officials said that the most reliable way to identify citizens through an electronic digital signature - and Bank ID will always be inferior to the level of guarantees.

In the case of using EDS (which is equated by law to a wet signature) from such a signature can be read / verified only the name of the signatory and the validity of the digital signature at the time of signing the document. In case of using the Bank ID of the NBU, the service portal receives with the permission of the data owner more information about the user (such as name, TIN, contact details, place of registration, etc.)

Advantage of Bank ID over electronic digital signature. However, it is necessary to consider the purpose for which the identification is used, because it will not be enough to identify the banks and the subjects of financial monitoring of the EPC and the Bank ID.

As explained in the NBU, to use an electronic digital signature you need to have the physical key / private certificate and password to it, to use BankID is login and password to access e-banking (as well as often a token / OTP to confirm transactions), given in Bank ID system is securely protected by cryptographic algorithms and signed by the EDS of the data bank.

Virtual (electronic) banking is more of a stylish name for a bank that is good to use for advertising purposes, but in fact it is a typical bank that is just more active in using Internet banking capabilities than other banks.

Online Banking or web banking is one of the types of remote banking services, by means of which access to accounts and account operations is provided at any time and from any computer via the Internet.

A standard browser (Google Chrome, Internet Explorer, Opera, Mozilla, etc.) is used to perform operations. Therefore, there is no need to install additional software.

As a rule, Internet banking services include:

- Blocking of the card by the client, for example, in case of theft or loss;
- Account statements;
- Information on other open banking products (payment cards, deposits, loans, etc.);
- Payments within the bank;
- Payments in national currency within the country;
- Registration of applications for connection to other services [24-26] (sms-banking, cards, deposits, loans, etc.).

Additionally, services may include:

- Setting limits on different types of transactions (payment via the Internet, terminal, ATM, etc.) from card and current accounts, such as 0 (zero).
- Payments in foreign currency;
- Currency exchange;
- Payment of bills for provided non-banking services (including utilities, communications);
- Purchase of vouchers for prepaid services (mobile operators, Internet).
- Direct replenishment of the balance of SIM (USIM, R-UIM) card by the specified phone number of Ukrainian mobile operators.
- Replenishment of Skype-account.

The modern development of the banking sector is inextricably linked with the introduction and improvement of remote banking systems. If earlier the bank had to expand the network of its branches in order to occupy leading positions in the market, today such a bank has to increase the quantity and quality of e-banking services. The development of such systems is beneficial to both the client and the bank. Thanks to online banking, banks reduce administrative costs (staff, rent, etc.). According to the NBU, in January-February 2016, banks allocated UAH 5.7 billion to this item, which is 21% of their total costs. For example, UniCredit Bnk saves on each active user of the Internet banking system. less than UAH 2 month. In this case, if you compare the cost of banking services, then in the branches it is not less than 7 UAH. for each payment, while online it is almost free If we talk about the benefits for customers, then, not taking into account the time saved in queues, savings on fees for payment are more than 6 UAH. (in branches the commission makes not less than 10 UAH, and payment online costs on the average 3,5 UAH) [1].

Experts note that during 2014-2017 there was a significant breakthrough in the field of electronic banking in Ukraine. In 2014 alone, the number of payments via the Internet increased from 120.5 million to 256.4 million, and in monetary terms, the volume of transactions more than doubled to UAH 112.7 billion. According to Prostobank Consulting, at the beginning of 2017, 31 institutions out of the 50 largest retail banks in Ukraine were set up with their own Internet banking systems for individuals, which is almost 62%. At the same time, investments in the development and technical equipment of banking in each bank amounted to approximately 0.8-1 million dollars. USA. The market for the most popular types of electronic banking, such as mobile and Internet banking, in Ukraine is growing rapidly and has already exceeded the mark of UAH 100 billion. for a year. The general characteristics of the electronic banking market during 2016–2017 are given in Table 1.

Today, the e-banking market is improving. The main active development has taken place over the last 10 years: the first necessary services and data transmission technologies have been created and implemented, and high-speed 3G mobile Internet has been launched. Thus, a revolutionary leap in the market is not expected in the near future.

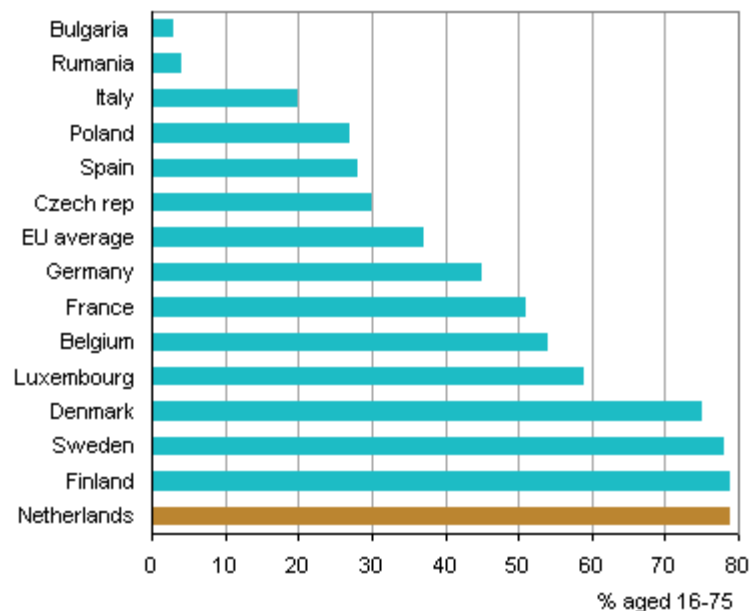
Despite significant achievements of domestic banks in the electronic banking market, its level is inferior to some foreign countries. Thus, according to the consulting company McKinsey & Company, as of 2016, with the help of computers and gadgets, Ukrainians made about 40% of payments, while in Poland, 96% of retail payments and remittances pass through digital channels. Calculations conducted by the research company GfK showed that in Ukraine in 2015, out of 70 million customers connected to Internet banking, at least one online transaction per quarter is carried out by only 10%, while in Poland this figure is 61%. In addition, the level of operating expenses in Ukrainian banks is about 4.5% of assets, which is more than twice as high as in Poland. At the same time, according to McKinsey, in small banks the relative costs are almost two to three times higher than in leading institutions.

Examining the structure of customers in the market of electronic banking services, experts note the incomplete readiness of customers to replace traditional virtual services [27-29]. According to Fidobank, the most active users of electronic banking services are people aged 25-34, including 43% of active users. In other age categories their share does not exceed 22%. A similar trend is typical for most banking institutions in Ukraine. At the same time, the gender distribution of clients is also uneven: almost 56.7% are men and 43.3% are women. In 2016, second-tier banks were active in the e-banking market. Thus, the need to actively attract customers and meet modern requirements pushes medium and small banks to implement Internet banking in several scenarios (start-up web-version, advanced version or implementation of mobile applications based on Android and iOS).

The most active and technological market participants are: "PrivaBank", "AlfaBank", "VTB Bank", "FUIB", "Raiffeisen Bank Aval", "UkrSibbank", "Ukrsotsbank". The leader in the introduction of Internet technologies in Ukraine is undoubtedly PrivatBank, whose base has long exceeded one million people. Behind him - "Alfa-Bank", "Ukrsibbank" and some others. During 2017, new market participants became significantly more active, including PJSC Oschadbank. Relying on the development of contactless payment technologies, in early 2017, launched the "Savings PAY" application, with which customers will be able to make payments without the physical presence of a payment card or cash. All you need to make a payment is a mobile phone that supports NFC contactless payment technology. Among the main types of online services offered by banks are the following: viewing account statements; making deposits, repaying loans, exchanging currencies, transferring money, ordering an additional plastic card, replenishing a mobile phone, making various types of payments, buying tickets, as well as drawing up an insurance policy.

As for the price parameters of service in Internet banking systems for individuals in banks of Ukraine, as of 01.03.2017, 37 organizations out of 40 (or 92.5%) did not charge a fee for connection to the service, they include: "Savings Bank", PrivatBank, FUIB, UkrSibbank and others. (Table 2), while some financial institutions (7.5%) earned on this service, namely: UniversalBank (UAH 100), Sberbank of Russia (UAH 10), Investment and Savings Bank (UAH 100).

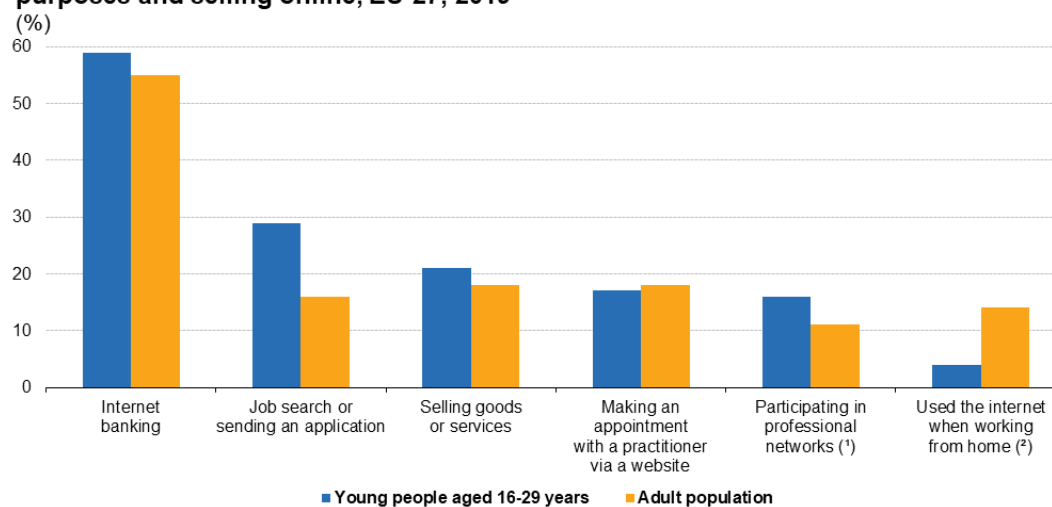
The constant growth in the popularity of Internet banking is evidenced by the statistics of the introduction of services in European countries in 2011 [26], graphically presented in Fig. 4



**Figure 3:** Statistics of the introduction of services in European countries in 2011

The statistics according to Eurostat [28] is shown in Fig.5.

### People who used the internet for web banking, professional purposes and selling online, EU-27, 2019



**Figure 4:** Using internet banking by EU-27 population

During 2016–2020, there were positive trends in the e-banking market. Thus, we can identify several main areas of development of electronic banking services in Ukraine (Fig. 5).

1) P2P transfers were actively launched and the number of payment services for payment of utility and other bills increased. Unlike other ways to transfer money from card to card, P2P transfers have a number of advantages, these are: low cost of transfers; the ability to make a payment at any time and in any place where there is Internet access, the transaction can be performed both from a desktop computer and from a mobile phone; the ability to make online money transfers to cards of users of other banks.

2) The popularity of mobile payments using a smartphone has increased. Thus, according to MasterCard research, 72% of Ukrainians are willing to pay for goods and services with a smartphone, while in Western Europe the rate of such readiness is only 37%, and in Central and Eastern Europe - 57%.

3) Thus, mobile applications and their functionalities are gaining popularity, the process of connecting to online banking is simplified and the latest technologies, such as social bots Facebook Messenger, are increasingly used for payments.

4) An important point for the development of e-banking was the National Bank's support for a single standard for electronic remote identification of BankID customers, which today provides the opportunity to receive administrative services from the state, and in the future, subject to regulatory framework, will allow all banking services bank.

The main directions of development of the market of electronic banking services:

- Support by the National Bank of a single standard for electronic remote identification of BankID customers
- The popularity of mobile payments using a smartphone has increased
- Active development of p2p lending
- Launch of P2P transfers, increase in the number of payment services for payment of utility and other bills.

4) The active development of P2P Lending (Peer-To-Peer), which is a way of borrowing funds between unrelated persons, without the involvement of a financial intermediary (bank, credit union, etc.). Loans are usually provided through online platforms of lenders, which charge a fee for lending, and creditworthiness testing tools.

Thus, it should be noted that the domestic e-banking market has made a significant leap forward, but it has room to develop, as global trends create new opportunities for improvement. Consider some of them.

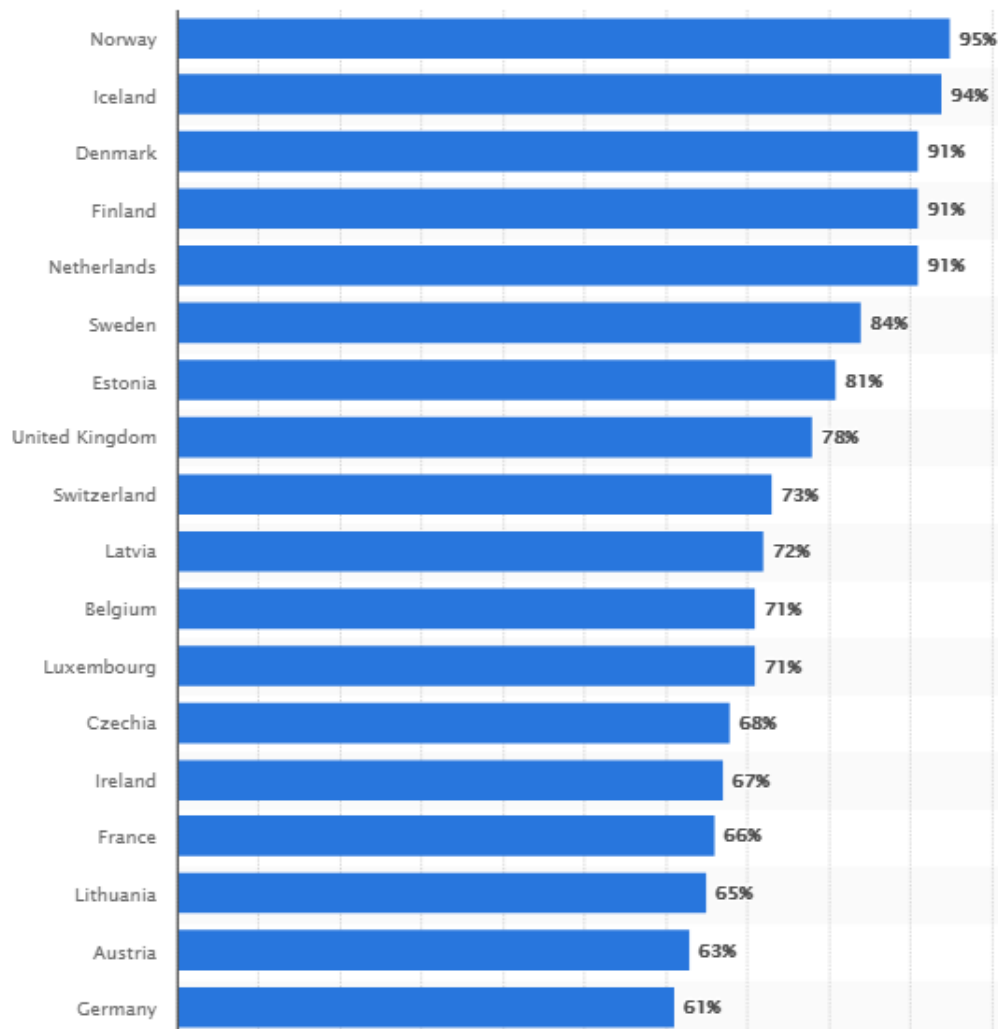
1. Thus, one of the global trends in online banking, experts noted the use of blockchain technology in banking operations. In 2016, a \$ 100,000 trade transaction was recorded by the British bank Barclays

and one of the Israeli startups based on this technology. The operation time was reduced from 7-10 days to four hours.

2. Also in the global e-banking market, customers are offered another new service. So, in March 2016, the Swiss financial group UBS launched a service that allows you to open accounts for customers using a smartphone. In this case, the identification is done directly via video link with a bank employee, and the contract for opening a bank account and other documentation customers receive in encrypted format by e-mail. A similar operation was also carried out at the Bank of Scotland, where customers were offered to open an account online using a selfie using a smartphone or tablet web browser without having to download an additional application. This service greatly simplifies the process for new customers and allows them to open an account without leaving home. In addition, notification of the decision on the application is made from one to a maximum of two days.

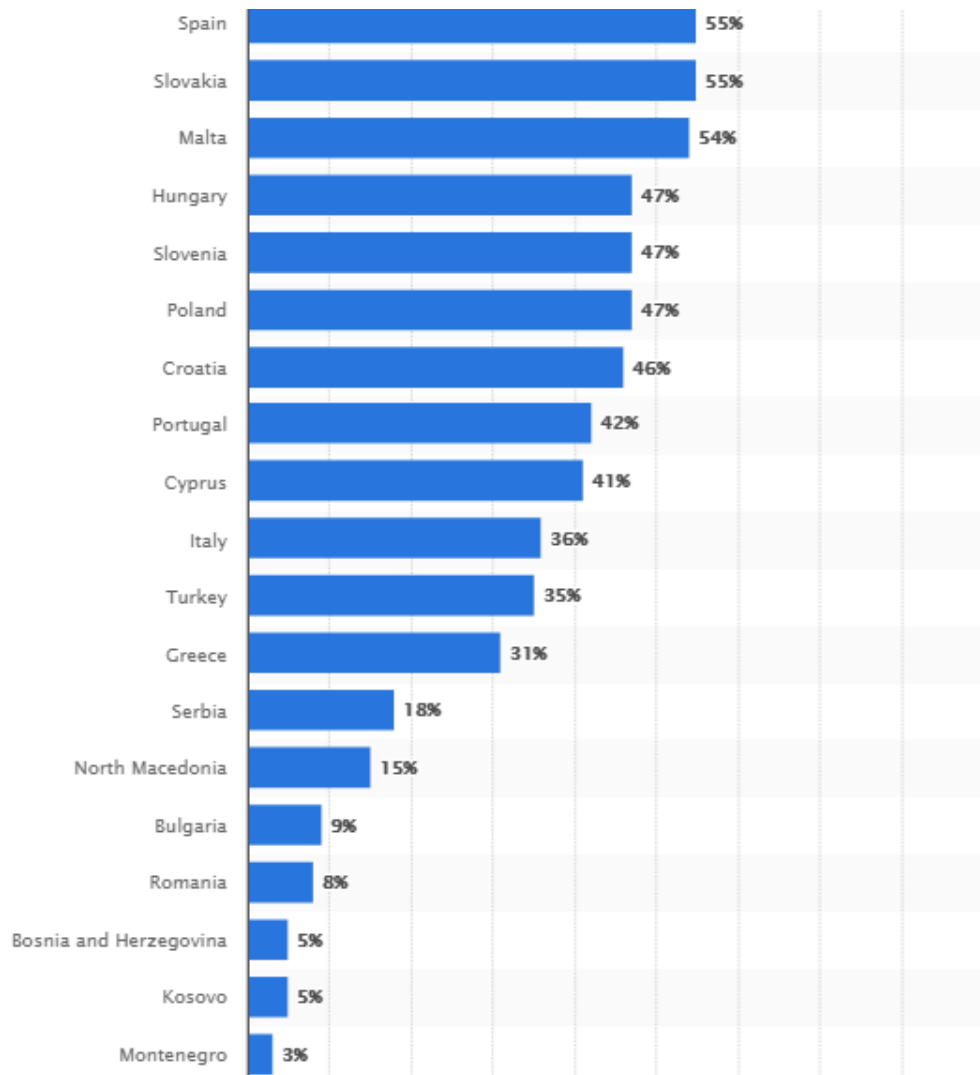
A very important step towards improving the security and reliability of online payments is the transition to biometric payment authorization. According to experts, biometrics is important in preventing theft when making online payments. According to a study by Goode Intelligence, by 2020, more than a billion people will use biometric authorization to conduct banking transactions.

Introduction of Internet banking in European countries in 2019 (high level of service development) [27] is shown in Fig. 6



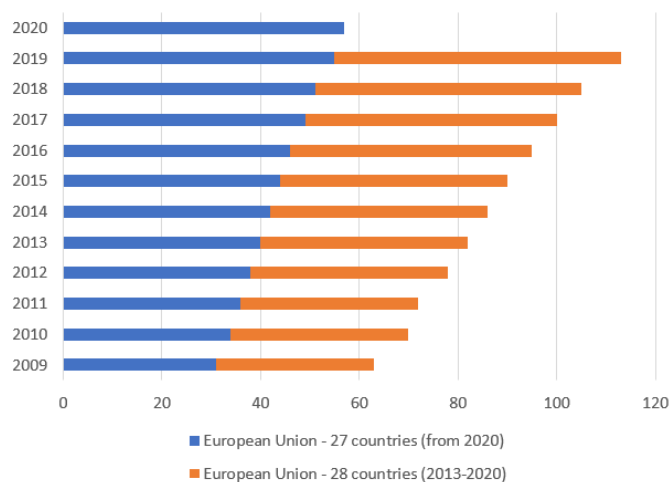
**Figure 5:** Internet banking in European countries in 2019 (high level of service development)

Introduction of Internet banking in European countries in 2019 (high level of service development)



**Figure 6:** Internet banking in European countries in 2019 (middle and low level of service development)

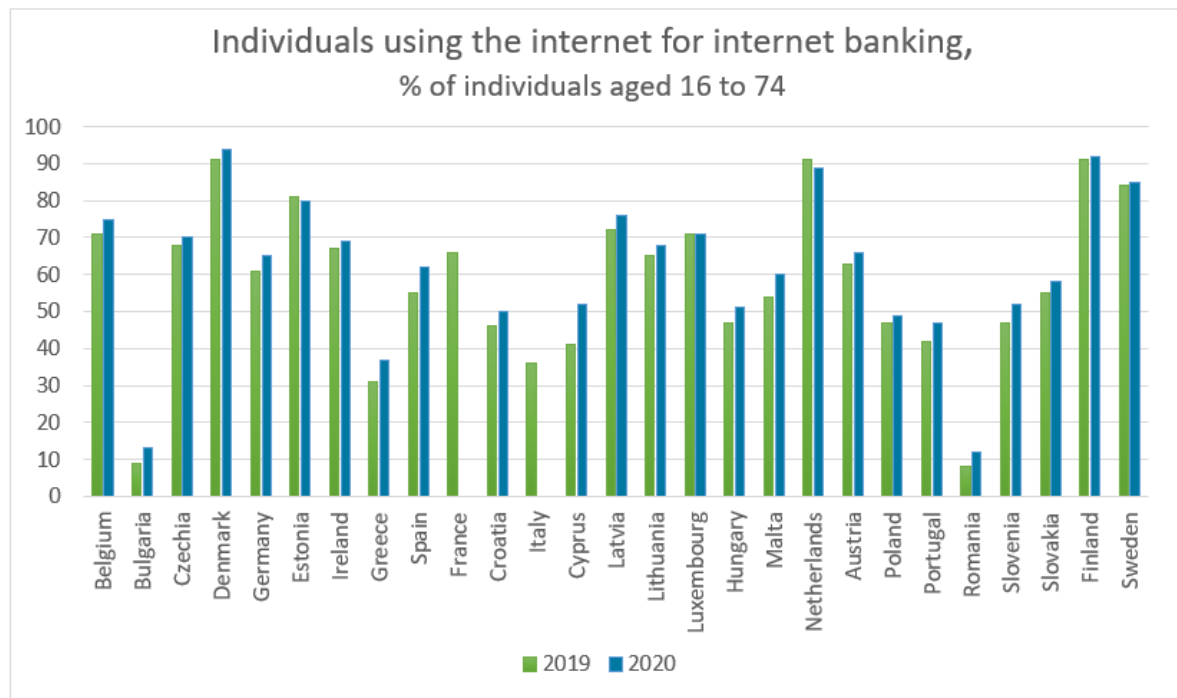
In 2019, it was found that 95 percent of the Norwegian population has access to Internet banking sites, making Norway the country with the highest penetration of Internet banking in Europe, followed by Iceland and Denmark.



**Figure 7:** Statistics of using internet banking by internet users from EU (2013-2020, from 2020)



The statistics of using the internet banking (% of persons aged 16 to 74) in 2019 and 2020 by EU countries is shown in Fig.



**Figure 8:** Statistics of using the internet banking (% of persons aged 16 to 74) in 2019 and 2020 by EU countries

Internet banking is one of the most popular payment methods in Europe, allowing customers of a bank or other financial institution to develop a wide range of financial transactions through websites. Over time, Europeans' confidence in this electronic payment system is growing. Meanwhile, in some countries, such as Germany or Austria, the use of physical cash is significantly reduced.

#### 4. Conclusions

The e-banking market in Ukraine is just beginning. A segment of this market will gain popularity in the near future in Ukraine. At the same time, most likely, this market will be shared by existing banks that specialize in servicing retail customers. But so far, large retail banks, such as Delta and Privatbank, are actively attracting new customers to Internet banking. It is possible that over time they will begin to actively abandon their bank branches, when the number of Internet banking users reaches a serious level and it will be possible to issue and accept most loans and deposits only through the Internet.

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