

## Electronic technologies during local elections: new challenges

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### Abstract

The COVID-19 pandemic poses new challenges, as no one can propesa will burst a new wave of morbidity. It is therefore worth thinking about the implementation of the electronic voting procedure. In view of this, it is important to explore the role of electronic technology in local elections, share it with the experience of several countries, as well as as analyse new opportunities for the transformation of the electoral process. The aim of the work is to study the role of electronic technologies during local elections. The subject of research is electronic technologies during local elections and social relationships that arise, change and end during the use of electronic processes during local elections. The research methodology combined a set of philosophical, general, and special approaches to scientific knowledge. A study of electronic technologies in local elections has shown that electronic technologies play an important role in electoral processes. It is concluded that, under modern conditions, it is important for Ukraine to support the electoral process with the latest electronic technologies, because these technologies, if used correctly, ensuring election democracy and greater the efficiency of democracy institutions represents.

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**Keywords:** local electoral process; information and communication technologies; electronic vote; digital democracy; local self-government bodies.

## Tecnologías electrónicas durante las elecciones locales: nuevos desafíos

### Resumen

La pandemia COVID-19 plantea nuevos desafíos, ya que nadie puede predecir cuándo estallará una nueva ola de morbilidad. Por tanto, vale la pena pensar en la implementación del procedimiento de votación electrónica. Ante esto, es importante explorar el papel de la tecnología electrónica en las elecciones locales, compararlo con la experiencia de varios países, así como analizar nuevas oportunidades para la transformación del proceso electoral. El objetivo del trabajo es estudiar el papel de las tecnologías electrónicas durante las elecciones locales. El tema de la investigación son las tecnologías electrónicas durante las elecciones locales y las relaciones sociales que surgen, cambian y terminan durante el uso de procesos electrónicos durante las elecciones locales. La metodología de investigación combinó un conjunto de enfoques filosóficos, científicos generales y especiales de cara al conocimiento científico. Un estudio de las tecnologías electrónicas en las elecciones locales ha demostrado que las tecnologías electrónicas juegan un papel importante en los procesos electorales. Se concluye que, en las condiciones modernas, es importante que Ucrania apoye el proceso electoral con las últimas tecnologías electrónicas, porque estas tecnologías, si se utilizan correctamente, garantizan la democracia de las elecciones y aumentar la eficiencia de las instituciones de la democracia representativa.

**Palabras clave:** proceso electoral local; tecnologías de la comunicación e información; voto electrónico; democracia digital; órganos de autogobierno local.

### Introduction

In a modern democratic society, elections are a way of forming public authorities and local self-government bodies. The people are the sole source of power, which can elect bodies and officials (Kolodin, Kolodina, and Kaminskyi, 2019). Legal consciousness, as an organic part of the spiritual reality, acquires an independent spiritual and cultural status

among the foundations of social and legal life (Kharytonov, Kharytonova, O., Kharytonova, T., Kolodin, Tolmachevska, 2019). It is often easier for the state to settle some relations by means of coercion than to understand the real interests of the subjects of the respective relations and to delegate to them the right to settle certain relations (Tkalych, Safonchyk, Tolmachevska, 2020). That is why the clearance of election procedures, the provision of the election in force majeure (as quarantine and COVID-19) is of prime importance.

Elections in Ukraine are a complex process that encompasses the election campaign and the set of stages and election procedures provided by law following the calendar plan, which should ensure the legality and legitimacy of the election results.

In modern conditions of development of public relations, quite a bit of attention is paid to research and innovative possibilities of the electoral process, namely the introduction of electronic technologies in local elections.

The scope of applications of electronic technologies in various spheres of public life, including politics, is expanding every day.

The first attempts to introduce information technology were made in the Electoral Code of Ukraine (2019) (hereinafter – the Electoral Code). Article 18 of the Electoral Code regulates the use of innovative technologies in the election process. Thus, the Central Election Commission may decide to implement innovative technologies, hardware and software during the organization and conduct of elections in the form of an experiment or pilot project concerning:

1. voting at the polling station with the help of hardware and software (machine voting);
2. counting of votes with the help of technical means for electronic counting of votes;
3. drawing up protocols on the counting of votes, results and results of voting using the information-analytical system.

The above-mentioned experiments or pilot projects shall be conducted at individual polling stations designated by the Central Election Commission at the same time as elections are held at these polling stations in compliance with all requirements and procedures for the respective elections and voting.

At the same time, the Central Election Commission is tasked with ensuring the implementation and protection of the voting rights of Ukrainian citizens who vote at polling stations where experiments or pilot projects are conducted, without narrowing their scope. Conducting experiments or

pilot projects should not give voters the false impression that the election procedures of the relevant elections have been replaced by the procedures of the relevant experiment or pilot project.

The Central Election Commission is obliged to inform voters who vote at polling stations where experiments or pilot projects are conducted that the participation of voters in an experiment or pilot project does not create legal consequences for establishing the results of voting or election results, does not create grounds and does not may be used to appeal against decisions, actions or omissions of the subjects of the election process.

The Central Election Commission, district and territorial election commissions (by the decision of the Central Election Commission, if technically possible) provide interaction with parties (party organizations), candidates for the application of innovative technologies. In case of submission to the election commissions of the documents provided by this Code through electronic services, such documents must meet the requirements of the laws of Ukraine “On electronic trust services” (2017). Documents may be submitted to the election commission in the form of an electronic document, taking into account the peculiarities of the Electoral Code.

That is, at the legislative level, the first attempts have already been made to introduce electronic technologies during local elections. In view of this, it is important to analyze the peculiarities of the application of such provisions in practice. In addition, the introduction of information technology in the domestic election process should take into account the best legal experience of leading countries.

Thus, it is important to study electronic technologies during local elections, to analyze the provisions of the legislation governing their application, and to investigate the theoretical developments on the research issue.

## **1. Methodology**

The main ideological, legal and methodological principle used by the authors of the article is the principle of democracy. The principle of democracy lies in the fact that law should be based on common goods, and laws must express the will and interests of the overwhelming majority of society. Democracy involves participation population in the formation of this will, consolidating it in the process of lawmaking, maximum consideration of public opinion at all stages of this process, implementation of law-making powers and activities of the population through their representatives in state and local government bodies, democratic development procedures,

discussion, adoption and promulgation of law-making decisions. Strict adherence to the principle of democracy is of particular importance today, when the whole world is suffering from the Covid-19 pandemic.

Thus, the principle of democracy in law is fundamental to the study of phenomena that are the subject of this article. Applied methods of cognition of these objects were the following methods: dialectical, historical, generalization, structural-functional, comparative, and formal-logical.

Firstly, dialectical, and historical methods were used in studying the development of electronic technologies in the electoral process, as well as in different countries of the world. Then, formal-logical and system-structural methods are used in formulating proposals and changes to current legislation on the consolidation of electronic technologies during local elections. These methods also helped to identify shortcomings in the legal regulation of the electoral process, to identify conflicts, inconsistencies, gaps.

Moreover, the systematic approach helped, on the one hand, to elucidate the general signs of the impact of electronic technologies on the course and outcome of the election process, and on the other – to reveal the specifics of the use of electronic technologies in local elections. Besides, the use of methods of generalization, analysis, and synthesis made it possible to improve the content of the concepts of “electronic voting” and “electronic participation”; readiness of citizens to switch to digital voting. What is more, structural, and functional analysis was used in the study of the application of electronic technology by various actors in the electoral process at all stages. This method helped to identify the difficulties faced by various actors in the electoral process.

Finally, the comparative method has become an important tool for revealing the impact of electronic technologies on the democratization of the electoral process. Also, this method helped to compare the experiences of different countries, to identify the strengths and weaknesses of electronic voting.

In addition, during the study, the regulations and programs of the Government were analyzed, which set out the provisions on the electoral process, as well as the provisions on the use of electronic technology in the electoral process.

## **2. Recent research**

Electronic technology during the local elections was studied by such scholars as Andreeva (2015), Bereza (2020), Gotun (2008), Denisyyuk

(2012), Kuravaev (2020), Malinovska (2016), Mykhalchuk (2016), Kolodin, Kolodina, and Kaminskyi (2019), Onipko (2020), Petrovets (2019), Sidenko (2012), Tarasenko (2020), and Shevereva (2016) as well as Kharytonov, Kharytonova, O., Kharytonova, T., Kolodin, and Tolmachevska (2019).

Thus, Bereza (2020) analyzed modern voting technologies and drew attention to the possibilities of their implementation.

Further, he subjects of Gotun's (2008) research was the use of new information technologies in the election process. Denisyuk (2012) was also interested in this issue. Thus, Denisyuk, in his research, analyzed communicative Internet technologies in the modern election process.

In his works, Onipko (2020) sought ways to improve the technology of the election process. The subject of Sidenko's (2012) research is the introduction of electronic voting, including the analysis of the prospects for the introduction of such voting. Kuravaev (2020) analyzed the necessary preconditions and opportunities for holding elections online.

Moreover, Mykhalchuk (2016) analyzed in detail the electronic tools of public control of the election process. Also, Petrovets (2019) analyzed whether Ukraine is ready for online elections.

In addition, Tarasenko (2020) analyzed various assessments of experts on the peculiarities of the preparation and conduct of local elections in 2020. Thus, the researcher stressed the importance of the introduction of electronic technologies during the elections, as it meets modern challenges and conditions. What is more, Shevereva (2016) conducted a comprehensive analysis of the use of the Internet during the election process.

Finally, Andreeva (2015) conducted a detailed analysis of e-government in the United States, including attention to the peculiarities of the use of electronic technology in solving cases of national importance. Besides, Malinovska (2016) analyzed the foreign experience of citizens' suffrage abroad and the possibility of its application in Ukraine. As well as analyzed the experience of using electronic technologies during the elections in Estonia.

It should be mentioned that the publications on various Internet resources on the introduction of electronic voting (Idea Internacional, 2011) were studied, as well as foreign experience in implementing e-government (Website of the Central Election Commission of Ukraine, 2020). Information on the general information support of local elections from the website of the Central Election Commission and statistics of the Internet audience of Ukraine were also analyzed (Internet audience of Ukraine, 2020).

From the above analysis of the literature, we can conclude that electronic technologies during the elections are actively studied among Ukrainian

and foreign scholars, but there is no comprehensive study of electronic technologies during local elections. This circumstance necessitates the study of electronic technologies during local elections.

### 3. Results

#### International experience of e-electoral process

Currently, a number of scientists are exploring the prospects for the introduction of blockchain technologies in the electoral process. In general, a blockchain is a distributed database that stores information about each operation performed on the system. The data is stored in the form of a chain of blocks with records of transactions. They cannot be forged, as each new record confirms in existing chains. At the same time, attention should be paid to:

- The potential risks and disadvantages of using the electronic voting mechanism: vulnerability of computer systems (viruses, hacker attacks, etc.).
- Distrust of a large part of the population to the technology of electronic voting.
- The possibility of manipulation and outside interference in the results of the expression of will.
- Lack of opportunity to obtain evidence of an offense in case of suspicion of falsification and, accordingly, to effectively challenge the offense.
- The significant cost of technology at the implementation stage; unavailability of the Internet for a large part of the population.
- Lack or low level of computer literacy of certain categories of citizens, and;
- Increasing the “digital divide” of society.

It is worth analyzing foreign experience in the use of electronic technologies in voting.

Different countries use electronic technologies differently. For example, e-voting in national elections was first used by Estonia. It is also used in Iraq, the Netherlands, New Zealand, Singapore, France. In test mode, it was used in the UK, USA, and Switzerland. This method of voting is currently not common for technical reasons, in particular, due to the need to use

special technologies to identify the voter, as well as due to doubts about the possibility of maintaining the secrecy of the ballot (Chukut, 2008).

Estonia has been using the most technically successful type of Internet voting since 2005. Citizens of this country can vote remotely from any computer with a chip ID or a virtual digital ID Mobiil-ID, as well as software that can be easy to download from the state site.

Estonia's experience has shown everyone that e-voting is a democratic way of expressing the will of the people, according to experts from the Council of Europe and the OSCE. The Estonian authorities are implementing measures to increase public confidence in e-elections by providing informational support to the campaign, improving the computer literacy of citizens, and enabling voters to check for themselves whether their vote has been properly processed through a separate application.

For example, in France, online voting is used for citizens who are abroad and so that such people do not have to go to the polls to vote. An interesting experience in the development of the electronic election system in the United States, where a variety of experiments were carried out – from the use of sensor machines for voting or scanning electronic means to the use of special optical systems.

### **National peculiarities of the implementation of e-voting**

As elections are a special form of political democracy, local elections will be held in Ukraine on October 25, 2020. This stimulates the political activity of the population. However, today there are categories of the population who find it difficult or impossible to come to the polling station, who are outside the state, in self-isolation, and so on. Therefore, to optimize the interaction of citizens and government, the electoral process can be a democracy and, in particular, e-government, and e-voting.

At the same time, on the eve of the next presidential and parliamentary elections in our country, the discussion on the possibility of introducing electronic voting in the expression of the will of citizens has justly and expectedly intensified.

In general, the concept of “electronic voting” can be reduced to its interpretation as a fixation of the will of voters using electronic technology, which covers both the voting process itself and the process of automatic vote counting using electronic devices and special software.

Regarding the legislative justification for the participation of citizens in the elections of Ukraine, in accordance with Article 38 of the Constitution

of Ukraine (1996), citizens of Ukraine have the right to freely elect and be elected to state authorities and local governments.

The Electoral Code No 396-IX of December 19, 2019, provides for the use of electronic and Internet technologies by several provisions. Thus, in accordance with Art. 50 of the Electoral Code, news agencies, the media in the case of dissemination of the results of public opinion polls related to the election, are required to indicate the full name of the organization that conducted the poll, the pollsters, as well as other information. The provisions of this part apply to cases of dissemination of the results of public opinion polls related to elections on the Internet by mass media and news agencies. The Transitional Provisions also state that the Register Administrator ensures the interaction of voters with the Register by introducing electronic services on the Internet, and also states that applications of individuals may be submitted via the Internet and the specified requirements for such applications. With regard to electronic technologies, the provisions of the Code show that in order to organize and ensure the democracy of elections, Registers and other means have been introduced that summarize information about candidates and voters.

Also the Concept of e-government development in Ukraine. The implementation of the Concept was not aimed at:

- increasing the efficiency of public authorities and local governments and achieving a qualitatively new level of government based on the principles of efficiency, effectiveness, transparency, openness, accessibility, trust, and accountability;
- to improve the quality of public services to individuals and legal entities in accordance with European requirements, and;
- to minimize corruption risks in the exercise of power.

In addition, Ukraine has taken significant steps to introduce an electronic election process. In this context, we can highlight:

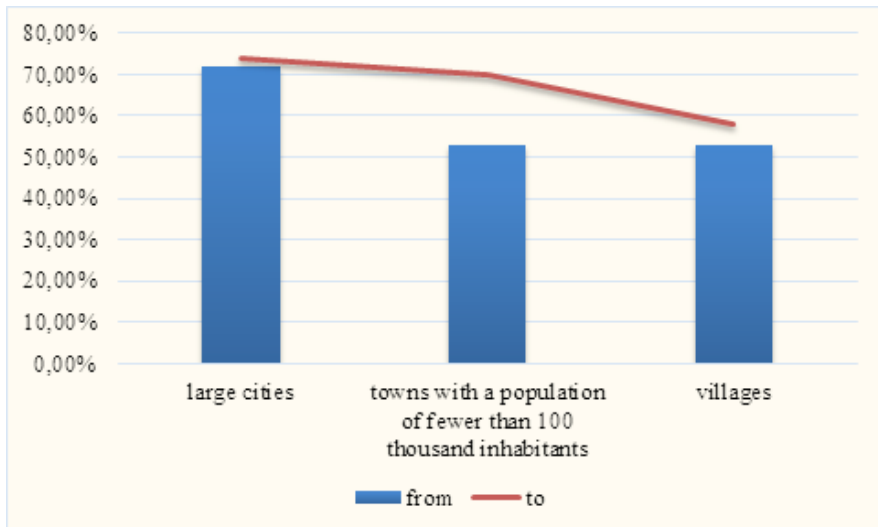
1. Introduction of biometric foreign passports of citizens of Ukraine, as well as domestic passports in the form of ID-cards, which in the future can be used to identify the voter during electronic voting;
2. Introduction of an electronic digital signature, which may also be required when introducing voting (On approval of the Concept for the development of e-democracy in Ukraine and the action plan for its implementation: Order 797-r, 2017);
3. Introduction of a service that allows you to check your presence in the voter lists online – through a special service on the website of the State Register of Voters;

4. Transition of the Central Election Commission (hereinafter – the CEC) to procurement through the electronic system PROZORRO and gradual electrification of the CEC. In addition, the CEC has a single information and analytical system “Elections”, which covers all stages of the election process (On approval of the Concept of e-government development in Ukraine: Order 649-r, 2017).

With the adoption of the Law of Ukraine “On electronic trust services” (2017) introduced new electronic services for citizens, which simplify the exchange of electronic documents between citizens.

Unfortunately, no separate provisions are regulating the use of electronic technologies in the election process in Ukraine. This indicates that in Ukraine there is no proper regulation of the use of electronic and Internet technologies in the electoral process, which necessitates the analysis of theoretical positions of scientists on the research issue.

As for Internet access, in large cities, it is 74%, in towns with a population of fewer than 100 thousand inhabitants – from 53% to 70%, and villages – from 53% to 58%. It is also worth noting the total number of voters in some regions (Fig. 1) (Internet audience of Ukraine, 2020).



**Figure 1.** Internet access data provided by Internet Association of Ukraine (2020).

Given the analysis of Ukrainian and foreign legislation for the introduction of electronic technologies, and the introduction of electronic voting in the electoral process of Ukraine during local elections, there is a need to develop an algorithm for introducing such innovations. Thus, all automated e-voting systems should be independently tested and certified by international observers and information technology experts, and the Central Election Commission and district commissions should train and instruct polling station staff on the use of e-election systems. Also, it is necessary to conduct a state campaign to inform citizens about the peculiarities of the use of electronic voting through social advertising and the production of educational materials.

#### 4. Discussion

As a result of the study, the possibilities for the introduction of electronic technologies in the electoral process during local elections are clarified, including the advantages of the introduction of electronic voting in Ukraine.

Thus, it is possible to identify such strengths and weaknesses of the introduction of Internet voting during local elections (Table 1). Own elaboration.

| <b>Election problems, compared to paper voting</b>   | <b>Internet voting</b> |
|--|------------------------|
| Faster counting and tabulation                       | Strong                 |
| More accurate results                                | Weak                   |
| Management of complex electoral systems              | Strong                 |
| Better presentation of complex ballots               | Mixed                  |
| Greater convenience for voters                       | Strong                 |
| Increased participation and turnout                  | Strong                 |
| Meeting the needs of a mobile society                | Strong                 |
| Cost savings   | Mixed                  |
| Prevention of fraud at the polling station           | Mixed                  |
| Greater availability                                 | Mixed                  |
| Multilingual support                                 | Strong                 |
| Avoiding spoilage of ballots                         | Strong                 |
| Flexibility concerning changes, control of deadlines | Strong                 |

|   |        |
|---|--------|
| Prevention of family voting                         | Strong |
| Lack of transparency                                | Weak   |
| Only experts can fully understand voting technology | Weak   |
| Voting secrecy                                      | Weak   |
| Risk of manipulation by outsiders persons           | Weak   |
| Risk of insider manipulation                        | Weak   |
| Implementation costs and service                    | Strong |
| Infrastructure / requirements for environment       | Mixed  |
| Lack of standards for e-voting                      | Weak   |
| Significant recount                                 | Weak   |
| Dependence on the supplier                          | Weak   |
| Increasing IT security requirements                 | Weak   |

**Table 1.** The strengths and weaknesses of the introduction of Internet voting during local elections.

Thus, the current legislation of Ukraine does not yet provide for electronic voting, but the foreign experience of democracies in electronic elections should be the basis for the development and adoption of legislation aimed at the development of electronic elections and the electoral process.

The study showed that the electoral process in Ukraine needs significant changes and modernization. The use of electronic technologies in the electoral process helps to ensure the democracy of the electoral process and increase the efficiency of the functioning of the institutions of representative democracy and to establish a dialogue between the government and society.

## Conclusions

Thus, electronic technologies play an important role in the institution of suffrage. The experience of individual countries confirms that the use of Internet technologies is an effective tool for democracy, but each of the technologies has both advantages and disadvantages. Among the advantages of using the latest technologies in the electoral process during local elections

are ensuring the availability and simplicity of voting and public or other control, saving public funds, preventing violations, using standard computer equipment, enabling citizens to vote outside their polling stations, etc. The disadvantages of the introduction of electronic technologies are insufficient guarantees for the protection of citizens' information and the tendency to technical errors. But despite the shortcomings, the use of electronic and Internet technologies is necessary to modernize the institution of elections, increase trust between states and citizens, and ensure speed of the process and simplification of the election procedure.

Regarding further research, it is important to analyze the possibilities of introducing electronic voting as a pilot project in some regions of Ukraine, to pay attention to the possibilities for electronic document management by territorial and district commissions and opportunities for electronic scanning during the registration at polling stations.

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