DIGITAL TECHNOLOGIES AND THE RESILIENCE OF UKRAINE'S SOCIAL PROTECTION SYSTEM: WARTIME EXPERIENCE

T. BURLAY

Tetiana Burlay

Institute for Economics and Forecasting of the National Academy of Sciences of Ukraine
https://orcid.org/0000-0003-4530-9151, E-mail: btv2008@ukr.net

Abstract: *The article focuses on the problem of digitalization under military shocks in Ukraine. The research key aim is to substantiate the digitalization of the social sector of Ukraine as a strong determinant of its societal resilience in the full-scale war conditions. One of the main objectives is to determine the impact of digital technologies on the stability of the social security population under martial law. The study applies a comprehensive methodology based on a combination of logical-historical, analytical, institutional, graphical, and sociological approaches. It is all-important that in 2020 Ukraine adopted the Strategy for Digital Transformation of the Social Sphere, and within its framework carried out digitalization. Since the beginning of the war in February 2022, the Unified State Web Portal of Electronic Services "Diia" provided the opportunity to: receive pension and social payments on bank cards; new registration or recalculation of such payments; the restoration of documents on work experience (E-work book) or disability; etc. Digital technologies such as access to ID cards, digital signatures, etc. also helped economically active Ukrainians during the war. It is concluded that digitalization has become a strong factor for stability of the national social protection system, as well as the Ukraine's socio-economic and societal resilience in in the most difficult times of war.*

Keywords: digitalization, military shocks, social security, societal resilience.

Introduction
The research focus

For the third year running, a full-scale war has had an extremely shocking impact on Ukraine's economy, destroying its human capital and social development. Thus, according to the UN Human Rights Monitoring Mission, in Ukraine at the end of 2023 the number of civilian casualties during the war alone exceeded 29 ths people, including the deaths of more than 10 ths civilians. As of the end of February 2024, over 11.4 million Ukrainians have become internally displaced persons (IDPs) or war refugees abroad, which is slightly less than a third of the pre-war population. The number of Ukraine's citizens officially registered as IDPs in the national Ministry of Social Policy reached 4.9 mln as of December 2023, among them 2.5 mln (51%) were displaced and cannot return to their homes, because their housing is either destroyed or in the zone of active hostilities or in the temporarily occupied territory. And almost 6.5 mln refugees from Ukraine are registered globally, among them more than 4.3 mln had temporary protected status in the host EU countries (Burlay, 2024).

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The financial dimension of the material damage caused by the war to Ukraine's social sector is enormous. According to the consolidated international report "Rapid Damage and Needs Assessment" for the period from February 24, 2022 to the end of December 2023, the social sector includes housing, education and science, health care, social protection and social security, culture and tourism, which totals more than $66 billion in direct and $71 billion in indirect losses. It is the social sector that needs the most reconstruction funds over the next ten years, almost $162 billion, half of which will be needed to rebuild housing (World Bank [WB], 2024, p. 39, 85–96).

Under the martial law, the issues of social and societal resilience of the country are extremely relevant. At their respective levels, these concepts describe the ability to withstand significant shocks by combining three components: (i) the ability to overcome stressful influences; (ii) the ability to learn from past experiences and adapt to future challenges; (iii) transformational capacity to build institutions and implement social security and other measures to build resilience to future shocks. Thus, social resilience is defined in relation to different social groups, including the poor and marginalised (Keck & Sakdapolrak, 2013, p. 6–8, 14), while societal resilience is assessed at the level of society as a whole (Burgess, 2022, p. 9). The national social protection system becomes a fundamental pillar for any country's social and societal resilience. The Ukrainian social protection system provides certain categories of citizens with social support, which includes the types of social assistance, subsidies, benefits, social services, the local programs of social protection, the payments of social sphere, etc., provided by the law. More than 30,000 social workers provide social support to Ukrainians, but there are not enough of them. That is why the introduction of digital technologies is of great importance for the timely, high-quality and complete provision of social support to people, especially in times of military shocks. Digital technologies greatly simplify extraterritorial access, registration, control of social benefits, and change of status of social support recipients; prevent corruption, fraud, and social risks in the receipt of social benefits; and make the social protection system much more transparent, fair, and flexible.

Hypothetical justification

According to our assumption within the framework of political economy and institutional theory, the main elements of social and societal resilience are, in particular, the institutions of public administration, social security, social protection, including the institution of social support for the population. The effectiveness of these institutions in the digital era depends significantly on the level of digital technologies used and the scale of their implementation. Thus, in the context of this study, we hypothetically assume that:

(1) in times of extreme and prolonged shocks, such as the full-scale war in Ukraine, providing sufficient social support to the population is a necessary factor determining the physical and social survival of people in the areas affected by hostilities, shelling, air raids, etc., preserving human and social capital, and promoting social stability.

(2) this social support, which primarily includes social and pension payments, social assistance and benefits, social services, etc., directly contributes to social resilience. The termination/restriction of access to social support for the most vulnerable categories: the disabled, pensioners, the poor, families with children, internally displaced persons, etc., under

martial law leads to an explosive increase in social tension, loss of social solidarity and trust in the government, as well as in other political and social institutions.

(3) digitalization of the social sphere is an effective and reliable mechanism for ensuring access to social support for the most vulnerable categories of the population in times of military shocks. Thus, the use of digital technologies in the social protection system directly contributes to the resilience of society, as well as maintains solidarity and institutional trust in a country affected by military conflict, which is vital for Ukraine, which is struggling with difficulties.

Purpose and objectives of the research

Taking into account everything mentioned above, the main purpose of the article is to substantiate the digitalization of Ukraine's social sector as a strong determinant of its societal resilience in the conditions of a full-scale war. In order to achieve the purpose involves solving the following tasks: (1) clarifying the main parameters of the social protection of Ukrainians; (2) determining the level of institutionalization of the use of digital technologies in this area; (3) determining the impact of digital technologies on the stability of social protection of the population under martial law; (4) substantiating the link in times of war between the stability of the social protection system and the social stability of Ukraine through the prevention of extreme poverty and social tension, as well as increasing solidarity and institutional capacity.

Brief literature review

The issues of content, main factors and ways to achieve societal resilience are in the focus of attention of most contemporary researchers. The scientific work by Burgess (2022) reveals the key components of the specified scientific category. An analytical article by Haavik (2020) explores societal resilience as a new direction in security science, in addition to the technological, human and organizational aspects of security. Keck and Sakdapolrak (2013) reasoned that finding ways to ensure societal resilience is a serious problem for public policy in the vast majority of countries. Many in-depth scientific studies have been devoted to the issue of the social sphere digitalization. In particular, Lee-Archer (2023) investigated the role of digital technologies in the transformation based on a human-centered model of traditional approaches to social policy and social security administration. The main problems of the current stage in the digitalization of the national social security systems of the European Union countries are revealed by Schoukens (2020). The assessment of the impact of digitalization on social development, studying the experience of the EU and Ukraine, was made in a study by Grytsenko and Burlai (2020). The approaches to digitalization of the state regulation system and public services provision in Ukraine are justified in the article by Mishchenko and Mishchenko (2023). The study by Huk (2021) devotes the digitalization impact on the use of standard and new employment forms in Ukraine. A recent scientific study by Gjoni (Meta) and Elez (2023) gave grounds (using the Albanian case) to consider the implementation of digital technologies in the national labor market as an effective component of its internationalization. Using the Azerbaijanian case, the relationship at the microeconomic level between the introduction of digital technologies and the growth of labor productivity, and as a result, competitiveness, was considered by Hashimova (2023). At the same time, there is still a wide

scope for studying the impact of digital technologies on the dynamics of social development under martial law, including the example of Ukraine.

Scientific methods

The study applies a comprehensive methodology based on a combination of logical-historical, analytical, institutional, graphical and sociological approaches. The institutional methodology was used to identify the impact of digitalization institutions and social development institutions. The use of analytical approach made it possible to understand the extent of coverage of Ukrainians by the social protection and support system, as well as to characterize their use of social e-services provided by the Government of Ukraine. Graphical methods in our study allowed us to better demonstrate the current capabilities of Ukraine's key digital platforms to provide social support to Ukrainians remotely and without paper. Using sociological approaches, our research recognizes the dynamics and structure of users of digital social services in Ukraine. A World Bank study proves that strengthening national social protection systems is definitely an effective factor for the post-war recovery of fragile and conflict-affected countries (Ovadiya et al., 2015). Applying the logical-historical method, it is advisable that this experience should be taken into account by policymakers in Ukraine, which is currently engulfed in a large-scale military conflict.

Results

Institutional framework

The start of digitalization processes deployment in the social policy sphere was given by the approval in January 2018 of the Concept for development of the digital economy and society for 2018–2020 in Ukraine. In October 2020, Ukrainian Government adopted the Strategy for Digital Transformation of the Social Sphere. And within its framework, the rapid implementation of digital technologies aimed at ensuring social protection of Ukrainians, including by simplifying access to social benefits and social services for those citizens who have legal grounds for it, as well as guaranteeing such access even during such extraordinary crises as COVID-19 and the Russian-Ukrainian war.

Emphasizing that "*the digital transformation of the social sphere has become a key element of the national strategy in the digital technologies area aimed at the development of an effective and accessible Digital State*", in March 2024 Ukrainian Ministry of Social Policy initiated the signing of open memoranda with manufacturers and suppliers of information and communication equipment (vendors) on cooperation in the field of digital transformation of the social sphere. This is expected to help reduce corruption and ensure maximum transparency in procurement procedures through the Ukrainian electronic procurement system Prozorro (Ministry of Social Policy of Ukraine [MSPU], March 2024).

The legislative framework for regulating for Ukrainian social sphere digitalization includes the laws of Ukraine "On social services", "On the basics of social protection of persons with disabilities in Ukraine", "On ensuring the rights and freedoms of internally displaced persons", "On the status war veterans, guarantees of their social protection", "On the status and social protection of citizens who suffered as a result of the Chernobyl disaster", "On the basic principles of social protection of labor veterans and other elderly citizens in Ukraine", "On

social work with families, children and youth", "On electronic identification and electronic trust services", "On personal data protection", "On information protection in information and communication systems" and others.

The key institutions for the implementation of the digitalization of the social sector in Ukraine are the Ministry of Social Policy, the Ministry of Digital Transformation, the Pension Fund, the National Social Service of Ukraine and others. The parameters and dynamics of the digitalization of Ukraine's social sector will be assessed using the national Digital Economy and Society Index (DESI), based on the EU methodology and approved in September 2023.

Ukrainian recipients of social support

Due to the historical legacy of previous decades, social protection in Ukraine today covers almost the entire population, although to varying degrees. In general, pensions are received by pensioners, people with disabilities, families who have lost a breadwinner, etc.; social payments, benefits, subsidies and privileges are received by war veterans, people with disabilities, orphans, families with children, low-income families, etc.; payments in case of occupational injuries, sick leave, maternity leave, unemployment benefits, etc. are received by citizens covered by the social insurance system of Ukraine.

State social support is primarily intended for vulnerable groups of the population, which, according to Ukrainian legislation, are individuals/families at the highest risk of falling into difficult life circumstances as a result of adverse external and/or internal factors. Such factors include, in particular, old age; mental and behavioural disorders; disability; homelessness; unemployment; poverty; child abuse; damage caused by fire, natural disaster, catastrophe, military operations, terrorist act, military conflict, temporary occupation.

The undoubted importance and usefulness of digitalization for the Ukrainian national social protection system, especially for maintaining social stability, solidarity and resilience of society in wartime, is related to the large number of recipients of various social benefits and social services. At the end of 2023, 10.5 million Ukrainian citizens received pension payments, including 1.4 million people who received a disability pension (Pension Fund of Ukraine [PFU], 2023). And also, with a significant number of types of social support for population. Currently, the Ukraine provides 39 types of social assistance or benefits (MSPU, January, 2024), and quite often, an average Ukrainian family can receive several of them at once. At the same time, 23 types of social services are provided for vulnerable groups in Ukraine.

Key components and approaches for Ukrainian social sphere digitalization

The above-mentioned Strategy for Digital Transformation of the Social Sphere provided for the Unified Social Sector Information System (USSIS) creation; the legislative Regulation on it was approved by the Resolution of the Ukrainian Government dated 04.14.2021 No. 404. Follow the Ministry of Social Policy, USSIS is a complex system designed to automate all areas of social support by all social sphere institutions within a single information environment and technological platform. Also, USSIS is the foundation for digitalization of social services and is built on such key approaches as: *Paperless* (to ensure citizens' remote access to all services provided by social protection institutions); *Extraterritorial and Multi-Channel Application* (via mobile communication, e-mail, mobile

application "Diia" Portal, etc.). USSIS structure is shown in Figure 1. Research and industrial operation of USSIS began in January 2022 and lasted for two years (MSPU, 2023).

Figure 1. *Structural components of Ukraine's Unified Social Sector Information System, introduced on December 30–31, 2021*

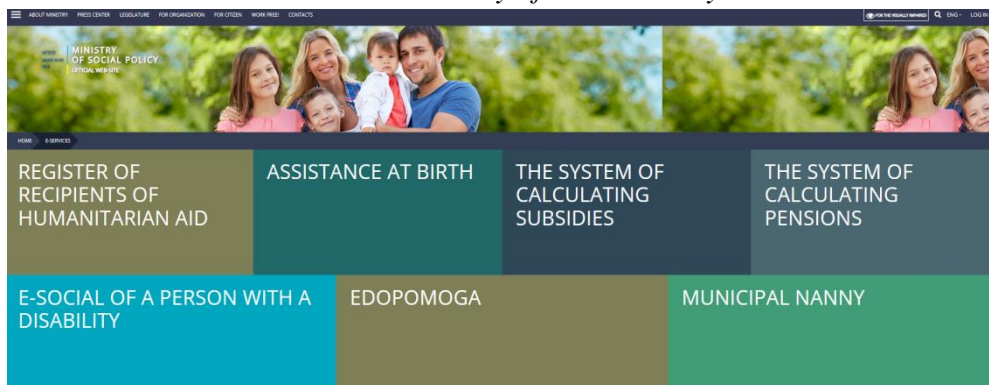| UNIFIED SOCIAL SECTOR INFORMATION SYSTEM (USSIS)	
General purpose subsystems	**Applied subsystems of e-services**
- Unified Social Register - Register of Providers and Recipients of social services "Electronic Budget" subsystem - Subsystem "Social Treasury" (Unified settlement and payment center of the social sphere) - Subsystem "Unified Social Processing" - Electronic Social Identity Card	- Subsystem "Subsidy" - Subsystem "Social Assistance" - Subsystem "Pensions" - Subsystem "Internally Displaced Persons" - Subsystem "Social Services" - Subsystem "Persons injured as a result of the Chernobyl disaster, other nuclear accidents and tests, military exercises with the use of nuclear weapons" - Subsystem "Victims of Nazi persecution" - Subsystem "Persons who have special merits to the Motherland"

Source: "Diia" Portal (2024).

Ukrainian main digital platforms for providing public socially oriented e-services

The main such digital platforms that are integrated with USSIS and with each other are: (1) the Unified State Web Portal of Electronic Services "Diia" ("Diia" Portal, https://diia.gov.ua/) and (2) the web portal of electronic services of the Pension Fund of Ukraine (PFU Portal, https://portal.pfu.gov.ua/). The service is provided for users who access the portals using a qualified digital signature or the Integrated system of electronic identification ID.GOV.UA (https://id.gov.ua/). Also, some digital social services in Ukraine are available as e-services on the following sites:

- the Information and Computing Center of the Ministry of Social Policy of Ukraine (*very few and still poorly functioning e-services*, https://www.ioc.gov.ua/en/eservices/);
- the Ministry of Social Policy of Ukraine (https://www.msp.gov.ua/en/main/Eservices.html)

Figure 2. *E-services on the Ukrainian Ministry of Social Policy website*
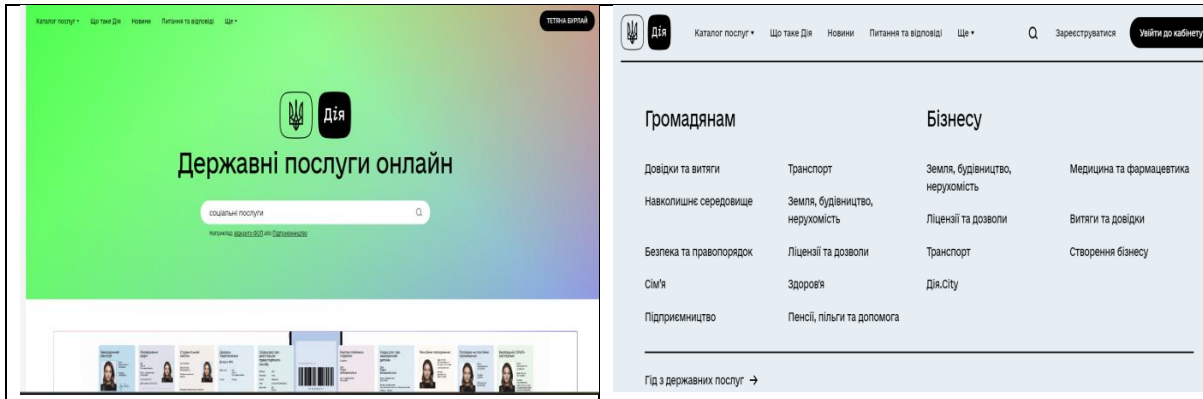

Source: Ministry of Social Policy of Ukraine (n.a.).

The Unified State Web Portal of Electronic Services "Diia"

The Regulation on the Portal, approved by the Resolution of the Ukrainian Government dated 04.12.2019 No. 1137 stipulates that the "Diia" Portal (Figure 3) is intended to implement the right of everyone to access electronic services and information on administrative and other public services. According to this resolution, the owner of the "Diia" Portal is the Ministry of Digital Transformation of Ukraine. The Ministry estimates that the potential economic effect of this Portal e-services amounts to UAH 34.3 billion per year, and the potential anti-corruption effect is more than UAH 5.3 billion.

Figure 3. *The front page and electronic services of the Ukrainian "Diia" Portal*
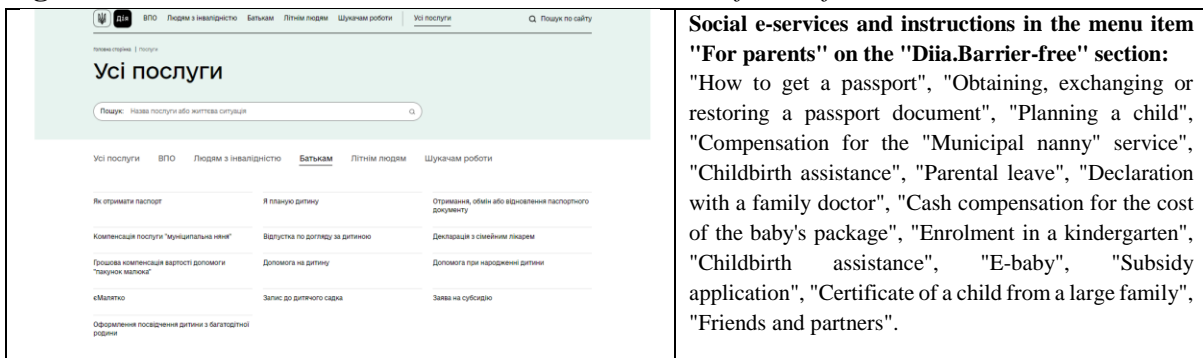

Source: "Diia" Portal (n.a.).

On Figure 3 also demonstrates the directions in which the "Diia" Portal provides social e-services (informational, consulting, processing of official documents, etc.) to the population and businesses. In particular, Ukrainian citizens today can receive e-services in various areas: "References and Extracts", "Environment", "Safety and Law-and-order", "Family", "Healthcare", "Land, Construction, Real Estate", "Transport", "Entrepreneurship", "Licenses and Permits", "Pensions, Benefits and Assistance". In certain directions, this Portal contains a limited number of social e-services, their full list is provided on profile portals, e.g. the web portal of electronic services of the Pension Fund of Ukraine.

In December 2022, the section "Diia. Barrier-free" (https://bf.diia.gov.ua/) was launched on the "Diia" Portal. It was developed as per the National Strategy for the Creation of a Barrier-Free Space in Ukraine for the period until 2030. The website states that the Section will be useful for older people; people with disabilities; parents raising children of preschool age; people looking for work; IDPs and Ukrainian refugees from the war (Figure 4).

Figure 4. *Social e-services on the section "Diia. Barrier-free" of the "Diia" Portal*

| | **Social e-services and instructions in the menu item "For parents" on the "Diia.Barrier-free" section:** "How to get a passport", "Obtaining, exchanging or restoring a passport document", "Planning a child", "Compensation for the "Municipal nanny" service", "Childbirth assistance", "Parental leave", "Declaration with a family doctor", "Cash compensation for the cost of the baby's package", "Enrolment in a kindergarten", "Childbirth assistance", "E-baby", "Subsidy application", "Certificate of a child from a large family", "Friends and partners". |

Source: Section "Diia. Barrier-free", "Diia" Portal (n.a.).

Currently, in 2024, it is possible to receive 4 social benefits on the "Diia" Portal: in case of adoption; for children with serious illnesses; persons with disabilities since childhood; for children of single mothers. Pursuant to Ministry of Social Policy, more than 600.0 ths Ukrainians took advantage of this opportunity. The deadline for the appointment of these benefits occurs within 10 days from the application start, and the notification of the application result will be sent to the user's personal account on the "Diia" Portal or to e-mail. In the digitalization course, a Register of providers and recipients of social services was introduced, the development of an electronic case-management was started, and a transparent accounting mechanism for humanitarian aid through an automated system of its registration (https://good.gov.ua/) was also created (MSPU, January, 2024).

The Web-portal of Electronic Services of the Pension Fund of Ukraine

The Pension Fund Portal provides a very significant number of e-services related to pension insurance, as well as social insurance in connection with temporary disability, industrial accidents and occupational diseases (Figure 5). In this case, e-services are provided through the personal accounts of the citizen and the employer, so both parties to the labour relationship can control information on employment history, social contributions, average salary for pension calculation, etc.

Figure 5. *Social electronic services on the PFU Portal*

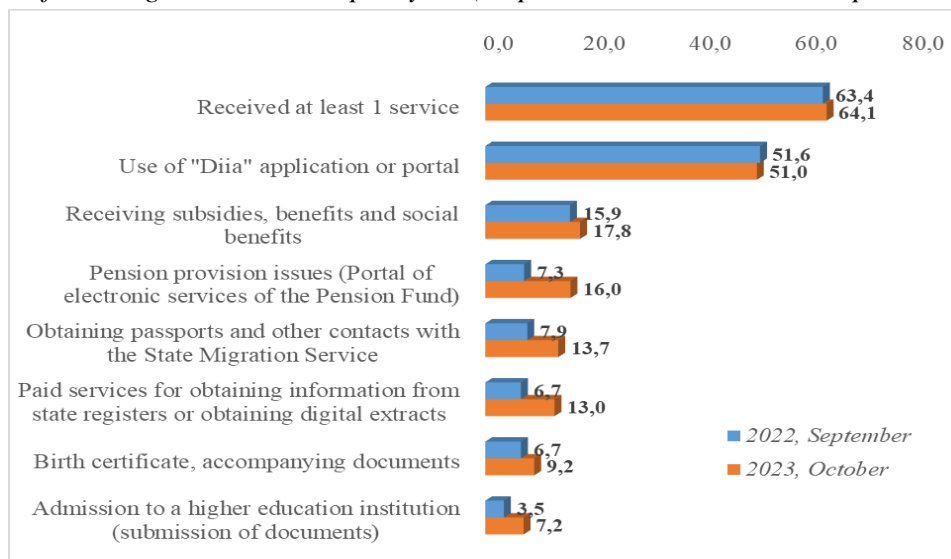|	**Social electronic services and instructions on the PFU Portal:** "Application for pension", "Voluntary payment of insurance contributions for obligatory state pension insurance (Accession Agreement)", "Application for housing subsidy or benefit", "Application for insurance payment", "Application for payment of sick leave", "Information on employment", "Data from the Register of Insured Persons", "Electronic pension file", "Insured person's data from the Unified Register of Insured Persons", "Insured person's reporting information", "All your appeals to the Pension Fund of Ukraine", "Appointment record", "Application for pension recalculation", "Amendments to the electronic pension file", "Request for paper documents", "Request for electronic documents", "Data from the Electronic Register of sick leave certificates", "Appeal (question, suggestion, complaint, petition)", "Questionnaire for making changes to the Register of insured persons", "Pension calculator".

Source: PFU, 2023, p. 31; the Web Portal of the Pension Fund of Ukraine (n.a.).

Statistics show the great importance of PFU Portal as a digital platform. As of October 1, 2023, more than 14.7 mln users were registered on it, among them 10.4 mln were using a qualified e-signature. During January–September 2023, through the PFU Portal, 4.3 mln certificates with a QR-code were generated; 36.6 ths applications for the pension appointment and 24.7 ths for the pension recalculation were submitted; 27.3 ths questionnaires of an insured person for submission / changes / clarification of data in the Register of insured persons. During this period, 1,529.0 ths applications for digitalization of employment records were filed, including 29.9 ths by employers for 895.9 ths employees and 633.1 ths by employees themselves (PFU, 2023, p. 31–34).

The importance of digital technologies for the Ukraine's social resilience in a full-scale war

It is quite objective that the digitalization of the Ukrainian social sector has an extremely important positive value for maintaining the resilience of the national social protection system under martial law. In particular, from the first days of the war in February 2022, the "Diia" Portal and PFU Portal provided vital opportunities for vulnerable categories of Ukrainians: receiving pension and social state payments to bank cards; processing or recalculating such payments; updating documents on employment history (electronic work record book) or disability for pension applications; etc. Digital technologies, such as access to ID cards and other personal documents, electronic digital signatures, and others, have also helped economically active Ukrainians, students and schoolchildren during the war. In particular, simplified border crossings for Ukrainian refugees from the war abroad; finding housing and jobs for internally displaced persons; opportunities for businesses to issue loans online; distance learning for schoolchildren and students, as well as remote employment where possible, and others. The direct positive impact of the digitalization of the domestic social sphere on ensuring Ukrainians' access to social protection under martial law is confirmed by analytical and sociological sources. For example, the Human Impact Assessment report (United Nations Development Programme in Ukraine [UNDP in Ukraine], 2023) shows that in almost all areas of assessment in June 2023, including food security, livelihoods, living standards, health and education, and social integration of internally displaced persons, the use of digital technologies has become one of the most effective mechanisms for Ukrainians to adapt to the difficulties of war. The value and indispensability of this mechanism under martial law is also proved by the data of sociological surveys. Figure 6 shows the increase in the share of Ukrainian users of digital social services in October 2023 compared to September 2022.

Figure 6. *The share of Ukrainians who have had the opportunity to receive government e-services in any of the following areas over the past year (respondents could select multiple answers), %.*

Source: UNDP in Ukraine, 2024, p. 21–22.

The shock effects of the war have critically reduced the living standards of the vast majority of Ukrainian citizens, especially IDPs and those who remained in the frontline areas.

During the war, the scale and depth of poverty in Ukraine has increased many times over, due to the loss of jobs, personal property and income (especially taking into account the inflationary component). According to international estimates, since the beginning of the war and as of the end of 2023, the loss of income of Ukrainian households has amounted to at least USD 60 billion (WB, 2024, p. 40).Demographers estimate that in pre-war 2021, 39% of Ukraine's population lived below the poverty line. Under the conditions of military shocks, with the modelled data remaining unchanged, the poverty rate was 60% in 2022 and 67% in 2023. In fact, because of the war, Ukraine returned to the poverty level of 2001, having lost 20 years (Gordiychuk, 2023). The pre-war experience of Ukraine has convincingly demonstrated the link between the level of social security (stability of the social security system) and the prevention of poverty and social tensions (Koval, 2018). And for wartime, it is absolutely clear that without remote, paperless access to social payments, benefits, pensions, etc. provided by digital technologies, poverty indicators in the country can become critical in the social dimension, causing irreversible processes in Ukrainian society and several million additional refugees to the EU and other host countries. Despite the stability of the national social security system during the war, this did not strengthen institutional trust in Ukrainian society. Sociological research by the Kyiv International Institute of Sociology recorded an increase in criticism of the Ukrainian government and a significant decline in institutional trust in December 2023 compared to December 2022. In particular, the share of those who trust the Verkhovna Rada (Parliament) decreased from 35% to 15%; trust in the Government decreased from 52% to 26% (Hrushetskyi, 2023).

Conclusions

Based on our research, we draw certain conclusions. First of all, the main conclusion is that digitalisation has become a powerful factor in the socio-economic and societal resilience in the most difficult times of war. The Ukrainian case is a clear indication that under martial law, the national social protection system becomes a fundamental pillar of social and societal stability in any country (this confirms the *first* hypothesis of the study). The introduction of digital technologies is of great importance for the timely, high-quality and full-fledged provision of social support to the population, especially in the context of military upheaval (this confirms the *third* hypothesis of the study). The *second* hypothesis (the sustainability of social support achieved, among other things, through the digitalization of the social sphere protects against poverty and helps to strengthen institutional trust) is only partially confirmed.

The practical significance of the study is that it is advisable to take into account the above conclusions and the results of verification of the put forward hypotheses in the development and implementation of public governance measures in Ukraine under martial law and its post-war recovery. In particular, when finalizing the draft Ukraine Recovery Plan (https://recovery.gov.ua/en), including draft of «Recovery pre-requisites: Digital Government» and «Secure targeted and effective Social Policy» national programs. At the same time, a very important topic remained outside the focus of our study: "bottlenecks" and challenges posed by the digitization of the social sphere. The relevant scientific discussion can begin with an analysis of the position of the UN expert, Professor Philip Alston, who argues that the

digitalization of public services is used to reduce social costs, implement surveillance systems and serve the interests of private companies (United Nations, 2019).

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