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**BLACK SEA  
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International Competition of Student Scientific Works

# **BLACK SEA SCIENCE 2021**

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## **2. ECONOMICS AND** **ADMINISTRATION**

## USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN PERSONNEL MANAGEMENT OF PUBLIC SERVICE IN UKRAINE

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***Abstract.** Today, IT technologies are considered a major factor in global development and the basis of competitiveness in most developed countries. In public authorities, the use of IT resources to carry out their activities in modern conditions is of strategic importance. To ensure such activities, it is important for public servants to master at least the basics of building strategies for human resource management, formation and development of e-government skills. The proposed topic is of particular importance not only for specialists who are directly involved in e-government in public authorities, but also for all heads of these bodies and their structural units, specialists of personnel services. The urgency of this topic is also due to insufficient readiness and motivation of public servants to implement and apply technologies of e-government and e-democracy, the relevant requirements for the level of their professional competence in this area by society and the state.*

***Keywords:** IT, E-government, technologies, personnel, management, public service, information, communication, competence, ICT.*

### I. INTRODUCTION

Personnel is the most complex object of management in the organization, because, unlike the material factors of production, it is alive, has the ability to make decisions, act, critically evaluate the requirements for it, has subjective interests, thinks critically, etc. Staff is the engine of any organization. Managers often focus on financial, production, logistics issues or sales of finished products, without paying enough attention to the people who ensure the work of the organization in all areas. These mistakes are too costly. There is no organization without people. Without human resources, no organization will be able to achieve its goal and survive.

In contrast to personnel management, human resource management is reoriented from the needs of employees to the needs of the organization in the workforce, and personnel management priorities are determined primarily by the results of functional analysis of existing and projected jobs, rather than existing human resources.

Thus, human resource management is an important component of organizational management. Its complexity lies in the fact that people are different in nature from other resources and require special approaches and management methods. The specificity of human resources is expressed in the fact that, first, people are endowed with intelligence, their reaction to management is emotional, thoughtful, not mechanical, which means that the relationship process is two-way; secondly, people are constantly improving and evolving; third, the relationship is based on a long-term

basis; fourth, people come to the organization consciously, with specific goals and motives.

Civil service and service in local self-government bodies are regulated in Ukraine by two separate laws: the Law of Ukraine “On Civil Service” [1] and the Law of Ukraine “On Service in Local Self-Government Bodies” [2]. This legislation contains, in particular, provisions that affect the system of training and retraining of civil servants. Accordingly, the process of reforming civil service institutions in Ukraine has led to the reform of the system of training and retraining of civil servants and local government officials.

On June 24, 2016, the Cabinet of Ministers of Ukraine № 474-r approved the Action Plan for the implementation of the Public Administration Reform Strategy of Ukraine for 2016-2020 [3]. Task 18 of this Plan envisages a set of measures to reform the system of professional training of civil servants and local government officials.

According to the National Agency of Ukraine for Civil Service [4], in Ukraine in the third quarter of 2020 there were about 217 thousand civil servants (for comparison, in 2018 in Ukraine there were 240 thousand civil servants).

As part of the reform of local self-government and the territorial organization of power in Ukraine, the number of local self-government bodies is gradually declining. According to the website of the Verkhovna Rada of Ukraine, as of November 1, 2018, there were a total of 10,299 local governments in the country, while in April 2016 there were 11,440 local governments [5].

Representing power, civil servants are an integral component and basis of it, because they are the bearers of this power. In addition, reflecting social relations and trends in their development, civil servants promote the interaction of public authorities with society.

The processes that arise in connection with personnel management in the civil service reflect the relationship between the subjects and objects of personnel policy: the relationship that arises between the state, local governments and civil servants, managers and subordinates within the civil service.

Among the main processes in the civil service are the following: the formation of professionals, the inclusion of the individual in the field of professional activity, career growth, vocational training, mastery of the profession, and others.

However, at present, public administration is dominated by personnel processes, which are characteristic of the transitional periods of the unbalanced state of the state and society. It should be noted that the processes have become unpredictable, non-linear, as the role of random influences on the quality of the civil service has increased; still high staff variability; employees are socially vulnerable; corruption has become widespread; political rather than business approaches prevail in admission to the civil service and its passage; the course of personnel processes is significantly dependent on the will of officials of state or municipal bodies, who often act contrary not only to objective reality and logic, but also to the law.

We are convinced that conscious regulation of personnel management processes is possible only if civil servants have knowledge of the nature, structure, direction, features of personnel processes in the civil service, but also an effective and efficient system of mechanisms, technologies and resources to influence the course of their

course. A necessary condition for such influence is the monitoring of personnel management processes.

Studies show that currently personnel management processes are significantly distorted due to poor consideration of the objective conditions of their course in the unbalanced socio-political system of the country, underestimation of objective and subjective factors, historical experience of their formation, reproduction and development. In addition, personnel changes in public administration are perceived by many of its employees as arbitrary and unmotivated, leading to unjustified increase in turnover, demoralization of staff, reducing the quality of employees. Personnel processes in the modern civil service of Ukraine are still at a stage of increased dynamics: they are characterized by instability, spontaneity, imbalance, growing influence of traditions and customs, including extremely conservative, backward; appointment, domination of personal relations in personnel processes, corruption as a form of "feeding" at the expense of the population, etc.

Interesting in this regard are the results of a sociological survey (2017) conducted by the Kyiv International Institute of Sociology in February-March 2017 for the Council of Europe Program "Decentralization and Territorial Consolidation in Ukraine" in cooperation and coordination with Council of Europe experts, specialists of the Ministry economy of Ukraine and the National Agency of Ukraine for Civil Service Affairs among employees of local governments [6]. Employees had to assess the importance of various aspects that determine the attractiveness of work in the executive body of the council.

During the period of decentralization reforms, the main motive for choosing the profession of civil servant was the stability of work. To this motive, the employee linked his desire to improve personal competence and work with interesting people.

The study also found significant differences in the motives for entering the civil service.

At the level of operationalization of indicators of management processes, an important criterion of their condition is the degree of job satisfaction of civil servants. This integrative characteristic testifies not only to the emotional state of employees, the balance between personal claims and the degree of their implementation, but also to the subjective assessment of service, the conditions of organizational and administrative environment of public authorities and local governments. The level of job satisfaction determines the attitude of a civil servant to the work process, forms and methods of organizing activities, their professional role. In addition, the nature of employment (full, part-time) in the workplace is also, in our opinion, the reason for the appearance or absence of a civil servant's sense of job satisfaction.

An important characteristic of management processes in the civil service is the realization of professional abilities of employees, the ability to achieve significant professional results, career advancement. The study confirmed the high importance for them of professional and job elements of work.

If we talk about career advancement factors, how "very important" respondents spoke about the ability to work in a team (87% gave such an assessment), the level of consumer satisfaction (81%) and computer literacy (81%).

Of course, feelings of frustration, disharmony, dissatisfaction are caused mainly by those factors of the production environment that are subject to managerial influence and have a situational nature. There is a belief that changing the conditions and content of work, optimizing the qualifications of employees and professional requirements, identifying ways and technologies of professional self-realization of employees can reduce job dissatisfaction, harmonize personnel relations and processes in the civil service.

The research revealed the emphasis in management processes, in particular, in the field of professional career. Admission to the civil service, the development of new job responsibilities is associated with difficulties in adapting the individual to the organizational environment and existing behavioral standards. The socio-temporal framework for acquiring a new position for respondents is limited to a short period of time, as the recurrence of personnel processes is largely based on the presence in some cases of a public servant's experience of previous work in management structures. Employees note the importance for the successful operation of organizational and service experience. The study revealed the importance of continuity of management traditions for the functioning of the civil service. At the same time, the imperative of today is a process approach to the analysis of managerial phenomena in public administration in the historical aspect. This makes it possible to trace the trends of change over a period of time.

Numerous reorganizations of state bodies have a negative impact on management processes. Changes in their structure did not lead to positive results. Moreover, the efficiency of the civil service has decreased.

In addition, a negative characteristic of the dynamics in personnel management in the civil service is a significant outflow of its qualified personnel to other areas of activity. This process is due to the uncertainty of civil servants in the future of their work. The list of factors that determine the sources and principles of the civil service is dominated by regulatory and organizational elements.

The direction of management processes in the civil service is largely determined by the socio-cultural context of activities that prevail in the civil service, values and professional attitudes. Sociological research of the state of civil service personnel revealed professional features that in the future will determine the prospects of personnel processes in the civil service. According to the respondents, the most important for public administration are social values, which characterize responsibility (78%), diligence (65%), professionalism (45%), competence (41%), sensitive and attentive attitude to people (56%). At the same time, the lowest degree of development of innovative features, such as the ability to take risks (18%) and creativity (26%).

Thus, the specifics of processes and relations in public administration are the high social significance of managerial work, the complexity of civil servants in an unstable, crisis internal and external environment, the consequent growth of the role of professionalism and competence of employees. Modern employees are characterized by a sharp understanding of social problems and a desire to realize professional potential. At the same time, there is uncertainty of employees in the success of professional activities, insufficient level of their material and social security.

The tasks of further research of personnel processes and personnel relations in the civil service of Ukraine require the active use of process, reproduction, synergetic and genetic approaches, theories of leadership, elite and rational bureaucracy. In the process of operationalization, important indicators of the state of personnel processes in the civil service revealed the motives for joining it, the degree of satisfaction of civil servants with the content of work, the presence of positive changes in government agencies, the stability of employees, the fuller compliance of their professional traits service in accordance with the principle of merit.

We believe that more successful regulation of management processes in the civil service would contribute to strengthening the legal and social status of civil servants, improving the training and retraining of staff. This is possible only if a powerful special civil service management body functions properly, as is customary in countries where this state institution is effective.

## II. LITERATURE ANALYSIS

Human resource management is the main function of any organization. Within the concept of human resource management, staff is equated to fixed capital; its costs are considered as long-term investments; personnel planning is intertwined with production, and employees become the object of corporate strategy. They actively implement group work organization, which emphasizes the creation of a team, the development of people's abilities and the formation of corporate culture. Human resources solve organizational and analytical issues, as well as provide support to line managers to facilitate the adaptation of employees in the organization. The concept of human relations states that today a person strives, firstly, for a way of living in social connection with other people and, secondly, as part of this - for the economic function that the group needs and values. Thus, human resource management is aimed at solving fundamentally new, long-term problems, to increase the economic and social efficiency of the organization, maintaining its balance with the external environment [7].

Man is not only the most important element of the production process in the enterprise, but also the main strategic resource of the company in the competition. No matter what wonderful ideas, the latest technologies, the most favorable external conditions, it is impossible to achieve highly efficient work without well-trained staff. Because of this, human resource management has undergone radical changes recently. A new view of labor as one of the crucial resources of the economy, as "human capital". It is a form of expression of the productive forces of man, which is part of the system of socially-oriented mixed economy as a leading factor of production. This new type of capital forms human potential, ie the set of things that a person can use to achieve goals and meet needs. Today, people are no longer treated as human resources, but as human resources, their value as a factor of success is constantly growing. Gradually, a human resources management system was formed, which replaces the old personnel management system. It aims to play a crucial role in ensuring the conditions of competitiveness and long-term development of the organization. This system is based on the concept of human resources, which determines the need for investment in their formation and development. Unlike the concept of personnel management, it justifies

the economic feasibility of the costs associated with attracting quality labor, lifelong learning, support in working order and even creating the conditions for fuller identification of opportunities and abilities inherent in the individual for its future development. Investments in human resources become a long-term factor in the competitiveness and survival of the firm (organization). As a result, personnel costs are considered to be an investment in human capital, the main source of income [8].

In contrast to personnel management, human resource management is reoriented from the needs of employees to the needs of the organization in the workforce, and personnel management priorities are determined primarily by the results of functional analysis of existing and projected jobs, rather than existing human resources.

Typical differences between personnel management and human resource management are given in table 1.

Table 1. Differences between personnel management and human resource management

<b>Personnel management</b>	<b>Human resource management</b>
1. Focused on staffing needs.	1. Focused on the needs of the organization in the workforce.
2. Considers the current human resources of the organization.	2. Considers staff in terms of existing and new jobs in the organization.
3. Passive strategic personnel policy is based on traditional models of personnel management.	3. Active strategic policy of human resources management.
4. The personnel policy of the organization is carried out by the personnel management service.	4. Personnel policy is carried out by the personnel department and line managers of the organization. An integrated personnel management system is being created for the effective implementation of personnel policy.
5. The personnel management system is focused on the collective values of the organization.	5. The personnel management system is focused on individual work with staff.
6. Cost savings on labor reproduction. Lack of interest in long-term investment in human capital.	6. Aimed at long-term investment in human capital, providing continuous professional growth, improving working conditions.
7. The attention of personnel management is focused on ordinary employees.	7. The attention of personnel management is focused on the management staff, the competence of managers and specialists.
8. Provides for bureaucratic and social organizational culture with mostly individual responsibility of employees for the work performed.	8. Provides a strong adaptive organizational culture, stimulating an atmosphere of mutual responsibility of the employee and the employer, the desire of all employees of the organization to make it competitive

The system of public administration in Ukraine always illustrates its inefficiency, especially during the dynamic and unpredictable impact of such factors as geopolitical competition, globalization, pandemic, information confrontation. The action of these factors requires the renewal of the whole concept of the current system of public administration and administration in order to adapt it to modern globalization, the development of civil and information society, compliance with the requirements of service, adaptive, modern, strong state [9].

Traditional methods of interaction between public authorities and local governments with citizens and businesses, as well as among themselves have proven ineffective and ineffective [9].

In order to create more convenient methods of access to information and services of public authorities, modern information and communication technologies through the introduction of e-government are becoming more widespread. And such a spread in today's world, in a state of pandemic caused by the coronavirus COVID-19, leaves hope for effective communication between public authorities, businesses and citizens. After all, restrictions, and sometimes a ban on the movement of citizens, which are enacted almost all over the planet to prevent the spread of the virus, do not allow to obtain public services in full, if you need the physical presence of both a state representative and their customer [9].

A timely step towards today's challenges in Ukraine was the establishment on September 2, 2019 of the Ministry of Digital Transformation as a central executive body responsible for the formation and implementation of state policy in the field of digitalization, open data, national electronic information resources and interoperability, implementation of electronic trust services, etc. Also within the scope of the new Ministry are issues related to the development of digital skills of citizens, broadband Internet access, telecommunications networks and the IT industry in general. The new Ministry is open to proposals and projects and is constantly looking for ways to improve the digital life of Ukrainians [10].

The main steps for the effective implementation of the concept of "e-government" are the transfer of all public services online, improving access and quality of the Internet and involving Ukrainians in the development of digital skills by improving their information literacy through training on online platforms, virtual and real [11].

### **III. OBJECT, SUBJECT, AND METHODS OF RESEARCH**

The object of scientific work is ICT and their implementation in the civil service with the transition to e-government.

The subject of the study is the staff of the civil service for the development of ICT competencies in the implementation of e-government.

The system of general scientific and special, empirical and theoretical research methods is used in the work. In particular, the following methods were used: analysis-synthesis; explanation; formalization; generalization; comparison; deduction, induction; grouping, graphic, systematization etc. In addition, the analogy method was used to consider the existing systems of e-government, personnel management and ICT competence of public servants in European Union and in Ukraine.

### **IV. RESULTS**

Ukraine's signing of the association agreement with the EU determines the necessity to harmonize national approaches to the development of e-government with

European standards and requirements. In turn, this necessitates the creation and use of effective mechanisms for the formation and development of the necessary ICT competencies (ICT – information and communication technologies) and e-government skills in all those involved in this area. And one of the key problems in the proper implementation of e-government is the relatively low level of ICT competence of public officials [12].

In the modern public service of Ukraine there is a necessity for a comprehensive understanding of both the content of ICT competence and the process of its formation and development. Without ICT competence and many other professionally important qualities, it is impossible to form the professionalism of public administration management staff.

An integrated approach to the process of formation and development of ICT competence of public officials consists of legal, organizational, technological, educational, social mechanisms.

Legal mechanisms for the formation and development of ICT competence of public officials are based on the harmonization of international, national and departmental regulations in the field of e-government development. In Ukraine, this priority is enshrined in a number of regulations, primarily in the Sustainable Development Goals: Ukraine, the Strategy for the Development of the Information Society, the Strategy for Public Personnel Policy, the Strategy for Public Administration Reform in Ukraine, etc.[13].

Sustainable Development Goals: Ukraine provides for the development and implementation of a separate state program for the development of e-government, as well as a set of measures for the introduction of e-government and e-democracy technologies. Developed and adopted a number of important regulations on open data, electronic petitions and electronic appeals of citizens, e-commerce, etc. [13].

However, to this day in Ukraine there is no known European standards in the field of e-competences ICT profiles and classification of professions in the field of knowledge «Information technology» is not correlated with the National Qualifications Framework (NQF) and the framework of e-competence (European -Competence Framework) and, as a consequence, there is no legal definition of ICT – the competence of IT professionals in general and, in particular, public officials dealing with e-government.

Institutional mechanisms of formation and development of ICT competence of public officials operate at national, regional and local levels. The priority direction of the organization of personnel policy is the creation of an effective mechanism for training and attracting highly qualified IT specialists to work in the public service, ensuring the competitiveness of the public service in the labor market.

To improve the coordination of e-government, increase the efficiency and effectiveness of public e-government policy, the State Agency for e-Government of Ukraine and the Intersectoral Council for e-Government Development were established, the main tasks of which are to ensure coordination and coherence of government, business and the public. in this field [14].

Leading technological mechanisms in the formation and development of ICT competence of public officials are the introduction of common information standards, ensuring equal access to information resources and national information security.

Social mechanisms for the formation and development of ICT competence of public officials should be focused on the development of e-democracy and meeting the information needs of citizens. These are information, consulting and e-services mechanisms.

Information mechanisms provide the information needed for civic participation. Such information includes, for example, prompt publications of official documents, notices, etc. Implementation of the information mechanism is achieved through blogs, thematic conferences, means of news delivery from other information resources, mailing lists, interludes, mobile telephony.

Consultative mechanisms provide dialogic methods for forming public opinion. Implementation of mechanisms is achieved by organizing feedback through operational channels, forums, online conferences.

The increase in the number of individual applications from citizens, business representatives, non-governmental organizations for the provision of various administrative services and their projected further growth necessitate the provision of administrative services in e-form.

Educational mechanisms based on the principles of systematization, continuity and advanced nature of educational training are of great importance for the formation and development of ICT competence of public officials.

However, the results of research in the field of ICT competence show that 65% of public officials have minimal ICT, 31% - at a sufficient level and only 4% have been trained in this field. It was found that improving the literacy of public officials in the field of ICT today is carried out almost exclusively in the direction of using office programs and specialized applications in specific administrative tasks and is not aimed at developing e-government competencies [15].

In this way, one of the current problems hindering the successful development of e-government in Ukraine is the insufficient level of public officials to implement these technologies in management. This problem is multifaceted and complex, and requires a systematic approach to solve it.

The main reasons for the mismatch between the level of ICT competence of public officials and their e-government skills necessary for their effective operation in the information society and e-government are: imperfection of the public management system of training, retraining and advanced training of public officials in e-government, that does not sufficiently take into account the high dynamics of ICT development, competition from the private sector of the economy, staff turnover in public authorities, the need to take into account the relevant experience of EU member states; imperfection of mechanisms for identifying and disseminating best practices, best practices of e-government and lack of research support of e-government; no approved for use in the methods of public authorities identify ICT-competences; low level of motivation of public officials to increase ICT competencies.

Therefore, it is necessary to develop methodological bases for the formation of qualification requirements for ICT competence and e-government skills of public officials to improve their training system.

The development of qualification requirements for ICT competence of public officials should be based on the principles of completeness and openness of the standard requirements, modular structure of the list of requirements, multilevel qualification requirements, the relationship of requirements for theoretical knowledge and practical skills.

The modular structure of the list of requirements makes it possible to: take into account the specifics of the activities of individual public authorities, select the necessary modules from the list of requirements when compiling specific qualification requirements for employees who hold certain positions; expand qualification requirements by including new modules that reflect changes in technology or specific aspects of systems.

Multilevel qualification requirements involve the introduction of a hierarchy of three levels: basic, advanced and special.

Modules of the level of «basic» qualification requirements are formed for all civil officials, but their set for categories of civil officials is different.

Modules of the «extended» level are formed in accordance with the functional responsibilities of job regulations, features and complexity of work assigned to public officials of any category.

Modules of qualification requirements of the «special» level are formed taking into account the specifics of the work of public officials of any category of a particular public authority, whose functional responsibilities include work with special software used in this authority.

The main stages of training of civil officials in the field of ICT usage are: creation and development of infrastructure of regional centers for training and advanced training of public officials in the field of ICT, development of necessary methodological materials, professional training and certification of training results for qualification requirements for ICT competence of public officials.

Therefore, the solution of the problem of formation of e-government skills of public officials to ensure effective public administration is possible, first of all, on the basis of determining the qualification characteristics of such training. The substantiation of the methodology of formation of qualification requirements for ICT competence of public officials is the basis for the development of unified procedures for assessing the qualification skills of employees in the field of e-government.

In most European countries, retraining and empowerment of public officials in e-government is carried out in a decentralized manner by government IT departments or private IT organizations.

For example, in the United Kingdom, in particular, there is no educational institution with a program to train public officials in the usage of e-government technologies. Retraining and advanced training of public officials on the provision of e-administrative services is carried out by decentralized IT departments of government. These units are also responsible for the functions and tasks of developing, implementing and operating e-government systems, reengineering the organization's

business processes, communicating with citizens and businesses to improve the provision of e-services. This approach makes it possible to take into account the specifics of the government and respond quickly to all changes, to ensure a high level of independence from the private IT sector.

According to the second approach, which is based on the widespread usage of public-private cooperation mechanisms, retraining and advanced training of public officials in the use of e-government technologies is carried out by private IT organizations that develop, implement, modernize and support the operation of public information systems.

The first approach, compared to the second, has potential advantages in terms of efficiency of adaptation of changes in business processes of both authorities and their communication with citizens and businesses, more substantive and better training of public officials, but is more expensive for public authorities at the initial stage.

The more cost-effective is the centralized approach to training, retraining and advanced training of civil officials, according to which the training of public officials is carried out according to unified programs on the basis of one or more educational institutions, specialized centers of advanced training. Its weaknesses are the inability to take into account all the peculiarities of the activities of various public authorities, the inertia of adjusting the educational process to the dynamic changes taking place in government on e-government, lack of practical orientation and so on.

More rational, in the opinion of the authors, is an integrated approach, which is a combination of the above approaches, according to which the development of educational documentation, the formation of requirements for the list of professional competence of civil officials and proposals for national, sectoral, regional and local informatization programs, direct classes, etc. are carried out on the basis of wide application of public-private and public-public mechanisms, development of the concept and a separate state target program for training, retraining and advanced training of public officials on e-government and e-democracy, etc. This is the approach proposed by the Swiss-Ukrainian e-Government for Government Accountability and Community Participation (EGAP) Program.

At the same time, the capacity of master's degrees in e-government does not solve the problem of mass training of public officials in e-government skills.

Mass training of public officials in e-government and e-democracy should be organized on the basis of the existing system of retraining and advanced training of public officials, first of all, those components that function in the National Academy of Public Administration under the President of Ukraine (NAPA) and its regional institutes, who have significant experience in training various categories of civil officials in short-term (medium-term) programs and the necessary material and technical base, including from distance learning. A significant advantage of this approach is the possibility of applying many years of experience in the network of regional centers for retraining and advanced training of civil officials, the developed state mechanisms and resources of these centers. The problem is that they do not have the necessary standardized educational and methodological documentation, financial support, trained teachers on retraining and advanced training of public officials in e-government and e-democracy.

The priority system-creating factor in the functioning of the e-government system is the human capital of society, especially the readiness of public managers for e-government. The main problem - in the subjective factor - the qualifications and attitudes of public officials to the implementation of e-government technologies, the lack of a critical mass of professionals who are well versed in IT technologies.

## V. CONCLUSIONS

In order to ensure effective management of e-government development, the training of masters in the specialty «Public Administration» in the specialization «E-Government» comes to the fore, the main objectives of which are to achieve the following competencies:

- to ensure openness and transparency of public authorities through the introduction of mechanisms for the implementation of e-democracy;
- to introduce mechanisms of formation of information culture in public officials in the process of e-interaction with citizens;
- to integrate telecommunications between public authorities, businesses, NGOs and citizens using e-government systems Government-to-Citizen, Government-to-Business, Government-to-Government (G2C, G2B, G2G);
- to develop requirements, technical tasks for the introduction of e-government technologies in public administration;
- to implement interactive mechanisms for the development of information representations of government bodies as a basic element of the institutional structure of e-government;
- to develop standards, administrative processes, regulations for the provision of administrative services and practically implement procedures for the provision of administrative services to citizens and institutions through e-channels;
- to develop mechanisms for e-interaction with citizens, organize polls, voting, forums, conferences to provide e-consultations with citizens;
- to provide transition to work with e-documents, their collective processing and to organize e-document circulation with use of the electronic digital signature (EDS);
- to implement technologies of passing e-documents in the process of their registration, execution, control and submission to the archive;
- to implement procedures for exchanging confidential information on the Internet, organize reliable and secure storage of information in databases;
- to introduce technologies of content analysis of information and to determine the routes of its passage on the Internet;
- to have a methodology for designing, implementing and filling the content of social networks;
- to provide legal regulation of the use of software products and services, conduct registration, licensing and control of information objects;
- to prepare program documents (strategies, programs, concepts) for the implementation of e-government, taking into account foreign experience;
- to identify, evaluate and select priority areas for e-government;

- to develop strategies for the development of e-government in the relevant field, on the territory, in a public authority;
- to create complex, structural, architectural and functional models of e-government at different levels of public administration;
- to choose an appropriate method or technique of reengineering to optimize specific administrative processes in the relevant public authority;
- to conduct a comprehensive analysis of the level of e-readiness of public authorities;
- to use communication mechanisms to facilitate the implementation of management initiatives;
- to monitor the functioning of e-government systems on qualitative and quantitative indicators of e-democracy development and the provision of administrative services to citizens and businesses.

Thus, the results of scientific work are already implemented in the educational process at the Department of Accounting, Taxation, Public Management and Administration in the study of higher education specialty "Public Management and Administration" disciplines "Information Systems in Public Administration" and "Human Resources Management".

Also, the Department for Service in Local Self-Government Bodies and Personnel of the Executive Committee of Saksaganskyi District in the city council of Kryvyi Rih accepted for consideration and expediency of implementing in its work proposals for scientific work on ways to expand the competencies of local government employees through the use of information and communication technologies.

The results of scientific work on the development of ICT competencies in the civil service were presented at the First International Scientific and Practical Conference "Débats scientifiques et orientations prospectives du développement scientifique" in Paris, France [16].

## VI. REFERENCES

1. Закон України «Про державну службу» – URL: <https://zakon.rada.gov.ua/laws/show/889-19#Text>
2. Закон України «Про службу в органах місцевого самоврядування» – URL: <https://zakon.rada.gov.ua/laws/show/2493-14#Text>
3. Розпорядження КМУ «Деякі питання реформування державного управління України» – URL: <https://zakon.rada.gov.ua/laws/show/474-2016-%D1%80#n268>
4. ЗВІТ про результати оцінки рівня спроможності служб управління персоналом державних органів, які здійснюють підготовку та реалізацію ключових національних реформ – URL: <https://nads.gov.ua/storage/app/sites/5/DIYALNIST/UPRAVLINJA%20PERSONALOM/Analitika%20ta%20doslidgenja/zvit-2019-spromognist.pdf>
5. Адміністративно-територіальний устрій областей – URL: <http://static.rada.gov.ua/zakon/new/NEWSAIT/ADM/zmist.html>
6. ДОСЛІДЖЕННЯ ПОТРЕБ У НАВЧАННІ ПРЕДСТАВНИКІВ ОРГАНІВ МІСЦЕВОГО САМОВРЯДУВАННЯ ОБ'ЄДНАНИХ ТЕРИТОРІАЛЬНИХ ГРОМАД: РЕЗУЛЬТАТИ СОЦІОЛОГІЧНОГО ДОСЛІДЖЕННЯ – URL: [http://www.slg-coe.org.ua/wp-content/uploads/2017/06/%D0%97%D0%92%D0%86%D0%A2\\_%D0%B4%D0%BE%D1%81%D](http://www.slg-coe.org.ua/wp-content/uploads/2017/06/%D0%97%D0%92%D0%86%D0%A2_%D0%B4%D0%BE%D1%81%D)

0%BB%D1%96%D0%B4%D0%B6%D0%B5%D0%BD%D0%BD%D1%8F-  
 %D0%BF%D0%BE%D1%82%D1%80%D0%B5%D0%B1-%D1%83-  
 %D0%BD%D0%B0%D0%B2%D1%87%D0%B0%D0%BD%D0%BD%D1%96-  
 %D0%BF%D1%80%D0%B5%D0%B4%D1%81%D1%82%D0%B0%D0%B2%D0%BD%D0%B  
 8%D0%BA%D1%96%D0%B2-%D0%9E%D0%9C%D0%A1-  
 %D0%9E%D0%A2%D0%93\_%D0%A0%D0%B0%D0%B4%D0%B0-  
 %D0%84%D0%B2%D1%80%D0%BE%D0%BF%D0%B8-2017.pdf

7. Балабанова Л. Управління персоналом: Навчальний посібник: Мінво освіти і науки України, ДонДУЕТ ім. М. ТуганБарановського/ Л. Балабанова, О. Сардак – К.: Професіонал, 2006. – 511 с.

8. Василенко В. А. Стратегічне управління: Навч. посіб./ В. А. Василенко. – К.: Знання, 2003. – С. 141–153

9. Ярова А.Б., Манелюк Д.А. Е-урядування: виклики та вимоги сьогодення / А.Б. Ярова, Д.А. Манелюк // Розвиток промисловості та суспільства: матеріали Міжнародної науково-технічної інтернет-конференції, 17-20 листопада 2020 р. Кривий Ріг: Криворізький національний університет, 2020. - С. 61

10. Ярова А.Б., Адамовська В.С., Архипенко С.В., Голобородько Т.В., Родіонов В.Д., Манелюк Д.А. Цифризація відносин влади, бізнесу та освіти в Україні. Problèmes et perspectives d'introduction de la recherche scientifique innovante: collection de papiers scientifiques «ΛΟΓΟΣ» avec des matériaux de la conférence scientifique et pratique internationale.: plateforme scientifique européenne. (Bruxelles, 29 novembre 2019 у.). Bruxelles, Belgique, p. 53–55.

11. Ярова А.Б., Родіонов В.Д. Електронна держава: результати впровадження та проблематика в Україні / А.Б. Ярова, В.Д. Родіонов // Розвиток промисловості та суспільства: матеріали Міжнародної науково-технічної інтернет-конференції, 17-20 листопада 2020 р. Кривий Ріг: Криворізький національний університет, 2020. - С. 62.

12. Угода про асоціацію між Україною, з однієї сторони, та Європейським Союзом, Європейським співтовариством з атомної енергії і їхніми державами-членами, з іншої сторони – URL: [https://zakon.rada.gov.ua/laws/show/984\\_011#Text](https://zakon.rada.gov.ua/laws/show/984_011#Text)

13. Цілі Сталого Розвитку: Україна – URL: [https://mepr.gov.ua/files/docs/Національна%20доповідь%20ЦСР%20України\\_липень%202017%20ukr.pdf](https://mepr.gov.ua/files/docs/Національна%20доповідь%20ЦСР%20України_липень%202017%20ukr.pdf)

14. Постанова Кабінету Міністрів України «Про утворення Міжгалузевої ради з питань цифрового розвитку, цифрових трансформацій і цифровізації» – URL: <https://zakon.rada.gov.ua/laws/show/595-2020-п#Text>

15. Електронне урядування та електронна демократія: навч. посіб.: у 15 ч. заг. ред. А. І. Семенченка, В. М. Дрешпака. – К. : НАДУ, 2016. – 000 с. Частина 13 : Стратегії управління людськими ресурсами, формування та розвиток навичок електронного урядування / [П. С. Клімушин]. – К. : НАДУ, 2016. – 58 с.

16. Alla Iarova, Denis Maneliuk, Arina Danilevska. Développement des compétences aux technologies de l'information et de la communication dans la fonction publique. Débats scientifiques et orientations prospectives du développement scientifique : collection de papiers scientifiques «ΛΟΓΟΣ» avec des matériaux de la conférence scientifique et pratique internationale : plateforme scientifique européenne. (Paris, 05 février 2021). Paris, France – URL: <https://ojs.ukrlogos.in.ua/index.php/logos/issue/archive>

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