

Exploring the landscape of e-learning for lifelong education of public servants: trends, challenges, and implications

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Abstract. This article provides a comprehensive overview of the various components comprising the lifelong education system for public servants. With the advancement of e-government being a pivotal aspect of public administration, the significance of e-learning as a crucial tool for equipping public servants to fulfill this objective is examined. The study analyzes both domestic and international experiences of e-learning for public servants, encompassing distance education, blended learning, and its integration within traditional classroom settings. The article sheds light on the potential threats and benefits of Information and Communication Technology (ICT) training, drawing insights from a survey conducted among civil servants who received ICT training in Ukrainian higher educational institutions. By drawing upon scientific and empirical evidence, the trends in e-learning development are identified, with certain countries serving as exemplars in addressing the current challenges in this field. This article serves as a valuable resource for understanding the current landscape of e-learning in the context of lifelong education for public servants, highlighting emerging trends, inherent challenges, and the wider implications for effective governance.

Keywords: information and communication technologies, civil servants, e-learning

1. Introduction

Digitalization has covered all spheres of life in modern society [36]. The introduction of information and communication technologies (ICT) has become one of the main trends in public administration. The spread of e-government allows bringing government closer to citizens, promotes such values as openness, transparency, accountability and public access to information, which improves the quality of public services. In the context of digitalization of society and the challenges of modernity (pandemic COVID-19 [25]), the importance of civil servants' e-learning and e-government is growing both in the traditional provision of digital services and in new innovative efforts to overcome the crisis. At the same time, public authorities are facing

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challenges of disseminating false information, declining trust in government institutions and increasing skepticism, making it difficult to reach consensus in society, and numerous forms of digital gaps, especially among the poorest and the most vulnerable groups of citizens. In this situation, as noted in the OECD, civil servants must adapt to new requirements, such as transparency of administrative decisions, the right to appeal, data protection, providing information to citizens, the operation of hotlines [29].

Nowadays, information and communication technologies allow to solve a set of tasks related to the collection, processing, storage and distribution of graphic, textual, digital, audio and video information based on electronic means of computer technology and communication in the interests of its users. These tasks cover almost all activities of a public servant. As a result, there is an urgent need for special training of civil servants in e-government, which can be implemented through the introduction of e-learning.

NASPAA STANDARDS focuses on the critical situation in the formation of civil servants competencies because they need skills to succeed in a multisectoral, reference and rapidly changing environment [27].

Since 2001, the UN has conducted annual surveys of 193 member countries on the development of digital government, which confirms the importance of digitalization of public administration and equalization of development in this regard. An important role in achieving this ambitious goal is played by training civil servants in the basics of e-government [38].

One of the key areas of public administration development is the development of e-government, so e-learning can be considered as an important means of preparing public servants to implement this task. The vast majority of civil servants study and work at the same time, so e-learning is more in line with the current situation, allows combining work and study. The content and means of public servants' activity is a constantly changing and evolving system, so e-learning can provide more flexible approach to responding to new tasks, challenges of public life. In this regard, it is important to identify general trends in e-learning for civil servants. These trends are already existent in the world but have not been approved in all countries. Indeed, for some countries, these trends are already common practice. However, each country has specific features that are important to highlight, which will help create a general picture of the desired state of e-learning for civil servants.

2. Methodology of the research

The results of the study presented in the article were obtained using a set of methods. Identification of trends in the development of e-learning of civil servants was carried out on the basis of analysis and generalization of leading experience, modern approaches and requirements for e-learning of civil servants, the study of opinions of civil servants who study with the use of ICT technologies. Information from both the world's largest and most developed countries and developing countries was considered. The source base of the study consisted of 3 groups of sources. The first group of sources was studied by the netnographic method: sites of different countries institutions engaged in training of civil servants, sites of accreditation institutions, international associations and organizations related to public administration.

The second group of sources, which was analyzed during the study, consisted of scientific

publications on the use of information technology in the training of civil servants. The third group of sources consisted of international organizations documents that deal with the problems of civil service and training of civil servants.

The analysis of world experience served us to identify general trends in civil servants' e-learning, which are existent in the world, but have not been approved in all countries. Selected trends allow any country to analyze their practice and determine what needs to be changed. Unlike many other countries, the experience of civil servants' training in Ukraine is short. The world experience should be adapted to Ukrainian realities; the peculiarities of the national education system, the needs of Ukrainian civil servants, etc. should be taken into account. The use and effectiveness of E-technologies depend significantly on students, it is important for us to clarify the position of students to develop the use and effectiveness of it. That is why an experimental part of the study was conducted: to study the opinions of civil servants who study ICT in Ukraine, namely: how they perceive this approach to learning, how ready they are for this form of learning and how they assess it, what are their needs in connection with the digitalization of public service.

Empirical material on the impact of ICT on the civil servants' training in the domestic education system was obtained during a survey of 285 graduate students in "Public Administration and Administration" (distance study) in Luhansk and Ivano-Frankivsk regions, the vast majority of students work in public administration. Respondents assessed their own readiness to use ICT in the educational process and in their self-development, as well as the effectiveness of e-government and digitalization of public administration in general. The Delphi method was used to identify the benefits and threats of using ICT in the educational process. At the first stage the lists of advantages and threats of e-learning based on the results of a survey of 285 masters in the specialty "Public Administration", analysis of scientific literature, generalization of e-learning experience were determined. At the second stage these lists were evaluated on a 10-point scale by a group of experts, which consisted of 48 undergraduates of the 1-2 courses in the specialty "Public Administration". The results of the experimental work were confirmed by statistical analysis. This material was taken into account when identifying trends in the development of e-learning for civil servants; it was also correlated with identified trends and it emphasized the importance of implementing these trends in the Ukrainian education system for civil servants.

3. Literature review

Problems of training of civil servants, use of ICT were investigated by: Dobos [12] (learning environments in civil service professional development training), Clark and Pal [9] (analysis of academic programs and professional competencies in Canada), He [19] (training system of civil servants in China and Australia), Ishikawa [20] (training of Japanese local government officials), Suleimenova [35] (civil service training in Kazakhstan), Green and Hogarth [18] (alignment of public policy and employer views for training provision), Sarantis and Ben Dhaou [32] (training needs on Electronic Governance), Kim [21] (innovating training), Maniam [22] (preparing public officers for new modes of governance), Saini [31] (considered 5 e-government trends that dominated in 2020, as well as forecasts that provide standards in 2021), Bezhovski and Poorani

[5] (the evolution of E-Learning and new trends), Gaur [15] (research trends in E-Learning), Carabaneanu, Romica and Mazilu [6] (trends in E-learning), Çağatay Baz [4] (new trends in E-Learning), Valverde-Berrocso et al. [41] (trends in educational research about E-Learning).

The documents of international organizations, accreditation agencies and associations contain various information on the civil servants training. But so far there are no publications that summarize the characteristics of e-learning of civil servants in the world. The problem of development of civil servants' e-learning trends has not been covered in publications yet.

The *purpose* of this article is to identify trends in the development of e-learning for civil servants, aimed at forming their professional competencies which should provide effective e-government.

4. Analysis of the world experience of civil servants' training for e-government through e-learning

There are two directions in the system of civil servants e-learning in the world. The first one is the use of ICT as a means, technology of training organization. The second one is the study of ICT as a means of e-government, which culminates in a master's degree or certificate.

It is no coincidence that the framework of competencies of civil servants [8] contains such competencies as: Government IT Profession, Government Knowledge, Information Management Profession. This necessitates the use of ICT not only as a learning technology, but also the content of education, which provides civil servants training for using these technologies in public administration.

Nowadays, to ensure e-government, specialists in the development of e-government development strategy, system administrators of IT support, electronic data processing, automation of management functions, decision support, creation of e-office, expert support of e-government development projects, project managers are needed. development of e-government. These tasks are implemented mainly by master's programs. There are many universities in the world that offer master's degrees in public administration (Ashford University, Capella University, Kaplan University, Texas A&M University – College Station, Villanova University, George Washington University, North Central University, Syracuse University, University of Houston, Seton Hall University, Rutgers University, University of Central Florida, University of Nebraska Omaha, San Diego State University, University of Baltimore, Old Dominion University – Norfolk, University of North Carolina, University of Southern California, Colorado State University, University of Colorado Denver and others). Most universities include e-government disciplines in their curricula. And some universities specialize in training civil servants for e-government. Consider a few of them.

University of Kent implements the MPA curriculum, which includes a mandatory course Public Sector IT Management [23]. This course focuses on the management of information technology (IT) systems in public sector agencies. Specific topics covered include: planning and acquisition of hardware and software and networks, organizational governance and implementation, information security and privacy legal issues surrounding IT management, service delivery and emerging enterprise technologies.

Leiden University [30], the oldest university in the Netherlands, emphasizes that the public

sector needs interdisciplinary expertise and professionals able to make the most of the potential of ICT and technological innovation. The specialist training program has a strong international focus. The program offers two specializations: ICT in business and ICT in the public sector.

Master programme organized by the KU Leuven, the University of Münster and Tallinn University of Technology, and co-financed by the European Union under the Erasmus+ programme (The Master of Science in Public Sector innovation and e-Governance (PIONEER)) [24] declares the mastery of the basics of the use of information systems in the public sector, as well as the introduction of e-government.

The University of Münster [14] aimed at a deeper understanding of the use of information systems in relevant business processes, ICT projects, new approaches to service delivery, as well as an understanding of the possibilities of ICT for public administration.

Tallinn University of Technology offers Master's programme [37]. The Technology Governance and Digital Transformation. It equips students with the capacity for critical thinking and with practical management skills on technological change, innovation and digital transformation that will make it equips students succeed in tech-focused private and public organizations as well as in international bodies. Students gain to understand digital technologies as the key driver of development around the world, that digital transformation brings about sustainable, green growth and human-centred development. Students gain in-depth knowledge of the potential benefits, risks, factors of failure / success of e-government, the role of e-government in society and trends in innovation in the public sector.

At the University of Birmingham [39] the Master of Civil Service Training is provided by the Institute for Local Government Research (INLOGOV), which is the leading center for research and teaching on local government and strategic public administration in the UK. This ensures the unity of the process of training and research, which is a condition for improving the quality of the process of civil servants training to work at the national and international levels. According to the university, 62% of students study at a distance form – they are representatives of other countries.

The analysis of training programs for civil servants allows us to draw several conclusions:

- the e-learning program creates favorable conditions for cross-cultural interaction of students and teachers, which significantly enriches the learning process;
- the number of students from other countries is an indicator of the quality of master's training at the world's leading universities;
- the participation of representatives of different countries in master's programs is the evidence not only of globalization processes, but also the formation of global theory and practice of public administration, which has not yet received clear systemic coverage;
- online learning is an important factor in the quality of IPA masters training in terms of realizing the existing potential of e-learning;
- providing online training requires more resources, but allows to improve the quality of IPA training and make it available to representatives of different countries.

The functioning of e-learning of public servants in the world's leading universities has led to the formation of a new social phenomenon aimed at the development of public administration. This effect is provided by a combination of the processes of training and development of civil

servants, research, the introduction of innovative technologies of public administration. The subjects of this process are scientists, teachers and civil servants – students who create social communities interested in the development of public administration as a requirement of social progress.

The development of e-learning of civil servants is influenced by the development of its technical and program capabilities, cooperation of specialists from different countries and Wiley Education Services, involvement of working civil servants in the training process, close connection with public administration practice.

E-learning programs are implemented by national administrative schools, academies, in some cases universities, banks, associations, and certain organizations, in China they are party schools. The result of completion these programmes is a certificate. In some countries special e-learning institutions have been established: the GDS Academy in the United Kingdom [16], Design Academy for Public Policy in Argentina [10], the Brazilian Distance Education Association ABED [2], DigitalGov [11].

The GDS Academy inspired similar initiatives in Scotland and Canada, which launched its own Digital Academy under Canada's School of Public Service in January. So GDS declares as a goal to build digital capacity in government, through training civil servants in computer science, user-centric design, data, and other disciplines required.

In 2015 Singapore began offering government employees free access to over 2,500 classes, including many on an online platform Udemy, at the country's Civil Service College in July 2018. There are introductory sessions for non-specialists who want to learn the fundamentals of new tech and more advanced courses for civil servants who work in digital. As of February 2019, it has trained more than 10,000 employees at all levels of government.

Nowadays, Kazakhstan ranks 33rd in the UN e-government ranking, that is why the training of civil servants is focused on embedding programs that strengthen the ability of civil servants to use digital technologies and train IT professionals for all levels of government in the educational process. Nazarbayev University in Kazakhstan and the Academy of Public Administration under the President of the Republic of Kazakhstan train specialists in this area [35].

In the vast majority of countries, institutions that train civil servants are short of funds. The need to save money leads to different approaches to solving this problem. For example, in Spain, austerity has made innovation in the civil service one of INAP's priorities, while in Canada, austerity has given new attention to e-learning.

Although classroom learning remains the main means of educating public servants today, it should be noted that there is an increase in online learning offers. For example, the Canada School of Public Service (CSPS) [9] offers nearly 400 self-study courses available online in a variety of administrative and policy areas, such as values and ethics, language learning and risk management. The Canada School of Public Service offers all public servants courses on a variety of topics. While many are held in conventional classrooms, others are online, interactive and self-paced, allowing for learning when it's most convenient.

E-learning is a key element of government training in the UK as well. Through civil service training, the country has been able to provide a high level of training for its staff, despite significant budget cuts.

The Australian Public Service Commission offers numerous e-learning courses that are implemented using different technologies. The APSC Curriculum Catalog [3] includes suggestions for

those who are new to APS, those who want to build their core skills and those who are looking to further develop their leadership capabilities. The list of courses is growing every year, so it is natural that Australia is one of the world's leading countries in terms of e-government.

One of the leading centers for e-government is Hong Kong and it is not accidental. The Civil Service Training and Development Institute CSTDI (Hong Kong) [7] is constantly training civil servants to use ICT. It aims to help all civil servants acquire the basic knowledge and skills needed for the new digital age. For this purpose, a training portal on "Innovation. Technology" has been created, information on innovative trends in new technologies, modern equipment for information and communication technologies, project management of information technology implementation, Internet security and protection of personal data, tools for analysis large databases, methods of making infographics and video clips, etc. are downloaded constantly. In 2019, it was planned that about 43,000 civil servants at various levels would participate in information technology training programs organized by CSTDI.

Consider examples of certified training programs for civil servants. The 5-day training seminar "E-Government, Digital Government Transformation, Innovative Public Policy and Services" is planned by GLOMACS in Dubai [17]. This GLOMACS training seminar will cover: E-Government, Digital Transformation, Civic Centrism, Innovative Public Policy and Services, Language Comprehension. This interactive course involves a mix of presentations with discussions, case studies, role-plays, discussions and exercises, including case studies. Visitors will provide questions and examples from their own work environment. As in other courses, the Zoe Talent Solutions model is used, which provides four steps Do – Review – Learn – Apply Model.

Upon successful completion of this training course, participants will be awarded a GLOMACS certificate with appropriate credits for continuing professional education.

In the GDS Academy Digital leadership course engages non DDaT (digital, data and technology) For senior civil servants in central government who need to support digital transformation and oversee joined-up, trusted services which respond to user needs. The course content is policy and data based and is validated by senior members of the digital, data and technology (DDaT) profession across 30 government organisations. Case studies and examples are exclusively public sector. These facts indicate that the content of civil servants training in e-government is determined on the basis of the position of leaders of e-government implementation, which was studied and summarized by the training organizers [16].

Another example: the themes of HAUS trainings [13] support the objectives set by the government of Finland, and respond to changes in the operative environment. This is why our selection of training programmes and our course content are updated constantly. This courses are always up to date, of high quality and utilise a rich selection of teaching methods. Content available in the eOppiva digital learning environment for public administration is leveraged also in courses implemented in the form of contact teaching. The themes and methods of our training programs are designed in closed collaboration with key actors in public administration, including: The Administrative Unit of the Finnish Government.

The US's DigitalGov team also organises communities of practice in more than 20 digital disciplines, from AI to virtual reality.

DigitalGov University provide a range of free online and in-person trainings and events for people and teams across the federal government. Many of events highlight innovations, case

studies, tools, and resources. All of events are recorded and archived on YouTube. Trainings are open to anyone working in the government or for a government agency [11].

In Japan, the Japanese Academy of Municipal Personnel (JAMP) and Local Autonomy Colleges provide ongoing training in e-government and e-administration, information and communication technology for municipal staff, from high-level technicians to senior officials [20].

From the point of view of socio-economic and political transformation in India, the task of training civil servants is to include project work, the use of information technology, which will improve the quality of public administration and access to it, establishing links with national and international institutions. In India, attention is drawn to the fact that, if mass learning is needed, there are distance learning schemes that will ensure the implementation of this task.

In India, the use of information technology is seen as a means of improving the quality of public administration and access to it. In this regard, educational institutions offer a variety of programs on the Internet that provide all the knowledge and skills needed for leadership in public administration. Working adults do not need to leave their careers to get a degree [26].

E-learning is gaining momentum in Brazil. The Brazilian National School of Public Administration ENAP offers 26 free e-courses on the following topics: Ethics; State budget and finances; Human resource management; IT&C (information technology and communications); Procurement legislation, etc. [33].

Civil servants in all parts of Brazil apply for ENAP courses [33] because of the quality of their content and their relevance to their day-to-day activities. The ENAP policy allows The Brazilian National School to offer all e-learning courses free of charge, which means that the School provides from its own budget the design, development and review of these courses. The content of e-learning depends on the state of e-government in the country. For example, in Cameroon, the training of civil servants in IT primarily covered some software tools, such as Microsoft Word, Excel, PowerPoint, Publisher and the basics of using the Internet, basic office programs (MS office).

In Zimbabwe, the training of civil servants is aimed at providing specific skills important for the functioning of the civil service, as well as knowledge of how to use information technology (working with a word processor, spreadsheet, databases, graphics, multimedia systems) [42]. These programs can be divided according to the needs of civil servants: programs for those who have just entered the civil service are aimed at studying programs of permanent use – Microsoft Word, Excel, PowerPoint, Publisher and the basics of Internet use, basic office programs (MS office); programs dedicated to general problems of e-government; programs related to specific tasks and problems of e-government; programs on a variety of public administration issues in which e-learning is a learning technology. Most often, the civil servant himself, according to his needs, chooses a particular course and studies it. In some cases, civil servants are offered seminars that address a wide range of e-government issues. Such training can be both free and paid.

Electronic technologies are used by almost all educational institutions to control the quality of education. Thus, the French National School of Public Administration ENA, conducts assessment after graduation, receives information from the association of graduates of ENA. Graduates are not just former students of the school, but also employers or colleagues of new graduates. Their feedback also provides an understanding of whether the current profile and qualifications are relevant to the tasks to be performed and the challenges to be addressed in today's public

administration. Annual surveys are conducted more formally and systematically on the basis of questionnaires sent to all graduates who have left ENA in the last 14 months and started working in the French public administration. A parallel questionnaire is sent to their supervisors in the ministries and departments where they work to find out whether the content of the training conducted at ENA meets the expectations and needs of the French government and whether former students feel they are well prepared to perform their duties. In some countries, such as Australia, 360-degree staff assessment (or circular assessment) is used to identify potential opportunities and learning outcomes [19].

In many countries, training of civil servants in the workplace is becoming more widespread, which is almost entirely based on the use of information technology, which ensures the implementation of organizational, control, and evaluation tasks. It is information technology that can turn the training of civil servants in the workplace into a managed process.

In China, e-communication is seen as a means of learning at work. The introduction of e-government is supported by the training of public servants. For example, in Yunnan Province, online trainings were conducted for civil servants from 53 departments. The e-Government portal of China provides information on online training for civil servants [1].

The results of the study conducted by the OECD are important for the realization of the purpose of our work. Thus, according to the survey of civil servants, one of the five most important skills of a civil servant is information management and the use of new technologies, and schools are increasingly looking for new and innovative approaches to training civil servants, including the integration of information and communication technologies (ICT). However, only half of the respondents stated that they have a clear policy on the use of digital technologies for the training of current and future civil servants [29].

The analysis of the world experience of training civil servants for e-government by means of e-learning allows to systematize the existing trends in the modern educational space and to identify tools and means of e-learning that increase the readiness of public servants for e-government.

5. Digitization of the process of training public servants for e-government in Ukraine

Ukraine's commitment for a higher level of e-government development opens up far-reaching opportunities not only for improving institutional processes and the efficiency of public services, but also for training civil servants. Training of highly professional heads of public institutions and competent civil servants is one of the prerequisites for creating an effective system of public administration. Since 2016, the specialty "Public Administration" has been introduced in Ukraine. More than 140 higher education institutions (HEIs) in Ukraine have a license for educational activities in this specialty.

The standard of higher education in Ukraine of the second (master's) level of higher education in the specialty 281 Public management and administration determines the formation of special competence "Ability to organize information and analytical support of management processes using modern information resources and technologies, in particular to develop measures for the implementation of e-government in various areas of public management and administration",

as well as the learning outcome: “to identify priority areas for e-government and e-democracy” [34].

Educational trends of recent years, modern learning conditions during the pandemic require introducing e-learning in the practice of civil servants’ training from the leaders of these educational institutions, the requirement of time is the correction of the content and forms of education and the use of IT in research and teaching. Our analysis of the content of more than 50 educational programs, which provide training for civil servants in higher educational institutions of Ukraine, showed that most educational programs have mandatory disciplines that provide training for civil servants in e-government. These disciplines have different names, namely: “Digital and e-Government and ICT”, “E-Government”, “Information Policy and Digital Technologies”, “Information Technologies, e-Government and E-Democracy”, “E-Government, resources and services in the civil service”, “Information and analytical activities in public administration”, “Informatics and computer technology”, “Information technology in public administration”, “E-government, information technology, resources and services on civil service”, etc. In some master’s degrees such disciplines are elective, their mastery depends on the choice of students.

Some higher educational institutions offer educational programs that are entirely dedicated to preparing for e-government. Thus, one of the leading universities of Ukraine “Kyiv Polytechnic University” offers an educational program “E-Government”, which contains numerous disciplines related to the preparation for e-government, including “Information Security and Risk Management”, “Information systems and Internet technologies in public administration”, “International and national professional standards in the field of e-government”, “E-government and e-democracy”, “Tools of e-government and e-democracy in preventing corruption”, “Implementation of e-government”, “Public procurement and e-commerce” [28].

Uzhhorod National University also provides training in the e-government educational program. This educational program contains the following disciplines: “Communications in public administration”, “Architecture and information technology infrastructure of e-government”, “Electronic document management and information security”, “Foreign experience in e-democracy”, “Information security in e-government”, “E-democracy”, “Benchmarking of e-government at the local level”, “Theoretical and methodological, organizational and institutional basis of e-government”, “Public administration in the development of the information society”, “Electronic services”, “Information technology in the electoral process”, “Marketing and management of e-government” [40].

The analysis of the content of education in Ukrainian master’s programs testifies to the compliance of the content of civil servants’ training with global trends in preparation for e-government. Analysis of the forms of the educational process organization shows that almost all master’s programs offer full-time, part-time and distance learning, which corresponds to general trends and features of education during the pandemic.

On the basis of the Educational and Scientific Institute of Public Administration, Management and Postgraduate Education of the State Institution “Luhansk Taras Shevchenko National University” and Institute of Humanities and Public Administration of Ivano-Frankivsk National Technical University of Oil and Gas, which carry out educational activities for the preparation of masters in “Public Administration”, a survey of civil servants on digitalization processes was conducted. The study surveyed 285 respondents who studied by correspondence over the

past 3 years. The research group included civil servants of “C” and “B” categories from the regional administrations, district state administrations, as well as officials from city and village councils of Luhansk and Ivano-Frankivsk regions. Only 6% of respondents do not work in the civil service and local government and study on a contract basis. Figures 1 and 2 shows the characteristics of the group of respondents by age and length of service in public administration.

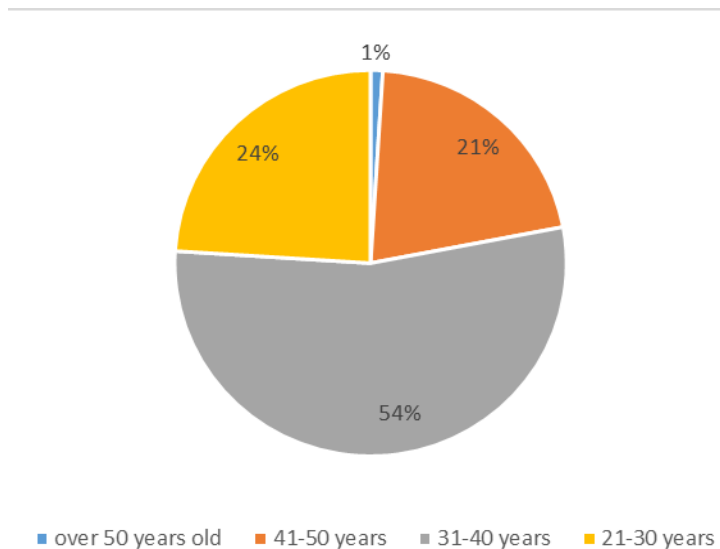


Figure 1: Characteristic of the respondents’ group by age.

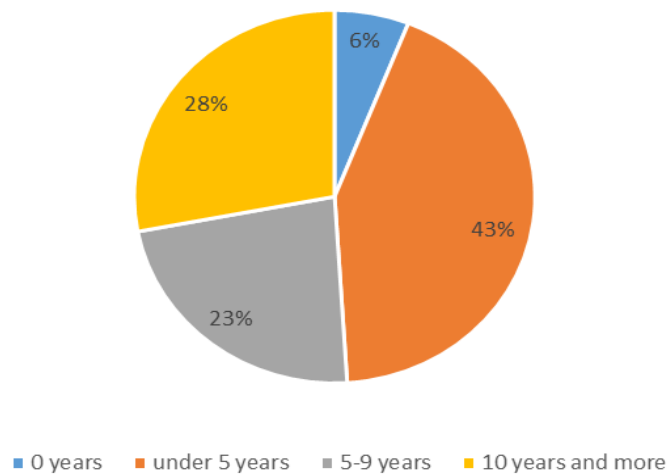


Figure 2: Characteristic of the respondents’ group by length of work in public service.

The characteristic of the respondents’ group by age shows that the survey was conducted by people aged 21 to 60, among them the predominant age group is from 31 to 40 years (54%), people

who usually have skills in the use of ICT technologies and are able to master new technologies in e-learning. The characteristic of the group of respondents by length of public service shows that the survey was conducted by experienced civil servants and local government officials. 51% of respondents have more than 5 years of experience in the public service, which makes their opinions valuable as experts on the processes of digitalization of public administration.

Respondents were asked to rate the level of manifestation of a phenomenon of digitalization on a 10-point scale (10 – maximum level, 1 – minimum level). According to the survey, 68.2% of respondents rated the impact of information technology (IT) on the effectiveness of public administration with the highest number of points (from 8 to 10), the lowest level of assessment – 5 points. The level of assessment of digitalization of public administration in Ukraine is estimated at a minimum of 2 points and a maximum of 10 points, the majority of respondents (81.4%) within 5 – 8 points. The level of digitalization of work processes in the organization at the place of work is estimated by the majority of civil servants (56.4%) within 5 – 6 points. Only 17.2% of respondents gave high marks (8–9 points). The minimum score on this issue within 2 – 3 points was given to 12.1% of respondents. The obtained data are indeed a subjective assessment of the respondents, but they indicate problems in the practice of e-government implementing. With this assessment, civil servants demonstrate their opinion that ICT technologies are used in half in terms of the possibilities of their use in work, the digitalization of public administration is under development.

The results of the assessment of respondents' own readiness for the use of ICT in public administration are shown in the diagram (figure 3).

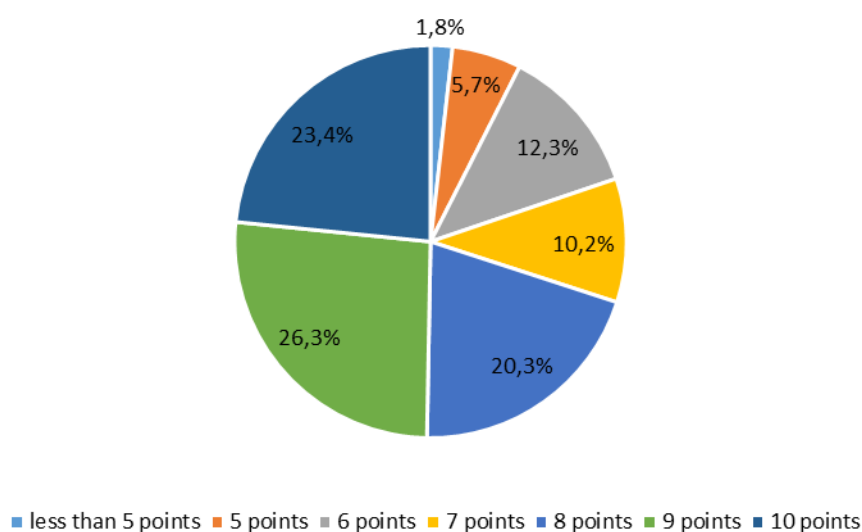


Figure 3: Results of civil servants' self-assessment of readiness to use ICT in public administration.

Thus, most respondents acknowledge their willingness to use ICT technologies, which is a favorable factor for the digitalization of the public service and the introduction of e-learning for civil servants. The study also examined the impact of information technology on the learning process. Respondents' assessment of their own readiness to use ICT in the learning process and

their self-development (figure 4) showed their confidence in their readiness for e-learning.

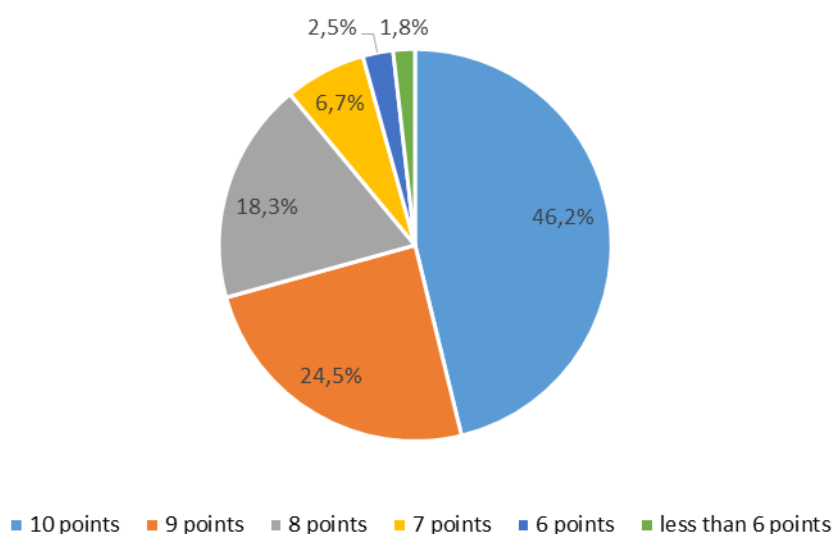


Figure 4: Results of civil servants' self-assessment of readiness to use ICT in the educational process and their self-development.

Also, the majority of respondents (62.6%) rated the increase in their level of ICT competence during master's studies in the range from 7 to 10 points. However, this issue was rated at 2 – 3 points in 13% of respondents, which may indicate insufficient use of ICT in the educational process.

To identify the trends in the development of e-learning for public servants, it was important to provide information on the results of the Delphi study of the ICT technologies impact on the educational process, identify the benefits and threats of the use of IT. This study was carried out in two stages. At the first stage the opinion of 285 undergraduates from the group of respondents on the benefits and threats of the use of ICT in the educational process was clarified as the result of the survey. Analysis and systematization of the obtained data, study of the scientific literature on this issue, our own research allowed us to form the lists of benefits and threats of e-learning and identify 11 benefits and 7 threats.

At the second stage, a group of undergraduates of the 1–2 years of study (48 people) acted as an expert group which corresponds the group of 285 respondents of specialty “Public management and administration” (on their age, qualification, work experience). The experts were tasked with assessing the significance of the proposed benefits and threats on a 10-point scale. Assessment was carried out on a 10-point scale, where 10 points of assessment correspond to the maximum level of benefits or threats of the use of ICT in the educational process.

The results of the expert group's assessment of the benefits of ICT for the learning process are shown in figure 5. These data are the average assessment of experts on the significant benefits of e-learning (Y axis). The numbers on the X-axis correspond to the advantages of using ICT in the educational process, where 1 – allow to increase the amount of educational information, 2 – increase the availability of information, 3 – facilitate communication with teachers, 4 – allow to

solve organizational problems of the educational process, 5 – facilitate research, 6 – facilitate contacts with public officials of Ukraine and other countries.

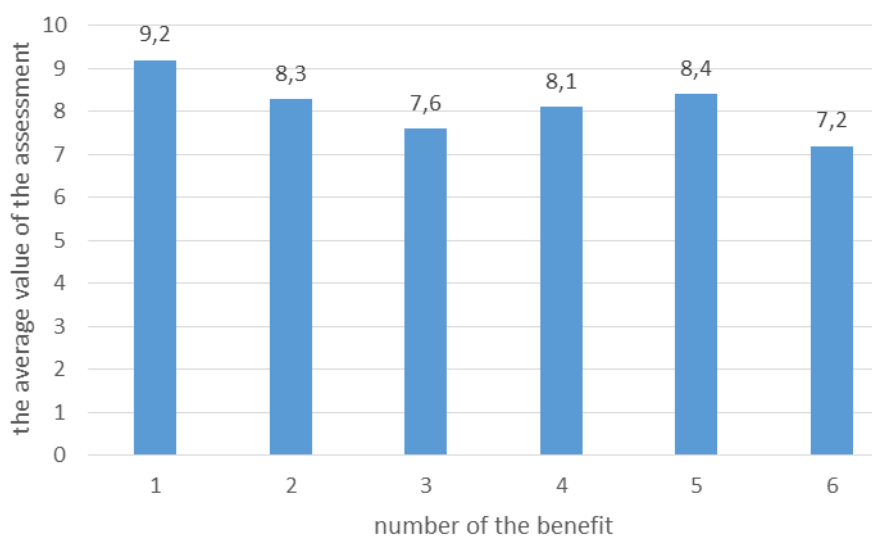


Figure 5: The results of the assessment of the benefits of the use of ICT in the educational process.

The results of experimental work are confirmed by statistical analysis. For the main 6 indicators we obtained the coefficient of variation that does not exceed 0.28, and for insignificant 5 – from 0.39 to 0.62. This indicates a good relative consistency of experts' opinions on significant opportunities and satisfactory on insignificant ones. The concordance coefficient, which determines the consistency of the experts' opinions as a whole on the experiment, is equal to 0.66. This indicates a good degree of consensus among experts.

Thus, the respondents rated the possibility of working with information the most (advantages 1, 2). However, such a result may indicate a lack of implementation other advantages provided by the use of ICT technologies in the educational process in domestic higher educational institutions.

The results of the expert assessment of the threats to the learning process that may be caused by the use of IT are shown in figure 6. The average score of experts (Y axis) is given in accordance with the identified threats, which are assigned numbers (X axis), where 1 – causes oversaturation of students with information, 2 – formalizes the learning process, 3 – promotes plagiarism, 4 – IT capabilities that used in the educational process, constantly lagging behind their world level.

Statistical analysis confirmed the reliability of the results of experimental work. The coefficient of variation for significant 4 indicator does not exceed 0.26, and for insignificant 3 – from 0.41 to 0.47, which indicates a good relative consistency of experts' opinions. The concordance coefficient (0.74) indicates a good degree of agreement between the experts' opinions of the whole experiment.

As can be seen from the above data, respondents see a greater threat to the consequences of the introduction of ICT technologies in education in the formalization of educational process

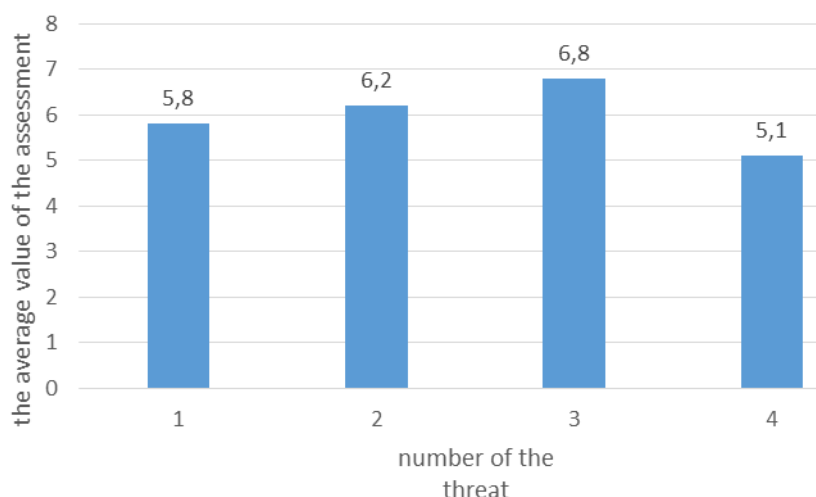


Figure 6: The results of the assessment of threats to the learning process that may be caused by the use of IT.

and the creation of favorable conditions for the spread of plagiarism. Thus, actions to prevent these threats are the use of innovative interactive methods of teaching and conducting a policy of academic charity in domestic higher educational institutions. The solution of this problem will be facilitated by the use of modern information technologies and the direction of funds for the provision of educational process with modern technical equipment and software.

Therefore, according to the results of the analysis it is established that:

- e-learning is an important means of preparing public servants for e-government, which allows them to respond to new challenges of today and implement training in modern conditions;
- e-learning allows civil servants to combine work and study;
- e-learning corresponds to the age characteristics of the majority of public servants who study in the master's programs of higher educational institutions;
- awareness of the benefits and threats of the use of ICT in the training of civil servants, taking them into account in the management of civil servants' e-learning will improve the quality of the educational process;
- In general, the content of education in master's programs of Ukrainian higher educational institutions, which train civil servants, is aimed at the formation of professional competencies necessary for e-government, and corresponds to global trends in training of civil servants. The obtained data are taken into account when determining trends in the development of e-learning for civil servants.

6. The results of the research

According to the results of the study, the following trends in the development of e-learning for civil servants are identified:

1. *Transformation of e-learning into one of the main factors in the development of public servants in the world.* Its volumes are constantly increasing, its technical and software base is being updated, and its level of availability is increasing. E-learning is implemented in the form of distance education, blended learning and a component of the traditional classroom organization of the educational process. The main feature of e-learning is its focus on the learner. It allows you to implement the individual characteristics and needs of students better, and this is the key to higher efficiency of this level of training of public servants. E-learning allows to save financial, material resources, time resources and social work due to its flexibility, logistics, organizational forms. Therefore, we can predict the development of the global trend to increase the volume of e-learning for public servants.

For a long time training has been a means of transmitting the accumulated knowledge to the new generation. But now the situation is beginning to change. There are several factors involved in the training of public servants: rapid changes in the social situation, the emergence of problems that do not have ready-made solutions. High level of education of public servants, who, as a rule, have higher education and are more focused on active work than on passive perception of ready knowledge, this statement is confirmed by the data obtained by us during the survey.

Our analysis of the training experience of civil servants showed that institutions training civil servants can be divided into two groups: the larger group focuses on the translation of best practices of public administration, and the second focuses not only on learning effective public administration experience, but also on developing its models appropriate to rapid changes in social processes. . The approach of the first group of institutions is focused on yesterday and today's public administration and is doomed to constantly lag behind the existing problems. The second approach is focused on today and tomorrow of public administration, so it determines the competitive advantages of educational institutions implementing this approach. The first approach is more common in postgraduate institutions that provide certificates after graduation. The second approach is common in leading universities, which have significant potential of scientists, teachers who specialize in public administration.

Information technologies create fundamentally new opportunities for the development of civil servants. This effect is achieved through the ability to choose courses to study according to their needs, learn at a comfortable pace, combine theoretical training with the practice of civil servants, communicate with teachers, other students from different countries, receive text, video and audio information, use different learning devices. It allows turning the usual traditional learning process into a collective research and project activity of international groups of civil servants, who will study certain problems of public administration and experience of different countries in solving them and develop innovative models of their solution and implementation with the help of network technologies.

2. *Orientation of the e-learning system to increase the level of subjectivity of civil servants.* E-learning has more opportunities to make decisions about this process. In this situation, the effect of resistance to learning disappears. This effect is characteristic for adults in the system of traditional learning, when they don't need to solve problems themselves. Thus, e-learning is more in line with the features of the modern Internet generation of public servants, more prone to activity, flexible response to events, information challenges, to interactive teaching methods.

Civil servants of the Internet generation, provided a high level of motivation, can learn using

e-learning technologies. Readiness for such training was confirmed by the results of the civil servants' survey in our study. In this process, there is no need for a personal teacher who controls and dictates the rules of educational activities that are characteristic of formalized education. E-learning is the most effective way to implement the idea of lifelong learning.

3. *Diversification of content, goals, subjects and approaches to the organization of e-learning.* Analyzing the system of teaching e-government in terms of content, we can distinguish several groups of courses:

- Project management of e-government development (Innovations in digital self-government and services, E-government assessment, Augmented reality, blockchain, Context services, e-government strategy, government 3.0, government 4.0, Game-based modeling; Policy modeling paradigms, gender and ICT , intellectual management);
- Management of information systems and databases (Smart Government, Software Development, Information Society Principles and Public Administration Information Systems, Geo Information Systems, Government Social Media, Big Data, Cloud Computing, Smart City and Open Data, Cloud Services Integration, Information Management and Digital archiving, use of virtual environments, database management systems);
- Informatization of public services (Technologies and e-government services, personalized public services, proactive services, Contextual services, Blockchain public services.)
- Fundamentals of cybersecurity (e-Identity / e-Signature, Digital certification, Security and authentication in public administration, Impact of social bots, transparency and trust in decision-making, open data, e-participation systems).

The purpose of training civil servants is to ensure the mastery of ICT technology in public administration for marketing, monitoring, service delivery, communication technology, research, exchange of experience, obtaining information, storing information, information processing.

E-learning allows to solve many tasks: to solve problems of public administration at current levels and to break the circle of erroneous situation when management becomes a prisoner of accepted procedures of public administration, to form global values of public administration, to establish informal connections of people from different countries and intercultural dialogue, to use the potential of national diversity to solve state problems, to form a number of important competencies of employees, to give public administration a research character, to update the teachers' traditional functions.

Nowadays, curricula are offered by different types of institutions: universities, colleges, state administrative institutes, government agencies, banks, public organizations, associations, networks.

The analysis allows us to identify several approaches to building e-learning – focus on the best practices of e-government, focus on highlighting the theoretical foundations of public administration, focus on the implementation of e-government, focus on development, research of e-government, which provides advanced nature of training, focus on the needs of students, focus on the formation of certain competencies of each group and individual employees. Typically, some of these learning logics may be leading and others complementing them, or these logics may be compiled or used systematically. The condition for improving the effectiveness of e-learning is the conscious construction of a holistic logic of the educational process.

4. *Multifunctionality of the use of information technology in the training system of civil servants.* Information technology has several functions: the object to be studied; tools for solving marketing problems; technologies for solving educational tasks - organization of educational tasks, communication with teachers, colleagues; exchange and receipt of information, control of knowledge and evaluation of learning effectiveness, accounting for learning outcomes; organization of scientific research; information storage; establishing relations with graduates, institutions where students work; means of preparation for standardized and specialized information tasks; means of the development of public administration.

There are standardized and specialized information tasks in civil servants' activity which are based on the use of specialized software. The training system for civil servants, focused on obtaining certificates, usually prepares for the solution of standardized information tasks, and the system of master's training provides preparation for more specialized information tasks.

The training of civil servants for the use of information technology in public administration can be effective only against the background of a holistic consideration of the problems of public administration, which is a system-forming factor for ICT. Problems of e-government can be considered at the side of public administration or ICT. The first position is more reasonable because ICT is a component of public administration, and not vice versa. ICT is a tool, although the main one, for solving the problems of public administration. But we should take into account that ICT can change not only the content of management, but also its tasks.

5. *E-learning of civil servants creates conditions for cross-cultural interaction.* E-learning allows to organize research, project activities, communicate with teachers, students, representatives of different countries, quickly receive and transmit information. These benefits of e-learning were highly rated by respondents in our survey. It changes the essence of learning, which loses its traditional meaning and turns into a new kind of collective social activity of transforming the surrounding reality. E-learning creates conditions for exchanging teachers from different countries, internationalization of the content of education, the formation of an international theory of public administration.

This trend is most actively beginning to manifest itself in the system of master's training of public servants and e-learning plays a leading role in this process. But the further spread of e-learning can facilitate formalization the learning process and create favorable conditions for the spread of plagiarism. Such threats were identified during the study, that is why it should require the formation of e-learning culture and the implementation of academic integrity. The further spread of e-learning will inevitably lead to its transformation into a new activity in which knowledge will be only one of its conditions, and competencies will be a concomitant result of certain changes in public life. In this situation, e-learning will be a part of the public servants' work, which will not require special educational institutions for its organization.

The relevant problem for further research is the problem of studying the impact of the training system of public servants on achieving high level of e-government in the world's leading countries on this indicator.

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