National Bank of Ukraine

# Survey results on the possibility of e-hryvnia implementation

Kyiv, 2021

# Resume

The National Bank of Ukraine was one of the first central banks in the world to start considering the possibility of issuing its central bank digital currency (CBDC) – e-hryvnia. We are currently working on the Concept of creating e-hryvnia, in particular: studying possible areas of use, potential demand for e-hryvnia and consumer motivations in terms of 6 use cases, determined by financial market of Ukraine infrastructure and considering world experience.

To achieve the beneficial effect of the research and, consequently, to determine the market niche and the effect of e-hryvnia potential use, the National Bank of Ukraine relies on the market participants' needs. To this end, a questionnaire among financial market representatives was conducted, which was attended by 100 experts with diverse expertise: experience in retail business and innovations, corporate business, financial markets, digital transformation of public authorities, virtual assets.

The survey included 30 questions: 5 general questions and 6 groups of questions according to the undermentioned use-cases of e-hryvnia:

1. Retail cashless payments (P2P, P2B, B2B)
2. Targeted welfare payments (G2P)
3. Settlements on securities and other financial instruments (B2B)
4. Corporate payments of legal entities (B2B)
5. Cross-border payments (B2B, P2P, P2B)
6. Interest bearing financial instrument.

**General questions allowed to determine the following vision of market participants regarding the use of e-hryvnia:**

✓ Respondents believe that e-hryvnia users should be both individuals and legal entities (i.e., e-hryvnia is a general purpose instrument for payments and settlements), and banks among themselves (i.e., e-hryvnia is an instrument for "wholesale" interbank settlements).

✓ According to the survey results, the most popular use case of e-hryvnia is retail cashless payments. Second most popular use case is cross-border payments. The least popular option is potential use of e-hryvnia as an interest bearing financial instrument.

✓ The advantages of using e-hryvnia for the virtual assets purchase/sale are identified.

✓ 73% of respondents believe that e-hryvnia should be implemented using blockchain technology.

✓ More than half of responding market participants are potentially willing to invest in e-hryvnia payment infrastructure creation and its promotion on the market.

Regarding the most popular use case of e-hryvnia **as an instrument for cashless retail payments:**

✓ Potentially, the most popular transactions could be instant P2P remittances between individuals and e-commerce transactions (buying/selling in online stores and marketplaces).

✓ The most convenient means for retail cashless payments using e-hryvnia would be a bank/company mobile application and a single national mobile application.

✓ Determinant e-hryvnia characteristics for the consumer would be: instantaneity, low tariffs, security and safety.

✓ Regarding the role of the NBU and market participants in the e-hryvnia ecosystem for retail cashless payments, the two-tier e-hryvnia model, in which the NBU is the sole e-hryvnia issuer, system owner, operator and liquidity keeper, while market participants have

other functions: distribution of e-hryvnia, user identification, interaction with merchants, services and applications development etc. is recognized as optimum.

✓ Most respondents support the anonymity of individual users in carrying out e-hryvnia transactions within the existing limits set for cash transactions and realize the need to identify users when these limits are exceeded (80% of respondents).

Regarding **e-hryvnia for cross-border payments:**

✓ The most popular transactions for this use case potentially may be P2P remattances and cross-border transactions for purchasing products and services (P2B).

✓ Speed and cost of operations could be important characteristics for the successful implementation of such instrument (decrease in cost compared to existing instruments and increase in speed, respectively).

Regarding **e-hryvnia for settlements on securities and other financial instruments:**

✓ E-hryvnia in this use case could be used for government securities settlements (IGLBs), other financial instruments on organized markets and securities issued by legal entities.

Regarding **e-hryvnia for corporate payments of legal entities:**

✓ Speed and liquidity support could be the most important characteristics that could ensure successful implementation of this instrument.

✓ In the implementation of this instrument there is obvious interest to functionality expanding, namely the use of e-hryvnia as a trade financing instrument (letter of credit, guarantee, escrow account) and the smart contracts usage possibility (i.e., instant and irrevocable contracts).

Regarding **e-hryvnia for targeted welfare payments:**

This use case main idea is the expediency of “programmable” (or “smart”) target money implementation on the basis of e-hryvnia. This money can be used for the state welfare payments to citizens and can be spent for specific purposes only or during specific period of time (77% respondents).

**E-hryvnia as an interest bearing financial instrument** has become the least popular use case, partially because this instrument can cause a significant liquidity outflow from the banking system.

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National Bank of Ukraine thanks the participants of the survey and accepts comments on its results and conclusions via e-mail euah@bank.gov.ua.

## Introduction

The NBU continues to work on the Concept of creating e-hryvnia - central bank digital currency (CBDC). The study of this issue began in 2016. In 2018 a pilot project was conducted to issue e-hryvnia for retail payments using a blockchain platform. In accordance with the results of this pilot project, Analytic note on e-hryvnia was published and an international conference on central banks digital currencies CBDCinUA2020 was held in Kyiv in 2020.

Nowadays, the NBU is researching possible use areas, potential demand for e-hryvnia in the country, consumer motivations in terms of various use cases and different target audiences. For this purpose, it conducted a survey among the Ukrainian financial market participants on the perspective of e-hryvnia introduction and implementation.

## Use cases for e-hryvnia

The National Bank of Ukraine considers the following use cases for e-hryvnia:

### 1. Retail cashless payments (P2P, P2B, B2B)

E-hryvnia is considered as an instrument for instant retail payments, which can be an alternative to existing retail payment means and instruments – cash, payment cards, payment orders and e-money. The advantages of e-hryvnia are: security (repayment and final settlements are guaranteed by the National Bank of Ukraine), instantaneity, safety, transparency.

### 2. Targeted welfare payments (G2P)

The state can pay social benefits to its citizen using e-hryvnia with the possibility of “programmable” (or “smart”) money use, which can only be spent for specific purposes or during specific period of time.

### 3. Settlements on securities and other financial instruments (B2B)

E-hryvnia is considered to be an instrument for fast direct settlements on securities and other financial instruments, including payments without banking system participation (direct settlements using e-hryvnia wallets), which will provide non-banking financial institutions with direct access to the market. Financial instruments tokenization will provide users with the possibility of concluding smart contracts (i.e., instant and irrevocable contracts).

### 4. Corporate payments of legal entities (B2B)

E-hryvnia and its infrastructure can be used as an instrument for fast “wholesale” payments between financial institutions within the country.

### 5. Cross-border payments (B2B, P2P, P2B)

E-hryvnia and its infrastructure can be used for cross-border payments between legal entities and/or individuals. This possibility could be provided in means of interaction with other central banks.

### 6. Interest bearing financial instrument

E-hryvnia is a financial instrument which can be used for funds keeping and accumulating purposes only. An interest can be accrued on e-hryvnia. In given use case, e-hryvnia is not a payment instrument.

## About the survey

Nowadays, many regulators, which analyze the possibility of issuing central bank digital currencies, conduct public consultations via surveys or posting documents with a list of questions for discussion.

For instance, European Central Bank conducted a survey in the form of an open questionnaire regarding digital euro implementation which was taken by more than 8,000 respondents. The Frankfurt Blockchain School conducted its own research, interviewing about 50 top experts on the digital euro issuing possibility. The Bank of England has published the document for discussion with the list of questions for the expert community. The Bank of Thailand did the same by publishing the document for discussion of the central bank's digital currency for retail payments.

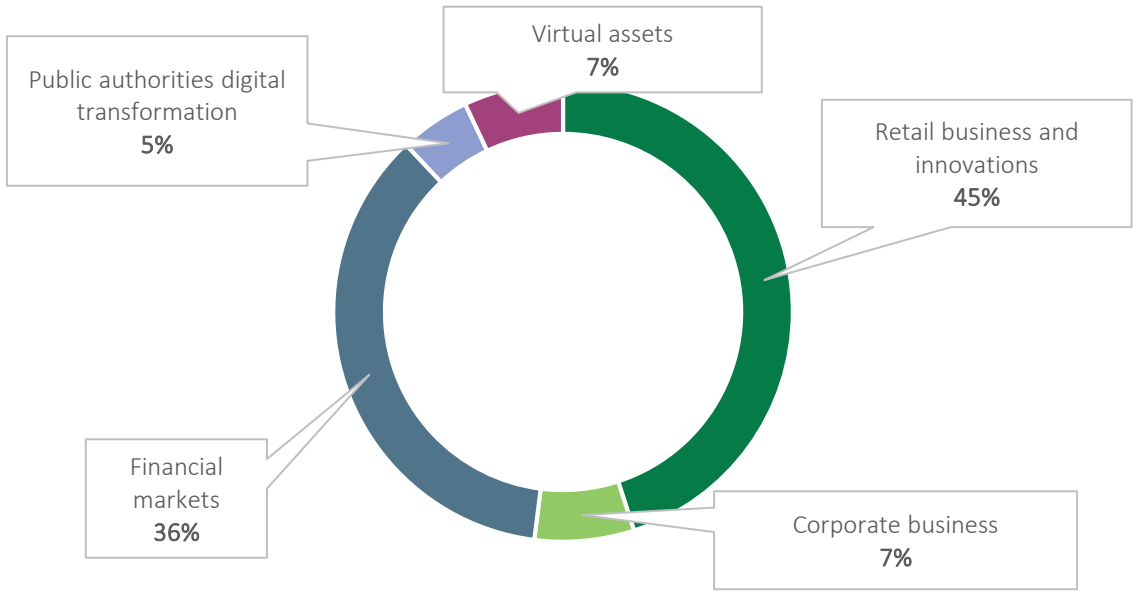
In order to determine consumer demands and motivation, the National Bank of Ukraine has developed a questionnaire with a list of open questions and a corresponding web page (landing): **https://promo.bank.gov.ua/euah**.

The aforementioned questionnaire was sent to the **Ukrainian financial market experts** in terms of the following activity areas:

- retail business and innovations
- corporate business
- financial markets
- public authorities digital transformation
- virtual assets.

The questionnaire contained **30 questions**: five general questions and 25 questions related to six e-hryvnia use cases.

The questionnaire was filled by **100 respondents (experts).** Information in terms of respondents activity areas is given below:



## Survey results in terms of questions

**Question 1. Who should be e-hryvnia users?**

**60%** of respondents believe that **e-hryvnia users should be** both individuals and / or legal entities (general purpose instrument for payments and settlements) and banks among themselves (an instrument for "wholesale" interbank settlements).

**36%** believe, that e-hryvnia users should be individuals and / or legal entities only. The rest of respondents believe they should be only banks among themselves.

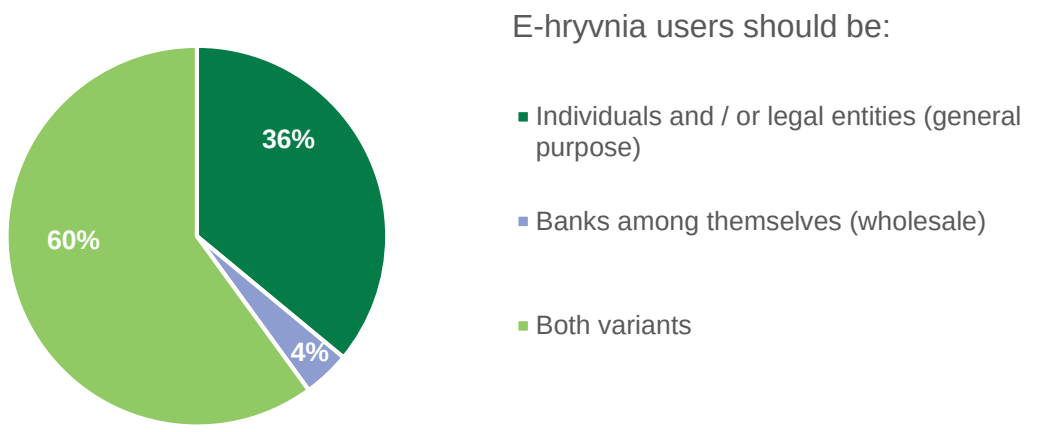



Chart. *Respondents' answers regarding possible e-hryvnia users*

**Question 2. What use case is the most promising?**

Respondents rated **e-hryvnia use cases** on a 5-point scale: **Retail cashless payments by individuals (P2P, P2B)** hit the highest average score – 4.33 points.

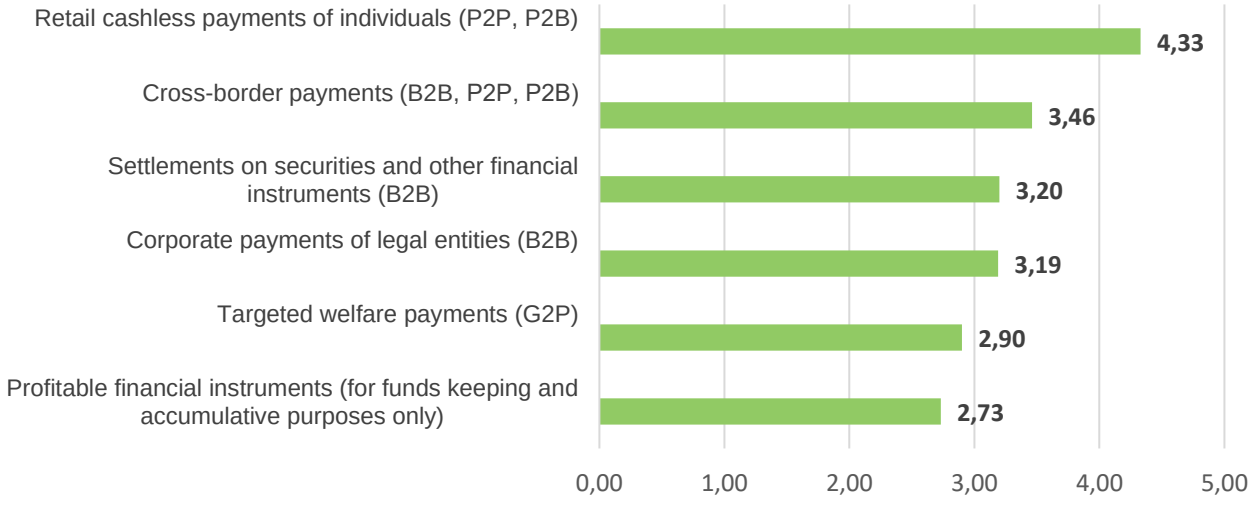



Chart. *Average votes rating in terms of use cases*

## Retail cashless payments of individuals (P2P, P2B)

**Question 3. In case of using e-hryvnia for retail cashless payments, what instruments do you think it can be an alternative to?**

According to the questionnaire results, most respondents (**69.4%**) see e-hryvnia as an **alternative to e-money**, in second place (**60% of respondents**) an alternative to money remittances that don't require an account (respondents had an opportunity to choose multiple options).

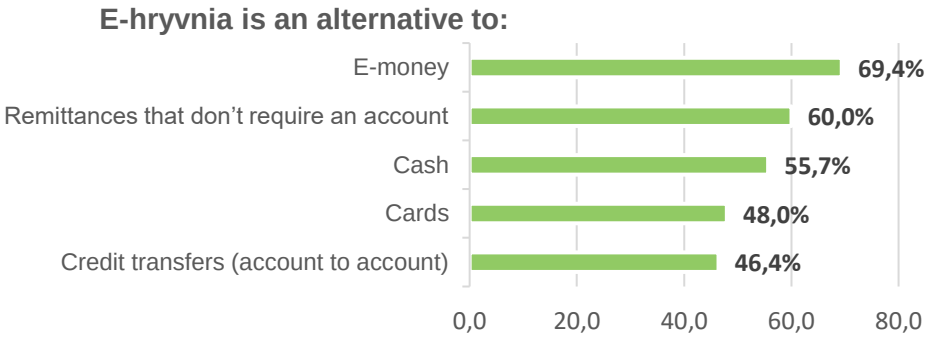



Chart. *Payment instruments that e-hryvnia could substitute (be an alternative)*

Commenting the answers received, it should be noted that in Ukraine there was a strengthening of financial monitoring requirements for the e-money regulation in 2021, due to the relevant EU and Ukrainian legislation harmonization in the financial monitoring sphere. At the same time, e-money usage has been made more transparent, and users – more protected (now the bank must identify and verify user as when opening a bank account).

In 2020, e-money transactions volume increased by 15%, but the e-money issued volume decreased threefold (due to several large participants outflow).

**Question 4. Which of the undermentioned e-hryvnia features for retail payments would be most demanded by individuals?**

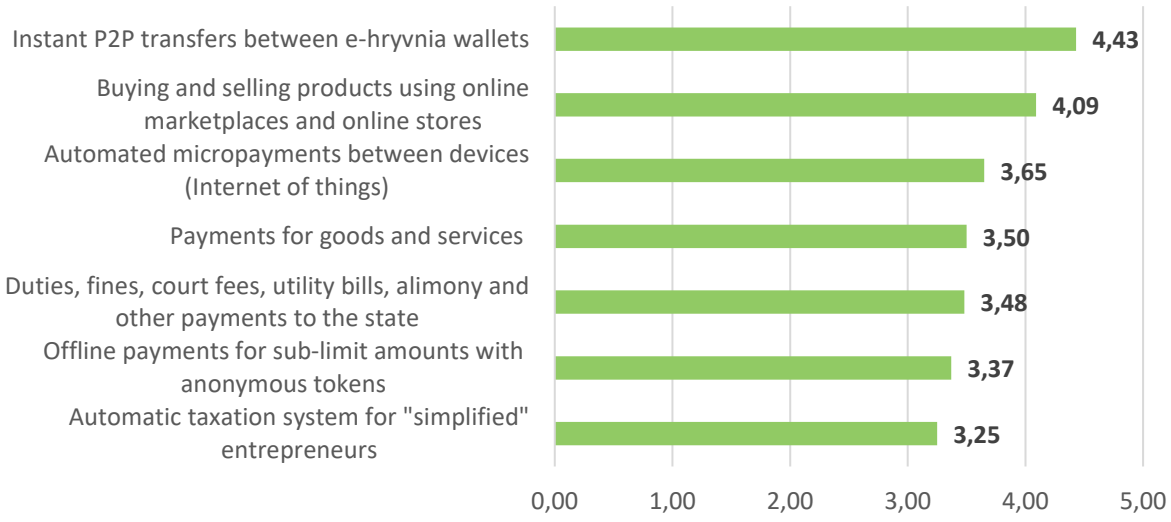



Chart. *Average votes rating in terms e-hryvnia retail cashless payment features*

During the implementation of e-hryvnia for retail cashless payment purposes, according to the majority of respondents, **instant P2P transfers** between e-hryvnia wallets would be the most popular (**4.43 points** on a 5-point scale), followed by **buying and selling products using online marketplaces** (**4.09 points**).

Nowadays, a significant volume of cashless operations in Ukraine is carried out using P2P card transactions, which are relatively expensive. Thus, most of the respondents believe e-hryvnia to be an alternative to such transactions. Moreover, the central bank digital currency has a high potential for buying/selling products using online marketplaces, as it can be programmed to carry out risk-free transactions.

**Question 5. Which means for e-hryvnia retail cashless transactions is the most convenient from the user's point of view?**

Respondents believe **mobile application of the bank / company** (**48.8%** of respondents) and **the unified national mobile application** (**38.1%** of respondents) to be the most convenient means for e-hryvnia transactions.

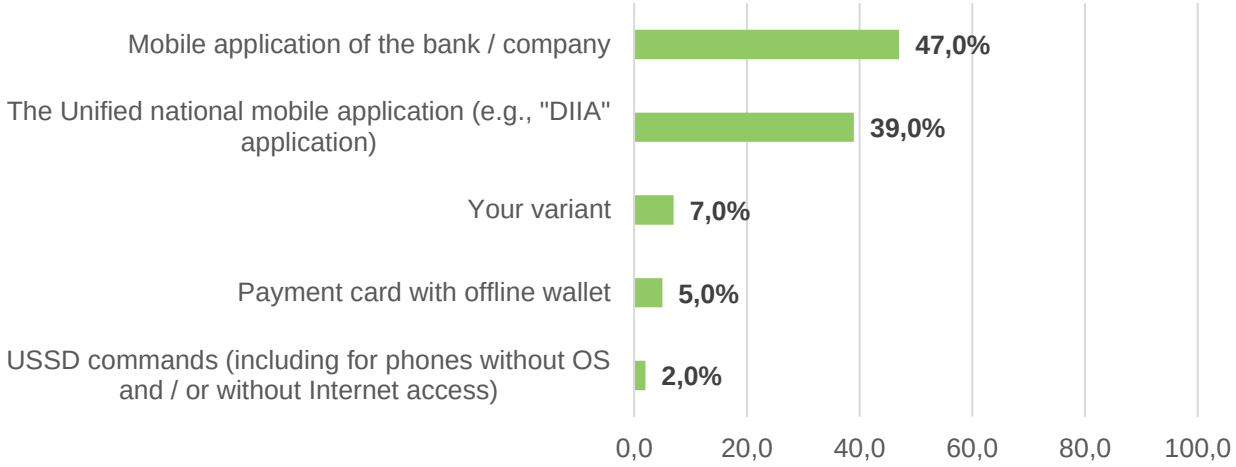



Chart. *Respondents' answers regarding means for retail cashless transactions using e-hryvnia*

Some respondents chose the **"Your variant"** option and commented that the means for e-hryvnia transactions could be an offline wallet in a mobile app, an open-source solution with the ability to integrate into any application or an API to integrate into third-party applications.

**Question 6. What characteristics of e-hryvnia for retail cashless payments can be critical to be chosen by end-user?**

All respondents believe **transactions security and safety** (**4.53** points on a 5-grade scale), as well as **instant settlements** (**4.43** points on a 5-grade scale) to be the decisive features of using e-hryvnia for retail cashless payments, which will affect choosing the e-currency as a means of payment. For **retail business experts**, such a feature is **instant settlements.**

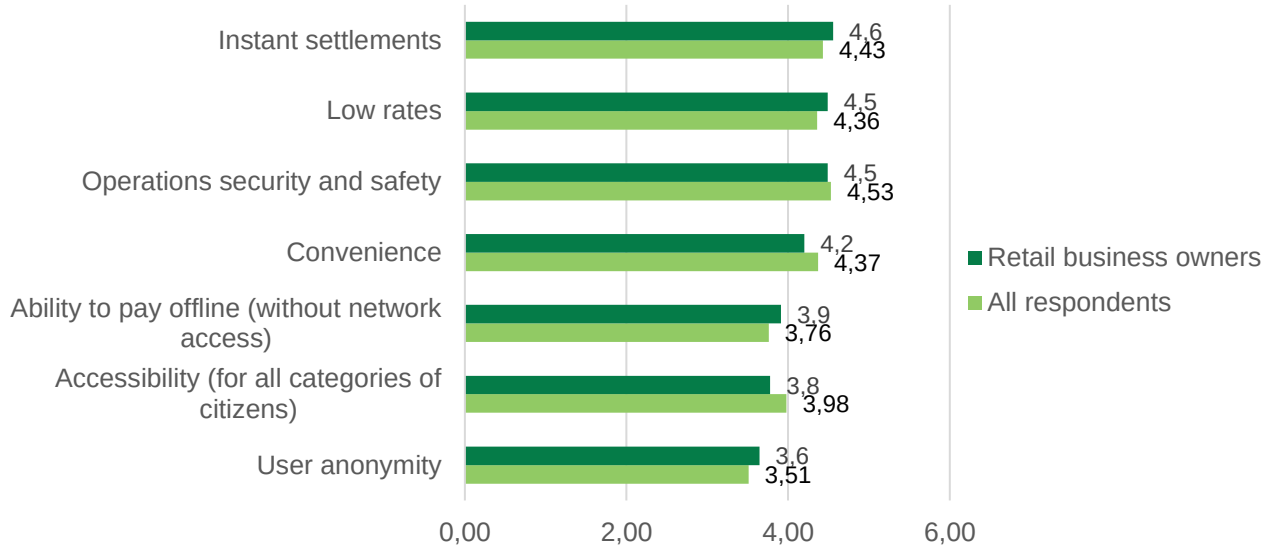



Chart. *Average votes rating in terms of e-hryvnia retail cashless payment features*

It should be noted that according to ECB survey results, which was taken by over 8,000 people, **payments confidentiality** ranked highest among the requested potential features of the digital euro (**41 %**), followed by **security (17 %)** and **pan-European coverage** (**10 %**).

**Question 7. What are the roles of the NBU and market participants in the e-hryvnia ecosystem for retail cashless payments?**

Most participants voted for **two-level model of e-hryvnia** (**53%**)**:** the **National Bank of Ukraine is the sole issuer of e-hryvnia**, the owner and system operator, the liquidity custodian, while **market participants have all other functions** (e-hryvnia distribution, users identification, interaction with merchants, services and applications development etc.).

This position coincides with global trends in the CBDCs implementation possibility.

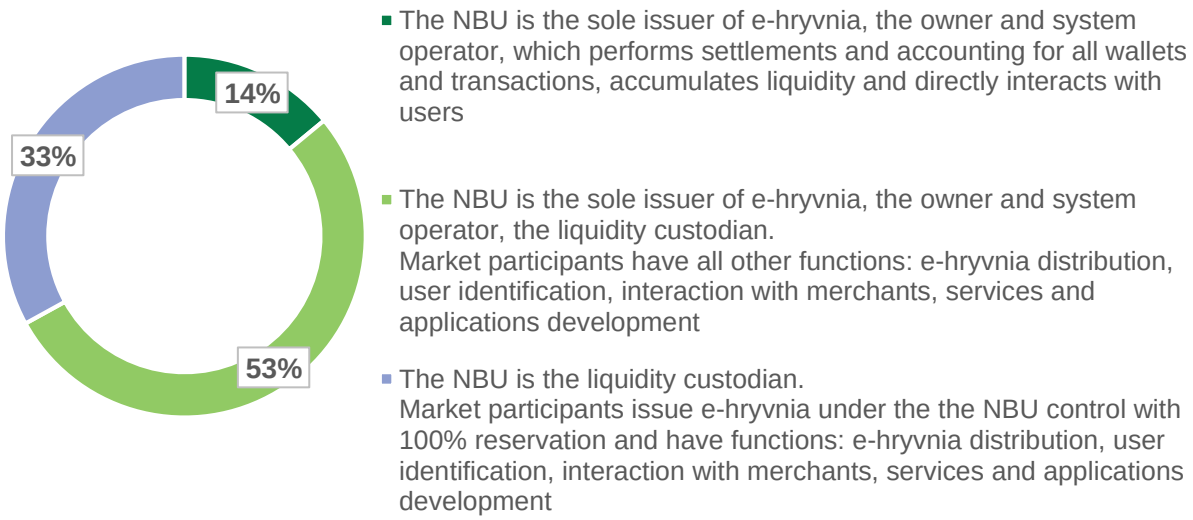



Chart. *Respondents' answers regarding possible role of the National Bank of Ukraine and market participants in e-hryvnia ecosystem for retail cashless payments*

**Question 8. What business model is the most optimal for retail cashless payments with e-hryvnia?**

The majority of respondents (**41%**) believe the cashless payments using e-hryvnia business model with **no fee for replenishment and repaying** (while transactions within e-hryvnia ecosystem are still charged) to be the most optimal. They believe that this model should encourage market participants to be the project's service providers and should offer users innovative services and technologies, provide services by merchants, etc.

The aforementioned model is followed by another business model (with support of **38%** of respondents), which **charges with a fee for e-hryvnia repaying** (while e-hryvnia wallet replenishing is charge-free, as well as transactions within the ecosystem). This model should provide an "easy" entry for users, their free service within the system and more "complicated" e-hryvnia withdrawal.

In addition, some respondents noted that the cost of using e-hryvnia for users should be equal to the cash using cost, i.e., zero. For entrepreneurs this cost should not exceed the cash using cost (collection expenses) or cashless funds (acquiring expenses).

**Question 9. What are the main factors for your bank's (or company's) interest in using e-hryvnia for retail cashless payments purposes?**

Responders believe **guarantee of final settlements by the National Bank of Ukraine** to be the main factor for banks (or companies) interest in using e-hryvnia for retail cashless payments purposes in future (**4.33** points out of 5)**.**

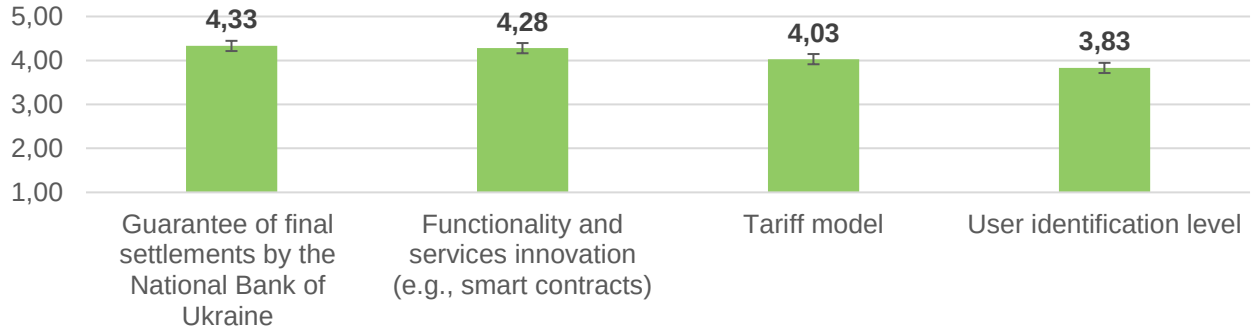



Chart. *Average votes rating in terms of factors for interest in e-hryvnia as a retail cashless payments instrument*

**Question 10. Which means of accepting e-hryvnia by merchants for retail cashless financial payments are the most optimal?**

**56%** of respondents answered, that they believe a **mobile / tablet application** to be the most optimal way for e-hryvnia to be accepted by retailers for retail cashless operations.

Some of the respondents commented that accepting e-hryvnia by retailers should occur by **all the aforementioned means**, including QR-code interfaces and API.

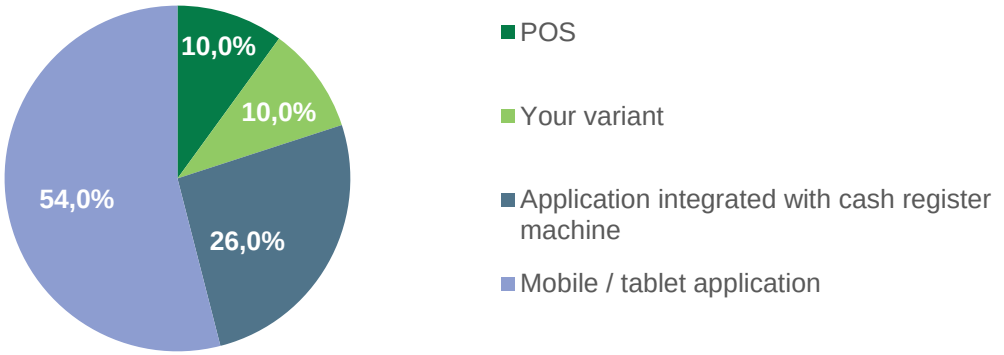



Chart. *Respondents' answers regarding the most optimal means of accepting hryvnia for retail cashless payments by retailers*

**Question 11. What should be the identification level for e-hryvnia users for retail cashless payments?**

Since in this use case e-hryvnia is considered to be the digital equivalent of cash, the vast majority of respondents (**80%**) chose that **users may remain anonymous for transactions within limits set for cash**, but identification is required in case the limits are exceeded. Such position can be correlated with ECB questionnaire results: payments confidentiality scored the highest number compared to the other e-currency characteristics.

## Targeted welfare payments (G2P)

**Question 12. Do you consider e-hryvnia-based "smart" targeted money, which can be spent on specific purposes or during specific period only feasible?**

**The vast majority** of respondents (**77%)** consider the feasibility of e-hryvnia-based **"smart" targeted money** for social benefits to citizens paid by the state, which can be spent on specific purposes of during specific period of time only.

**Question 13. In case of targeted social benefits using e-hryvnia, what would be the most convenient way to receive these funds?**

**46.4%** respondents believe that these payments must be done using the **national mobile application** within the "Digital State in a smartphone" concept in case of targeted social benefits using e-hryvnia implementation.

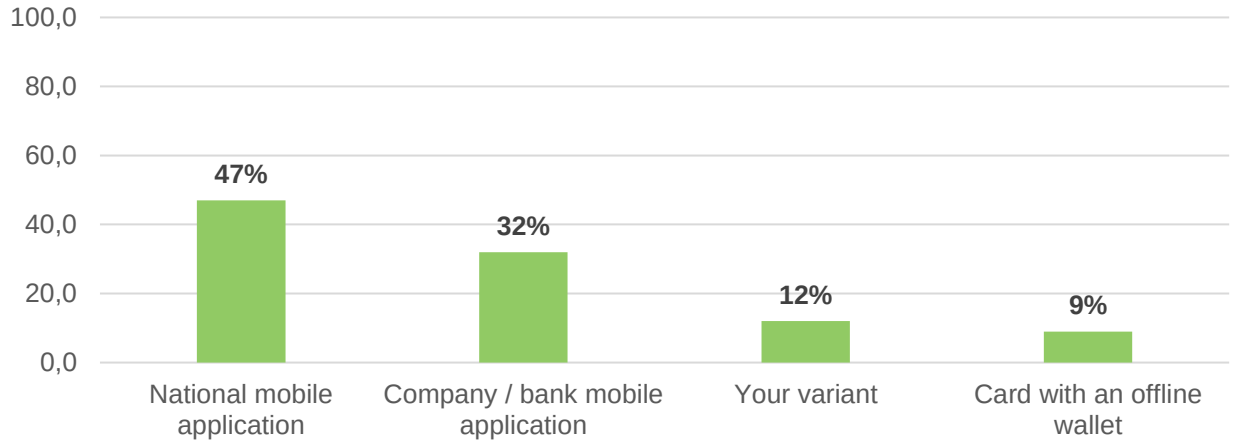



Chart. *Average votes rating in terms of means of e-hryvnia-based welfare payments*

Also, part of respondents believes that e-hryvnia-based targeted social benefits system should carry out these payments using **all the aforementioned instruments** in order to maintain the appropriate competition level.

## Settlements on securities and other financial instruments (B2B)

**Question 14. Which use areas are the most promising in case of e-hryvnia-based settlements on securities and other financial instruments implementation?**

In case of e-hryvnia-based settlements on securities and other financial instruments implementation, respondents rated the most promising use areas **approximately the same** (the gap is insignificant).

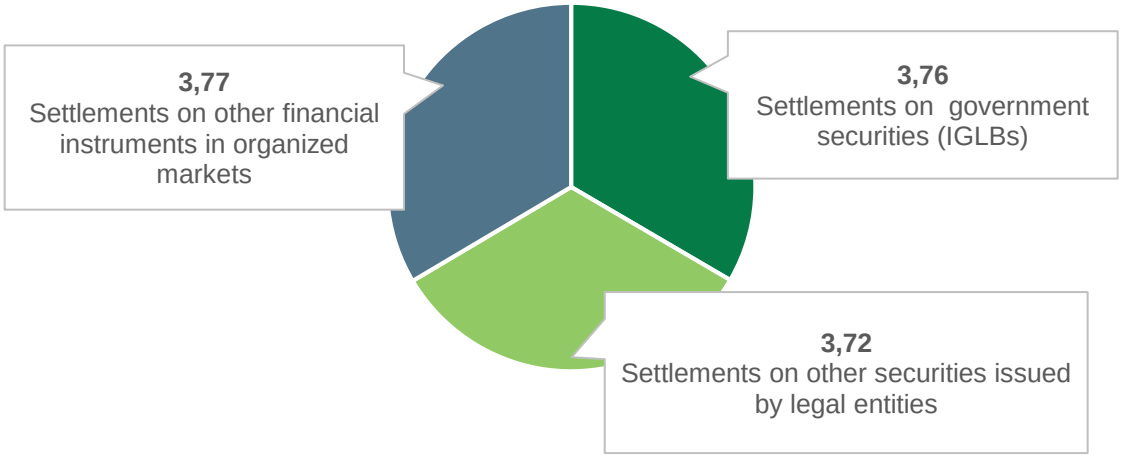



Chart. *Average vote rate in terms of prospects of settlements on securities and other financial instruments*

**Question 15. In case of e-hryvnia settlements on government securities (IGLBs) implementation, what existing characteristics would you improve in the first place?**

In case of e-hryvnia settlements on government securities (**IGLBs**) implementation, respondents believe that the following characteristics need to be improved in the first place: **participant access expanding** (**4.43 points** out of 5) and **procedure simplification** (**4.40 points** out of 5).

**Question 16. How important is it to provide non-banking financial institutions or other professional participants with access to fast direct settlements on securities and other financial instruments without the participation of banking system (direct settlements via e-hryvnia wallets)?**

Most respondents believe that providing non-banking financial institutions or other professional participants with access to fast direct settlements on securities and other financial instruments without the participation of banking system **is more important for stock / futures / commodity markets of Ukraine revival,** overall (**3.89 points** out of 5).

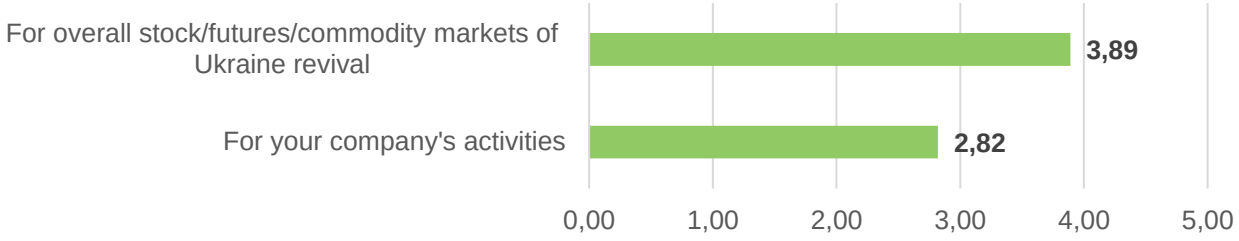



Chart. *Average votes rating regarding the importance of providing non-banking financial institutions or other professional participants with access to fast direct settlements on securities and other financial instruments without the participation of banking system (direct settlements via e-hryvnia wallets)*

**Question 17. Which model could be the most promising in case of e-hryvnia implementation for securities settlements?**

Most respondents (**more than 55%)** believe **"delivery versus payment"** model, which provides e-wallets opening and e-hryvnia clearing through PJSC "Settlement Center" to be the most promising one in case e-hryvnia is implemented for securities settlements.

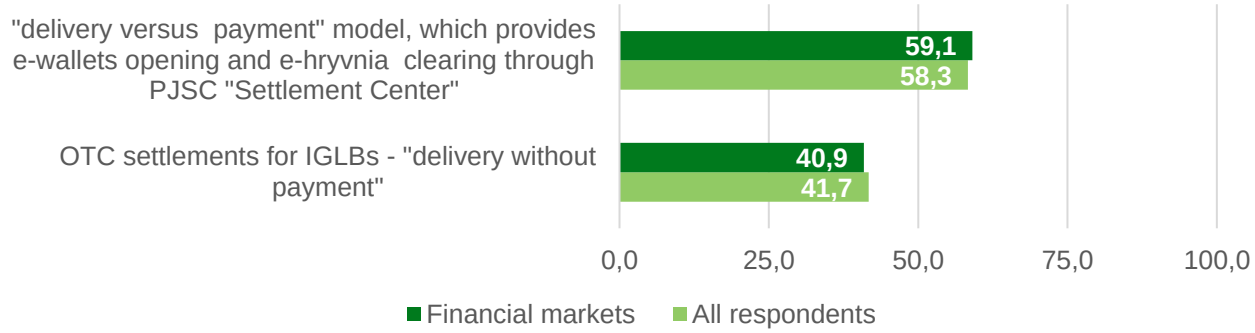



Chart. *Average votes rating in terms of models in case e-hryvnia is implemented for settlements on securities and other financial instruments*

**Question 18. How important could be smart (i.e., instant and irrevocable) contracts in case of e-hryvnia implementation for IGLBs settlements on the secondary market?**

Respondents answered that in case of e-hryvnia implementation for IGLBs settlements on the secondary market, smart (i.e., instant and irrevocable) contracts usage would be **very important** (**50% of respondents** believe so).

**Question 19. How important could be the possibility of paying coupons and face value using e-hryvnia in case of e-hryvnia implementation for IGLBs settlements on the secondary market?**

Most respondents believe (**48.6%**) **that the possibility of paying coupons and face value using e-hryvnia** would also be **very important** in case of e-hryvnia implementation for IGLBs settlements on the secondary market.

## Corporate payments of legal entities (B2B)

**Question 20. Which of existing features can be improved in case of e-hryvnia implementation for legal entities payments within the country?**

"Corporate business" group respondents believe than e-hryvnia implementation as a legal entities corporate payment instrument will lead to these operations **speed** increase (**4.5 points** out of 5) and **liquidity support** (**4.25 points** out of 5).

We should note that for the legal entities corporate payments **cost** issue took only the 4th place in the questionnaire.

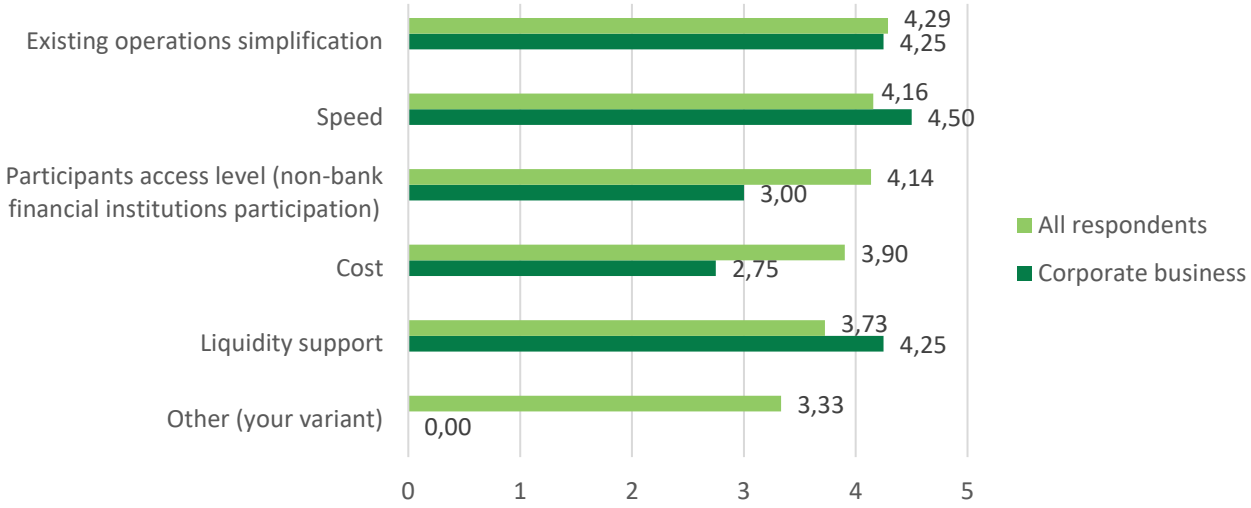



Chart. *Average votes rating in terms of e-hryvnia features in case of -hryvnia implementation for legal entities corporate payments*

**Question 21. Assess the reasonability of using e-hryvnia as a trade financing instrument (letter of credit, guarantee, escrow account) in case of its implementation as a corporate payments instrument.**

Most respondents believe that it is **reasonable** to use e-hryvnia as a trade financing instrument (letter of credit, guarantee, escrow account) in case of its implementation as a corporate payments instrument. This position scored about **4 points** out of 5.

**Question 22. Assess the possible impact of smart contracts for e-hryvnia on trade financing instruments (letters of credit, guarantees, escrow accounts).**

Respondents believe the **impact of smart** (i.e., instant and irrevocable) **contracts** for e-hryvnia on trade financing instruments (letters of credit, guarantees, escrow accounts) to be **significant** (**4 points** out of 5).

**Question 23. Assess the prospects of e-hryvnia use cases in case of its implementation for cross-border payments and settlements.**

Respondents believe **remittances between individuals (P2P)** to be the most promising use case of e-hryvnia in case of its implementation for cross-border payments and settlements. This option scored **4.12 points** out of 5.

According to the data obtained by the Bank for International Settlements, the importance of cross-border payments is increasing as the world economy has globalized. This rule especially applies to the **small-scale cross-border payments**, which underlie international tourism, cross-border e-commerce and migrant remittances. However, in most cases such payments are slow and non-transparent as much as they are expensive. The G20 group defined the analysys for innovative ways to speed the operations up, to reduce the cost and to increase the transparency of cross-border payments as one of its main priorities.

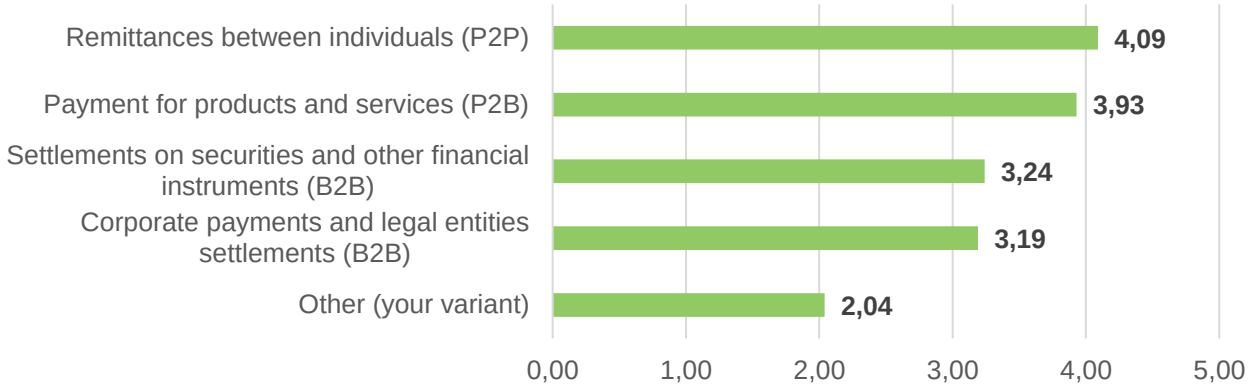



Chart *Average votes rating in terms of e-hryvnia use cases prospects in case of its implementation for cross-border payments and settlements*

**Question 24. Which feature could be improved in case of e-hryvnia's implementation for cross-borders payments by legal entities?**

Respondents believe that **speed (4.22 points** of 5) and **cost** (**4.11 points** out of 5) have a great chance to be improved in case of e-hryvnia's implementation for **legal entities** cross-borders payments and settlements.

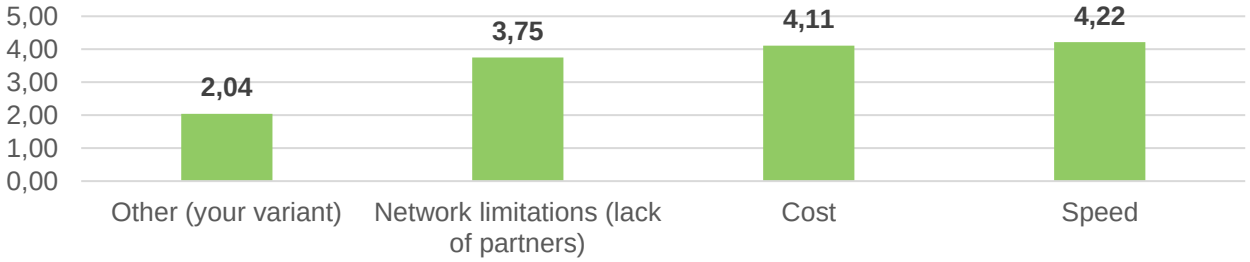



Chart. *Average votes rating regarding features that should be improved in case of e-hryvnia implementation for legal entities cross-borders payments*

**Question 25. Which feature could be improved in case of e-hryvnia implementation for cross-borders payments and remittances by individuals?**

Respondents believe that **cost (4.27 points** of 5) and **speed** (**4.19 points** out of 5) have a great chance to be improved in case of e-hryvnia's implementation for **individuals** cross-borders payments and settlements.

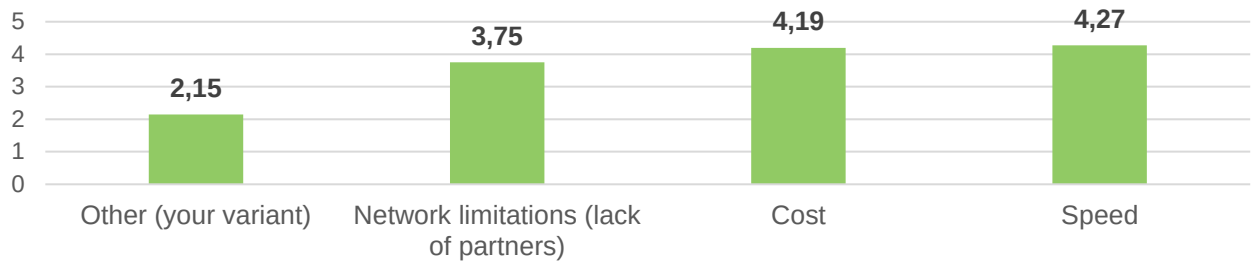



Chart. *Average votes rating regarding features that could be improved in case of e-hryvnia implementation for cross-borders payments and remittances by individuals*

## Interest bearing financial instrument

**Question 26. Who should be the users of e-hryvnia in case it is implemented as an interest bearing financial instrument?**

**The vast majority of respondents** (**73%**) believe that **all** the entities – banks, non-banking financial companies, corporate ("business") clients and individuals should be the users of e-hryvnia in case it is implemented as an interest bearing financial instrument.

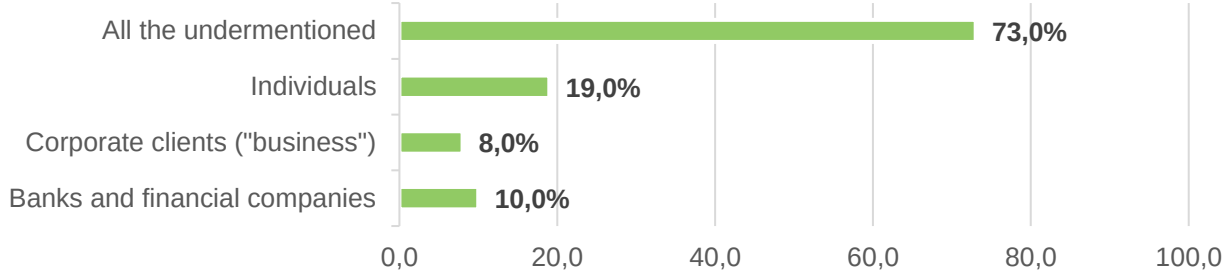



Chart. *Respondents' answers regarding the possible users of e-hryvnia in case it is implemented as an interest bearing financial instrument*

**Question 27.** Assess the liquidity outflow from the banking system to the central bank risk probability **in case of positioning e-hryvnia as an interest bearing financial instrument for individuals and corporate clients.**

Respondents assessed **the liquidity outflow from the banking system to the central bank risk** in case of positioning e-hryvnia as an interest bearing financial instrument as **moderate**. The risk for **individuals** was estimated at **2.99 points** of 5, the risk for corporate clients - **2.81** points out of 5.

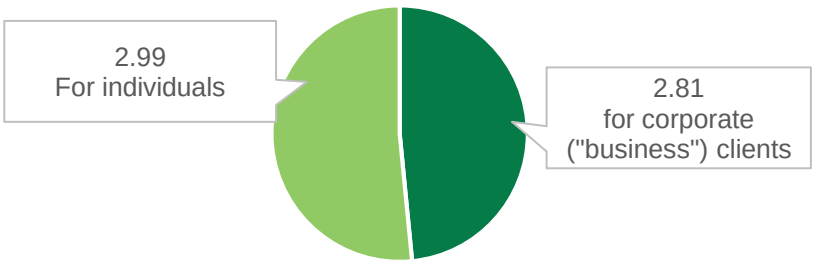



Chart. *Average votes rating regarding liquidity outflow from the banking system to the central bank risk*

**Question 28. Assess the benefits of using e-hryvnia with the purpose of purchasing / selling virtual assets (crypto currencies)?**

**All respondents** rated the **benefits of using e-hryvnia** with the purpose of **virtual assets (crypto currencies) purchasing / selling** almost **4 points** out of 5. The "Virtual assets" experts group rated it **4.71 points** out of 5.

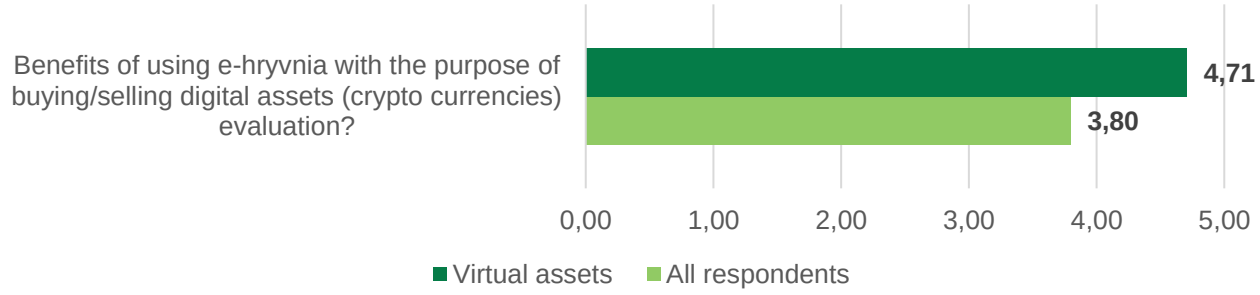


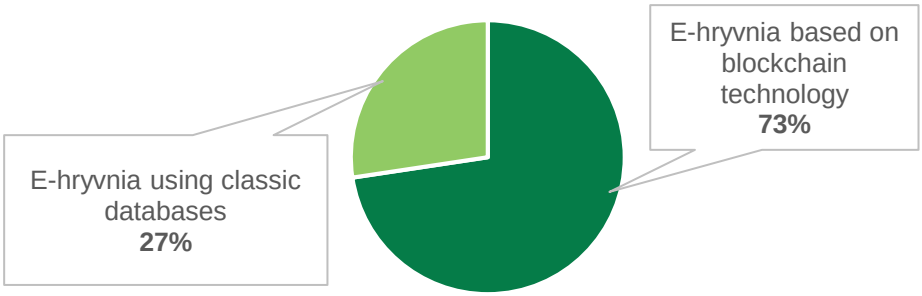

Chart. *Average votes rating regarding the benefits of using e-hryvnia with the purpose of purchasing / selling virtual assets (crypto currencies)*

**Question 29. Is your bank / company ready to invest in the creation of the e-hryvnia payment infrastructure and its promotion on the market?**

**55%** of respondents answered that their bank or company **is ready to invest** in payment infrastructure creation and its promotion on the market, however **45%** respondents answered that their bank / company **is not ready** to invest in such an infrastructure creating. Some respondents noted that the final answer will depend on the business model, product profitability and demand among individuals and legal entities.

**Question 30. Should e-hryvnia be implemented based on blockchain technology?**

The vast majority of respondents (**73%**) believe that e-hryvnia should be implemented **based on blockchain technology**, other respondents (**27%**) believe that it should be implemented **using classic databases.**




Respondents noted that the use of blockchain technology, on the one hand, may carry risks associated with the relative novelty and scalability of this technology, but on the other hand - transparency and innovative functionality (the ability to implement smart contracts and "programmable" digital currency). It was highlighted that blockchain technology can provide payments on securities without the PJSC "Settlement Center" participation, providing new opportunities for market participants securities trading that cannot be implemented using traditional payment means and clearing procedures.

# Conclusion

1. Financial market participants believe **retail cashless payments** (P2P transfers and e-commerce transactions) and **cross-border payments and settlements** (P2P transfers) to be the most promising use cases for e-hryvnia.
2. The use-case of e-hryvnia as an **instrument for welfare payments (G2P)** is on the penultimate place in the ranking. However, 77% of respondents supported this use case in the case of the implementation of e-hryvnia-based **"programmable" money**, which can be spent on specific purposes or during a special period of time only. Thus, this use case **would effectively complement e-hryvnia functionality for retail cashless payments**.
3. Respondents showed considerable interest in the potential of e-hryvnia as an instrument for **virtual assets settlements**. Moreover, most of the interviewed experts believe that e-hryvnia should be implemented based on blockchain technology. Considering the significant virtual assets market volume in Ukraine and the affinity of the technology, we believe that the use of e-hryvnia in the sphere of virtual assets **has further research and development potential.**

Thus, we can conclude that the most promising e-hryvnia use cases for further research and potential implementation may be:

1. E-hryvnia as an instrument for retail cashless payments including "programmable" money function and the option of targeted welfare payments;
2. E-hryvnia as an instrument for transactions related to the virtual assets sphere (exchange to fiat; reserve and other operations related to virtual assets);
3. E-hryvnia for cross-border payments.