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ELECTORAL PROCESSES DIGITALIZATION: TRENDS AND PROSPECTS FOR UKRAINE BASED ON THE EUROPEAN UNION COUNTRIES EXPERIENCE

Keywords: Election Processes; Standards; Voter Identification; Voter Registry; Voter Statistics; Cybersecurity.

Abstract: The article purpose is to study digitalization of certain phases of Ukraine electoral processes, taking into account the European Union experience. The research design consists in a comparative analysis of electoral processes digitalization and its legislative provision. The article describes the legal field of EU electoral processes. The recommendations of the Council of Europe on e-voting standards are considered. The role of the administrator of the Ukraine State Voter Register is considered. The phases of electoral processes that require gradual digitalization are given. Scientific novelty of the study is to use a comparative approach in studying the electoral law of the EU and Ukraine. The research field is limited to the electoral law of the EU and Ukraine. The practical effects of the study make it possible to identify the advantages and disadvantages of digitalizing the phase of the electoral process. The scientific novelty of the study conducted in this article is to study the digital transformation restrictions at individual stages of electoral processes. The fundamental provisions in Ukrainian legislation on digitalization of electoral processes are determined. The article summarizes that the widespread means of electoral processes digitalization is the formation and updating of the voters registers and conducting their statistics. The author revealed that electoral processes digitalization has a fragmentary character in the EU countries, since the legal field in providing cyber security requires continuous improvement.

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INTRODUCTION

EU countries are gradually going through digital transformation of all industries by introducing digital platforms that combine companies and form digital ecosystems. Digital transformation is a comprehensive approach to integrating computer and information technologies, manufacturers of goods and services. However, the complete transition to digital transformation requires initially rejection (retarding) of documents, transfer of information from paper to electronic format, analogue to digital. An intermediate step is digitalizing that allows information and communication technologies to automate the implementation of separate processes. The rate of introduction of digital transformation processes depends on the quality of legislative institutions and the legal norms introduction.

Many countries adopted a legislative framework for the creation of an “electronic society”, “digital economy”, and “electronic government”. Similar processes also affected Ukraine, which initiated documents rejection and services provision on the “Action” platform.

The logic of digital transformation flows from the concept of electronic democracy, which is represented by various spheres of country life. Our research will be devoted to the topic of introducing digitalization of electoral processes from the legal norms position and identifying prospects for their implementation in Ukraine based on the EU experience. The tasks provide for consideration of the legal framework used by the EU countries in electoral processes; a legal framework in Ukraine, regarding electoral processes digitalization; Characteristics of the electoral process phase and the comparative characteristic of EU electoral events digitalization. The methodology of the study involves the methodology of deduction in the gradual laying of the electoral process in accordance with phases of conduct; the chronology method in determining the adopting dates the legislative electoral processes digitalization; the comparative analysis method in determining the differences in using the means of digitalizing the electoral processes phases by EU countries.

THE STRUCTURE AND MECHANISM OF NORMATIVE RESOLUTIONS

DIGITAL TECHNOLOGIES STANDARDS OF ELECTORAL PROCESSES

Modern digitalization tendencies of life processes are observed with the start of the new millennium since 2004 and were revised in 2017 by the EU countries.

The standards of digital technologies in the elections must comply with the general principles set forth in Article 25 of the UN International Pact on Civil and Political Laws in 1966: general and equal vote right and voting secrecy. International standards relating to specific characteristics of electronic voting and other voting technologies have not yet exist.

However, the recommendations of the Council of Europe on e-voting standards (adopted in 2004 and updated in 2017) recommends:

- Reliably identify voters;
- Interfaces of voters should be easy to understand and use for all voters;
- Voters should be able to confirm their voice before submitting;
- After giving voice, voters should be able to check if he was committed correctly;
- The vote should be anonymous;
- All aspects of voting should be completely transparent;
- An independent body must verify and certificate E-voting systems (European Parliamentary Research Service, 2018, p. 2).

As you can see in order to meet these standards in Ukraine, the voter's transparent identification is necessary. As a result, in 2007, the Ukraine Law "On the Voters State Register" was adopted. Only in 2019, the administrator of the Voters State Register was created by the Central Election Commission, which leads an electronic register (Derzhavnyi reiestr vybortsiv Ukrainy).

The main functions of the service manager of the Voters State Register: Register Actualization, the electoral districts and polling stations formation, maintaining statistics of voters and answers to the voters address.

The legal field of electoral processes should cover all phases, namely:

The main phases of the electoral cycle are as follows:

1. Legal base. This includes the bills development.
2. Planning and preparation for electoral events. This includes a electoral staff recruitment and training, as well as election planning.
3. Voters training, observer behavior regulation.
4. Voters registration, political parties and election observers; the parties and candidates nomination. Registration and consideration of issues / questions that can potentially lead to a referendum (popular voting).
5. Election agitation, including official information addressed to voters.
6. Voting operations, including surveys, counting and summarize.
7. Election results announcement, including results transfer and disclosure, electoral disputes, reporting, audit.
8. Duties after elections, including destruction and / or archiving materials (Maurer, 2020, p. 49).

DIGITALIZATION INSTRUMENTS OF ELECTORAL PROCESSES IN EU COUNTRIES

In the EU countries, the interpretation of tools, political obligations and principles of the so-called European electoral heritage are also part of the international legal framework. This is, in particular, the general commentary number 25 of the International Covenant on Civil and Political Rights, the practice of the European Court of Human Rights regarding Article 3 of the Protocol No. 1 to the Convention, the 1990 CSCE/OSCE Copenhagen Document in 1990 and other elections related to elections, Code of Good Practice in Electoral Matters (2002), Code of Good Practice on Referendums of the European Commission's for democracy through the right (Venice Commission) of the Council of Europe in 2007 (Maurer, 2020, p. 9).

According to the Recommendation CM / REC (2017), e-voting includes electronic votes and electronic counting of paper ballots. Electronic voting includes both voting on electronic voting devices (here in and after EVM) at polling stations and voting over the Internet from uncontrolled environ-

ment (here in and after referred to as I-voting). Electronic casting involves electronic counting. A net electronic calculation of paper ballots use optical scanners that digit a paper newsletter, and then go to the counting.

Electronic voting is provided only in France, and Romania, but it is partly or completely suspended or abolished in Bulgaria, Finland, Germany, and Netherlands. Electronic vote was considered for political elections, but has not been launched in Austria, the Czech Republic, Denmark, Finland, Latvia and Spain. The main arguments against the introduction of electronic voting relate to safety, complexity and value (Maurer, 2020, p. 46).

The first step in implementing electronic voting are subjects of the electoral process. An important type of digitized document used almost everywhere in the region is registers: registries of voters and candidates, registers that are accounting for those who have already voted during the election (the use of voting rights).

Compliance of electronic voting decisions The national principles of democratic elections (national norms includes international standards of Article 25 of the International Covenant on Civil and Political Rights and Article 3 of Protocol No. 1 to the European Convention on Human Rights) checked the Supreme Courts of Germany, Austria, Estonia, Switzerland and France. Concerns for foreign intervention in the election recently led to a more thorough study of the security and compliance of digital decisions used in electoral processes, namely the registers of voters and registration or results of the transfer and calculation system, as it was in Germany and the Netherlands in 2017 (Maurer, 2020, with. 48).

Consider the activities and services for digitizing electoral processes in the EU countries, Table 1.

According to Table. 1, we see that digitalization in EU countries has a fragmentary nature and no country holds all phases of the electoral process using information and communication technologies. The nearest of all countries to digitalize are Denmark and Romania, but other countries abandoned because of informational insecurity. Information security at a high technological level will be implemented with the gradual incorporation of new technologies in the legal field of all EU countries, which may be delayed for a long time.

Table 1. Measures and services for digitizing electoral processes in EU countries

Electoral process stage	Measures and services	Country
To the election day	Basic data and processes digitated in (municipalities, electoral districts, election bodies, preparation and disclosure of candidate lists, preparation of ballot papers).	Finland, Hungary, Latvia
	Digitized voter services to find or change their election space	Hungary
	Sign up for voting abroad	Spain
	Collect signatures for new parties wishing to enter the election	Denmark
	Collecting signatures to a national or local referendum	France
On the election day	Electronic voting devices (EVM)	Belgium (EVM for all elections and referendums types); Bulgaria (EVM for national elections and elections to the EU, except referendums)
	Software to distribute places	Netherlands
On the election day and after	Electronic log with all important digits and events	Latvia
After the election day	Electronic vote counting (character optical character recognition)	Hungary (for previous results), Latvia, Malta (from May 2019 to elections to the European Parliament and local councils)

Source: Council of Europe (2020). Ardita Driza Maurer. Digital technologies in elections: questions, lessons learned perspectives. P. 47.

UKRAINE NORMATIVE RESOLUTIONS

Significant improvement of regulatory provision, due to the electoral code adoption of Ukraine in 2020, which significantly simplified the electoral process administration (will make a reference to the preliminary article) the electoral processes mechanism in Ukraine and ways to improve it based on the European Union countries experience (Lankina & Libman, 2019).

Perspective spheres of digitalization in Ukraine were set forth in the project “Ukraine Digital Agenda – 2020”. Traditional (offline) democratic processes can be truthfully transmitted to “digital” format. In Ukraine, e-democracy is at the initial development stage and is closely linked to democratic processes that take place in politics and society. It is important to develop a single coordinated conceptual vision of further development of e-democracy and the formation of an effective mechanism for its implementation, roadmap development.

The key sectors of e-democracy development are e-parliament; e-vote; e-justice; e-mediation (pre-trial dispute solution); e-referendum; e-vote; e-consultation; e-petition; e-political companies; e-survey. Implementation of e-democracy requires a thorough examination, and its success depends on the political will of Ukrainian politician and state institutions and structural changes readiness (Digital Agenda of Ukraine – 2020 (“Digital Agenda” – 2020). Conceptual principles (version 1.0). Priority areas, initiatives, digitalization projects of Ukraine by 2020, p.70).

The legislative field on digitalization of electoral processes in Ukraine is gradually formed and already taken:

- Verkhovna Rada Resolution “On Approval of the Concept for the Creation of a Unified Automated Information and Analytical System of the Central Election Commission” (Verkhovna Rada of Ukraine, 2021);
- Verkhovna Rada Resolution “On the Strategic Plan of the Central Election Commission for 2020–2025” (Verkhovna Rada of Ukraine, 2020);
- Ukraine President Decree dated August 26, 2021 No. 447/2021 “Cybersecurity Strategy” (President of Ukraine, August 26, 2021).

The Concept for the Creation of a Unified Automated Information and Analytical System of the Central Election Commission determines:

- Basic creation principles;
- Strategy of tools formation, functioning and development for automation, information and analytical support of the Central Election Commission, regional and territorial offices of the Commission (in case of their creation), as well as district and polling station election commissions on the election of the Ukraine Presi-

dent, people's deputies of Ukraine, territorial and district electoral election Commissions from local elections, district and district referendum commissions (hereinafter – election commissions, referendum commissions);

- Automation and information support tools of the interaction of subjects of electoral and referendum processes in accordance with the legislation;
- Basic principles of components integration and tools for interaction with external information systems (Verkhovna Rada of Ukraine, 2021).

The Ukraine Cybersecurity Strategy emphasizes that new challenges carry with them a transition to a 5G network, the functioning of which is fundamentally dependent on the correct software work, which, due to the technology novelty, may have new threats (President of Ukraine, August 26, 2021).

Pandemic COVID-19 will have a long-term impact on the world order, enhancing the role of electronic communications in everyday communication and work, which increases the degree of vulnerability of information processing processes, in particular personal data. This requires a proper level of security and forces the state and business to introduce additional mechanisms and measures to proper functioning and protect all necessary for the life of information resources and systems.

Cyber threats distribution for all life spheres and tools improvement for their implementation determines the need to change the strategy and tactics of counteracting it. The importance is the most rapid detection of vulnerabilities and cyberattack, responding and disseminating information about them to minimize possible harm.

Quickly changing digital world requires the formation of a more balanced and effective national cyber security system that can flexibly adapt to the security environment, guaranteeing Ukraine's secure functioning of the cyberspace national segment, providing new opportunities for digitalizing all spheres of social life (President of Ukraine, August 26, 2021).

Consequently, in Ukraine there is also an awareness that digitalization of the electoral process is sufficiently high risk of cybersecurity and loss

of personal data, which has become the main reason for refusing digitizing in a number of EU countries.

However, it should be emphasized that Ukraine has made a decisive step forward by creating a legal horizon and the possibility of implementing the first phase of digitalization of electoral processes, namely the creation of a number of platforms.

The only information and analytical system “Elections” and the Voters State Register have the potential for the creation of new services at the level of polling station election commissions and subsequent technology of the electoral process (Verkhovna Rada of Ukraine, 2020).

Noting the complexity of the digitalization instruments introduction in individual sectors, the digital transformation should be carried out gradually from the legal field to technical implementation in the electronic platform.

One of the most promising in Ukraine’s conditions, the use of “digital” technologies is the electronic voting development (E-voting). This is the simplest form of electronic democracy, but contains a large number of political and organizational challenges. Despite this, this form is gradually being implemented in different countries of the world. The saturation of electronic tools of the voting process is the issue of optimizing electoral technologies in Ukraine. Electronic voting and elections under appropriate conditions can be much more honest, more open and more efficient than traditional offline analogs. Voting through the Internet has significant advantages. First, this allows you to facilitate access to the procedure of expression for a much more citizens and increase the overall efficiency of obtaining its results. Secondly, citizens who will be outside their country may take advantage of their electoral law without the need to find the nearest territorial polling station. The possibility of electronic voting in Ukraine will allow to attract a much larger number of citizens to the electoral process, especially young people, which will generally improve the representativeness and quality of the elections. Currently, in Ukraine, the use of electronic voting is only at an active discussion stage, real progress in this direction is not yet available.

Digital technologies bring more efficiency in many spheres of life, and elections are no exception. Online databases significantly facilitate the task

of creating and managing accurate and up-to-date selective lists. In less developed countries whose citizens often do not have reliable identity documents, biometric technologies can help identify voters, thus preventing falsification in the form of multiple voting.

However, for some aspects of data management, digitalization is more controversial. Electronic voting machines count voices quickly and accurately. For the first time used in the United States, they further extended to several countries in Latin America and Asia. However, the intangible nature of digital processes complicates the detection of falsifications. As a result, most European countries adhere to proven conventional paper ballot papers.

An even more controversial is the idea of online voting. On the one hand, the provision of amenities to vote on the Internet without the need to attend polling stations can help pay attention to anxiety decline in voters around the world. On the other hand, the current technologies do not fully protect the Internet voting systems from hackers, which causes serious concern in view of the growing complexity of the cyberattack. Only Estonia gives all voters the opportunity for online voting in the national elections (European Parliamentary Research Service, 2018, p. 1).

In general, digitalization of electoral processes in the EU countries is fragmentary, and some countries refused digitalization due to the impossibility of providing cybersecurity. In full phase of electoral processes introduced only in Estonia, since this country first in the world has created an electronic governance system.

CORRELATION OF NORMATIVE LEGAL ACTS

Compared to traditional paper procedures, digital technologies offer numerous advantages at all election stages, from the registration of voters to the counting of ballots.

Registration of voters: accurate registers of voters are vital to allow all persons who have the right to vote, realize their right to vote and eliminate fraud. Digital technologies greatly facilitate the process of creating registries. Most EU countries extract data from the registers of the population to create a list of voters, Table. 2.

Table 2. Measures to create registers of voters in EU countries

Measure	Countries
Extracted from the Register of Population / Register of Civil Conditions	Austria, Belgium, Bulgaria, Croatia, Germany, Czech Republic, Estonia, Finland, Denmark, Greece, Hungary, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Liechtenstein
Created by the State Register of Voters using its own data collection and / or other data sources	Cyprus, Italy, Ukraine
Some combination of both activities	France, Malta

Source: How is the national electoral register created? URL: <https://www.idea.int/data-tools/question-countries-view/735/Europe/cnt>.

Regarding personal data stored in elector registers, standards are different from country to country. Nearly all countries use digital technologies for at least some aspects of election management. Creation and management of voters, as well as transfer and summing up, were translated into a digital format in almost all countries (European Parliamentary Research Service, 2018, p. 2).

The conducted comparative analysis shows that Ukraine has experience in conducting a register of voters, which was introduced in Cyprus and in Italy.

CONCLUSIONS

The principles and standards of general electoral processes, the recommendations of the Council of Europe regarding e-voting standards provide an idea in the evolution of the Legal Field of EU countries.

In Ukraine, in order to accounting for voters, the administrator of the State Register of Voters was created, whose activities are aimed at updating the registry, the formation of electoral districts and polling stations, conducting statistics of voters and response to voters.

A comparative characteristic of the measures implementation and the services provision in digitalization of electoral processes in the EU countries has shown a fragmentary character for each individual country. Therefore, the electoral processes improvement in the EU countries requires synchronization of legislation that can be delayed in time. Despite all the weaknesses of digitalization is cyber security, which became trigger to refuse to conduct electoral processes in electronic form. In this perspective, Ukraine has gone further many EU countries, approaching Cyprus and Italy, in the process of voters registration and conducting the Voters State Register due to the establishment of the Service of the Voters State Register.

In general, there are significant steps in the formation of a legal framework, as a single automated information-analytical system of the Central Election Commission, a strategic plan of the Central Election Commission, a strategic plan of the Central Election Commission for 2020–2025, the Cybersecurity Strategy, which determine the conceptual principles of electoral processes digitalization.

Prospects for further research include monitoring the improvement of the legislative framework of the digitalization of electoral processes in the EU and Ukraine, improving the digitalization of electoral processes in separate phases in order to ensure cyber security.

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