



## Use of Digital Applications: Status and Prospects of Development

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# Use of digital applications: status and prospects of development

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**Abstract.** Attention is focused on the need to switch to paperless media. It is based on the "DIYA" application, which was introduced in Ukraine several years ago. The advantages and disadvantages of the "DIYA" application, which is popular among the population of Ukraine, are analyzed, attention is focused on the main digital services that are in demand among Ukrainians in this application. Examples of successful use of digital documents in some countries of the European Union are given.

**Keywords:** digital services, digital documents, "DIYA" application, e-passpor.

## 1 First Section

### 1.1 A Subsection Sample

**Introduction.** Digitization, along with the implementation of the "green course", is a key direction of the economic development of the European Union. In terms of digitization, even in the pre-war period, Ukraine achieved significant success in the introduction of digital technologies into society, the Ukrainian digital application "DIYA" received recognition in the EU and many member states. Electronic documents in "DIYA" have become a real digital revolution and a powerful step on the way to the paperless regime.

**Formulation of the main part.** After the start of the Russian military invasion, it was digital technologies and Ukraine's experience in cyber defense that helped to ensure the stability of state institutions, maintain an efficient system of social services, and maintain contact with Ukrainian citizens who were abroad as a result of Russian aggression. The fact is that since 2019, Ukrainians have been increasingly using the "DIYA" application, which has been expanded as "The State and I". DIYA

is an application in which all the necessary documents are in one place, in a smartphone. DIYA is a single portal where you can get all services online: quickly, conveniently and humanely.

Ukraine became the first country in the world in which electronic passports have the same legal force as physical counterparts. With the "DIYA" relationship, e-passports can be used in any life situations where a passport is needed, for example: opening a bank account online, cash transactions in a bank, traveling by train or plane within the country, checking into a hotel, receiving parcels at post office and to verify age at the supermarket. In this way, Ukraine became an innovator in the field of using digital documents [1].

The Ministry of Digital Technologies has launched digital passports in the "DIYA" mobile application. Currently, about 20 million Ukrainians can use them – more than 5.5 million of them have an ID card and another 18 million are holders of foreign biometric passports.

The adoption of the law on digital passports is one of the most important steps towards large-scale digitization, because the passport itself is the main document for obtaining public services [2].

Among the documents available in the "DIYA" application, the following can be distinguished: ID card; passport; student ID; driver's license; technical passport for a car; Taxpayer card; COVID certificates.

All these documents are full-fledged copies of the originals and show data that comes from state registers. To check the authenticity of documents, a QR code is used, in which a one-time password is encrypted. It is valid for three minutes and allows you to verify the document.

"DIYA" took the top positions in the ratings of the most popular mobile applications of Ukrainians. The authors successfully chose the "key chip" for the start - the first electronic documents were driver's licenses and student tickets. Their owners usually have modern smartphones. Among the first electronic services, "yeMalyatko" was a breakthrough – young parents were able to issue all the documents for a newborn child in just a few clicks.

More than 19 million Ukrainians use the DIYA application. In total, 25 electronic services are available in the "DIYA" application.

*Driving services.* Driving services are one of the most popular in the Action application. Among them is car sharing. The service allows you to share the technical license with a relative or friend in a few clicks when you borrow a car. So you no longer need to pass the document from hand to hand, go to the service center of the Ministry of Internal Affairs, or understand the driver's electronic cabinet. This service has been successfully used more than 155,000 times. In the application, you can also cancel sharing if your loved one no longer needs to use the car. Drivers can also pay fines for violations of traffic rules, in addition to parking fines, in "DIYA". In the application, you can replace your driver's license. To do this, you need to submit an application, and then pick up the document at the service center of the Ministry of Internal Affairs. Or you can completely abandon plastic and leave only a digital document.

*Donate to the Armed Forces and bonds.* Now in DIYA, you can donate to the "Army of Drones" project through UNITED24. Since the beginning of the invasion, more

than UAH 580 million in donations have been collected through the application. Ukrainians can buy military bonds from DIYA and thus support the army and the state's economy. It's like a donation, only with a refund and a guaranteed profit. In total, Ukrainians purchased more than a million bonds from "DIYA", which is equal to more than a billion hryvnias to help the army.

*"yeVoroh"*. From the "DIYA" main screen, you can go to the "yeVoroh" chatbot. It is a secure tool that allows civilians to safely and quickly transmit information about occupiers and collaborators to the Defense Forces. YeVorog has already proven its effectiveness as a tool of popular intelligence. Almost half a million messages about the movement of Russian troops, mining, or collaborationism in the occupied territories were received through the YeVorogh chatbot.

*"yeVidnovlennia"*. Ukrainians whose homes were damaged by hostilities can report damaged property to DIYA, submit an application and receive funds for repairs under the "yeVidnovlennia" program. The service is available if the damaged dwelling is subject to restoration and has not been completely renovated. The maximum amount of monetary assistance for repairs is UAH 200,000.

*Services for IDPs*. After the start of a full-scale war, a comprehensive service for internally displaced persons appeared in "DIYA". Yes, in a few clicks, you can issue an IDP certificate and financial aid from the state. More than 1.4 million people have already applied for certificates and aid for IDPs through DIYA. Two more services for internally displaced persons are available in the application - changing the place of registration and canceling the IDP status. Such services are relevant for those who have moved to another city or returned home.

*Unemployment benefits*. Those who lost their jobs due to the war or worked in the temporarily occupied territories can submit a simplified application to "DIYA" to receive unemployment status and financial assistance. After getting a job in the application, you can cancel your unemployment status and benefits in a few clicks [3].

*"yeOselya"*. "DIYA" operates a program of preferential state loans for housing "yeOselya". This is an opportunity to purchase an apartment for families of military personnel, doctors, teachers and scientists. As part of the "yeOselya" service, Ukrainians received housing loans for over UAH 1.6 billion. Thus, 1,213 Ukrainian families that meet the requirements of the program received loans at 3 %.

*References and extracts*. OK-5 and OK-7 certificates can be obtained in the application and on the DIYA portal. These are documents certifying employment and insurance experience. They are needed in the case of applying for a job, accruing sick leave or for assigning pensions. Such documents are one of the most demanded in Ukraine. In addition, you can order an extract about the place of residence – your own and the child's. So you no longer need to go to the registration authorities and stand in queues. Without this document, you cannot get married, register for the military, or send your child to school or kindergarten. Another of the popular documents in "DIYA" is an extract about a criminal record. Every year, a million Ukrainians need it. An extract is necessary to get a job, adopt a child or participate in a tender.

*Tax services*. In the "DIYA" application, entrepreneurs can receive tax services in a smartphone in a few clicks. Yes, you can submit a declaration of a single tax payer and pay it. After the outbreak of full-scale war, another possibility was added. Entre-

preneurs who submitted an application to the State Tax Service for the application of a special rate of 2 % were able to submit a 2 % single tax payer's declaration in "DIYA" and pay it. In addition, you can pay a single social contribution in the application.

*Court services.* "DIYA" has been providing court notices for more than a year - information notices about court hearings. Previously, Ukrainians could not even know that they were participants in a case being heard in court. The service allows you not to miss an important court session and to find out about the status of the case in advance. Court decisions have recently been available in "DIYA". A document with electronic signatures of judges can be generated independently in the application. A digital judgment has the same legal force as a paper one. In the application, you can view and pay debts due to executive proceedings. After payment, the receipt is saved in "DIYA", it can be downloaded or sent to e-mail. You can also track the change in debt status.

*"DIYA.Signature".* The "DIYA.Signature" technology allows you to sign a document anywhere and anytime. It is a secure electronic signature that can be activated in seconds. "DIYA.Signature – EU" is recently available in the application. This is an electronic signature that meets EU requirements. So Ukrainians can sign European documents and contracts. This can be done on two platforms: ID.GOV.UA (ICEI) and in the "Vchasno" document management service. Later, the functionality will be scaled to other platforms.

*English-language documents.* English-language versions of foreign passports, driver's licenses, and technical passports for cars are available in "DIYA". In addition, the license and technical data sheet have an international coding used in the EU, USA and Canada. To display documents in English in the application, you need to switch the language. This service is especially relevant for Ukrainians abroad. Although "DIYA" has not yet been recognized at the legal level in other countries, state governments have already found options that allow Ukrainians to use the services. So, for example, in some countries, Ukrainians apply for social benefits using electronic documents in DIYA, because these are the only documents they have on hand.

*"DIYA.TV" and "DIYA.Radio".* At the beginning of the full-scale invasion, radio and television appeared in "DIYA". Thanks to these services, Ukrainians were able to watch or listen to the national telethon and not be exposed to Russian propaganda.

*Poll.* Surveys in "DIYA" are a communication tool between the state and citizens. The service helps to build electronic democracy, because thanks to surveys, state institutions can find out the opinion of Ukrainians on this or that issue and take it into account when making decisions. In DIYA, Ukrainians have already expressed their position on the ownership of weapons, determined sketches of postage stamps, chose the winner of the National Selection for Eurovision 2023, new names for railways and decided whether to leave March 8 as a holiday. In total, 15 polls were held in DIYA, in which Ukrainians voted 12.6 million times.

*Exchange of lamps.* In DIYA, you can apply for the exchange of old incandescent lamps for new LED lamps in order to save electricity. Through the application, 6.8 million energy-saving lamps have already been ordered for exchange.

*Evaluation of the quality of services.* In the "DIYA" application, the evaluation of the quality of services has started, which helps to improve the product and make it convenient. So, after receiving a certain service in the application, a push message is received with a request to rate it. It is possible to evaluate a statement about the place of residence (for an adult and a child), exchange of light bulbs, a statement about a criminal record, payment of fines and replacement of a driver's license. You can also evaluate "yeVidnovlennia". To do this, you need to open the context menu of the service (the button with three dots in the upper right corner) and click "Rate the service". The plan is to scale the service to all services in the application. During the several months of operation of the service, Ukrainians rated the services of "DIYA" more than 442,418 times. The average score is 4.17 [4].

*Sharing and validation of documents.* For this, you only need to have the necessary document in the application and activate "DIYA.Signature". And the institution or company must implement the technical possibility to receive copies through "DIYA". Currently, Ukrainians can carry the following documents: an ID card, a foreign passport, an IDP certificate, a child's birth certificate, a driver's license, and a technical passport. Another scenario of interaction with digital documents is validation. You can check the validity of a digital document in "DIYA" in a matter of seconds.

In the "DIYA" application, 213 housing certificates have already been generated, for which the affected Ukrainians will be able to purchase new housing in the amount of more than 440 million hryvnias already generated. The average cost of a housing certificate is 1.9 million hryvnias.

*"DII" of martial law.* Electronic vaccination certificates, which in the second year of the COVID-19 pandemic became a truly indispensable document for everyone who sought to get out of severe social isolation, as well as payments under the "yePidtrymka" program, added several million more users to the "DIYA" application [5].

On the night of Russia's invasion of Ukraine, a radical decision was made to protect data in state registers – they were simply turned off. However, millions of Ukrainians were running away from the war in those days, documents were constantly being checked at checkpoints that grew up on all the roads of the country. At numerous roadblocks across the country, "DIYA" replaced paper documents for citizens.

It would seem that "DIYA", which verifies the validity of documents by contacting the state registers, should lose any usefulness. It would seem that "DIYA", which verifies the validity of documents by contacting the state registers, should lose any usefulness. However, within two weeks, the developers offered users the so-called "yeDocument" – a temporary electronic ID that contained basic data about a citizen, replaced an internal passport and, most importantly, was available offline.

Using the automatic system notification will have a great demand, the quality of the project and the program to ensure reliability for users. Nowadays, the military coma system is very outdated, and it is not convenient for people process [6].

At the same time, DIYA grew with specific wartime services – through the application, you could donate money to help the army or buy military bonds, watch Ukrainian television that had been turned off by the occupiers, and report on destroyed real estate. Some services had no alternative, and in some, according to the creators of "DIYA", citizens were offered the most effective solutions.

During the year of the war, the developers of "DIYA" launched 49 new services: from registering candidates for adoption to exchanging incandescent bulbs for energy-saving ones. The application itself, the first version of which was written for free by the private company EPAM, is now being worked on by a separate state enterprise. It tries to compete for programmers on the same level as private companies in the labor market of Ukrainian IT professionals.

All this increases the costs of digitization. In 2022, more than 243 million hryvnias were spent from the state budget to support the DIYA application and web portal - more than twice as much as in 2021. However, the Ministry of Digital Transformation believes that "DIYA" actually saves public money. The economic and anti-corruption effect of digitization amounted to 48 billion hryvnias [7].

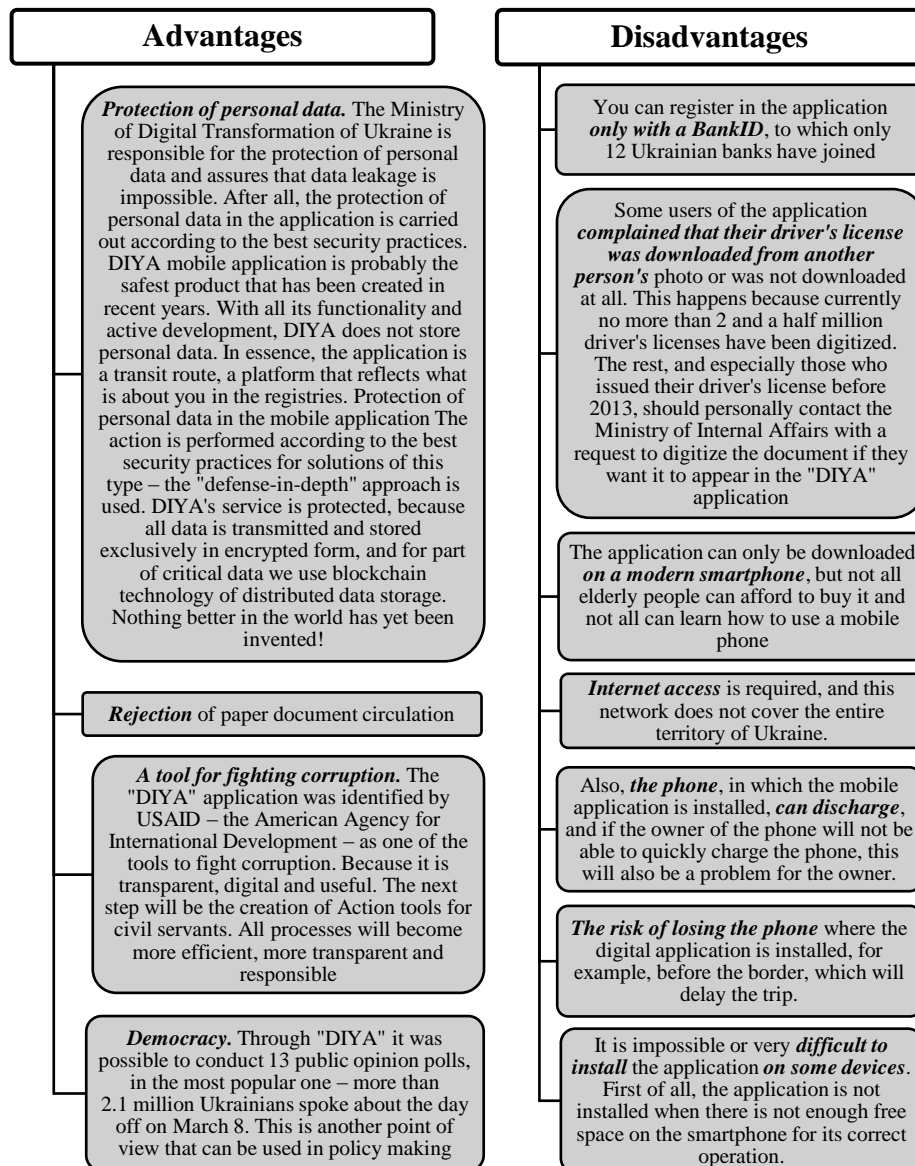
In October 2022, military bonds began to be sold through DIYA. Ukrainians purchased 2.3 million military bonds worth more than UAH 2.3 billion in the DIYA application.

It was the successful experience of increasing the transparency of the use of state finances that prompted the United States Agency for International Development (USAID) – one of the main donors of "DIYA" – to think about exporting the project to other countries. So far, they have allocated only 650 thousand dollars to study and analyze our experience, as well as the possibility of its dissemination. Of course, "DIYA" is not Microsoft Office, it cannot be simply sold and installed in some other country with its own registry system [8].

The Ministry of Digital Transformation and the State Statistics Service have launched a public beta version of the updated State Statistics Service portal. The ERAM IT company, which developed the first version of the DIYA mobile application, acted as a key partner in the transformation of the State Statistics Service portal in this project. The new portal is implemented using advanced cloud technologies and data transmission solutions. The main goal of the project is to bring the tools and methods of work of the state organization closer to the principles of the technological company, as well as to harmonize them with the international standards of work of similar statistical institutions in accordance with the road map of the European integration of Ukraine. Qualitative data is the basis for making management decisions. That is why Derzhstat should turn into a modern organization that is similar to an IT company. This will allow you to receive data in real time, quickly analyze and disseminate it. The basis of the project was the development of ERAM, a platform for managing the life cycle of QuantHub data. This platform was adapted to the requirements of the State Statistics Service: it was translated into Ukrainian and supplemented with additional features for implementing the process of statistical production [9].

Digital documents in smartphones are also used in Poland and South Korea. Similar projects are being implemented in Great Britain, Finland, and the United States. Citizens of Estonia use a digital ID card with which they can receive government services online, manage bank accounts, and vote via the Internet. However, it is Ukraine that is the first state in the world where digital passports in a smartphone have the same legal force as paper and plastic documents.

Consider the advantages and disadvantages of the "DIYA" application (see Fig. 1):



**Fig. 1.** The advantages and disadvantages of the "DIYA" application [10-11].



If two million Ukrainians voted for a certain decision, it can be a weighty point of view even for a certain draft law, and not only a normative legal act of the Cabinet of Ministers [12].

**Conclusions.** In the modern world of digitization, a reasonable proportion must be observed between rapid digitization and the observance of human rights in order to prevent the creation of a system of total state control over society. The authors analyzed the advantages and disadvantages of the "DIYA" application popular among the population, focusing on the main digital services that were in demand among Ukrainians in this application.

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