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INTEROPERABILITY AS A NECESSARY CONDITION FOR THE IMPLEMENTATION OF E-GOVERNANCE: EXPERIENCE OF THE EUROPEAN UNION

Abstract. The article is devoted to investigating the most topical issues in the implementation of e-governance in the European Union is to provide interoperability, both at the local and national levels. The article analyzed the European Interoperability Framework and the Interoperability Action Plan, developed in accordance with the modern requirements of the development of e-governance and the formation of a single European digital market. Researched the most interesting tools and solutions that are developed and applied in the European Union for the implementation of the interoperability of e-governance. Made up for the opportunity to use the experience of the European Union to ensure interoperability when implementing e-governance at the local level in Ukraine.

Keywords: e-governance, e-governance at local level, interoperability, principles interoperability, electronic services.

СУМІСНІСТЬ ЯК НЕОБХІДНА УМОВА ВПРОВАДЖЕННЯ ЕЛЕКТРОННОГО УРЯДУВАННЯ: ДОСВІД ЄВРОПЕЙСЬКОГО СОЮЗУ

Анотація. Стаття присвячена дослідженню найбільш актуальної проблеми впровадження електронного урядування в Європейському Союзі — забезпечення сумісності як на місцевому, так і на національному рівнях. У статті проаналізовані нова рамкова програма Європейського Союзу зі сумісності та План дій зі сумісності, які розроблені відповідно до сучасних вимог розвитку електронного урядування та формування єдиного європейського цифрового ринку. Досліджено найцікавіші інструменти та рішення, які розроблені та застосовуються в Європейському Союзі задля впровадження сумісності у сфері електронного урядування. Обґрунтовано можливість використання досвіду Європейського Союзу для забезпечення су-

місності при впровадженні електронного урядування на місцевому рівні в Україні.

Ключові слова: електронне урядування, електронне урядування на місцевому рівні, сумісність, принципи сумісності, електронні послуги.

СОВМЕСТИМОСТЬ КАК НЕОБХОДИМОЕ УСЛОВИЕ ВНЕДРЕНИЯ ЭЛЕКТРОННОГО УПРАВЛЕНИЯ: ОПЫТ ЕВРОПЕЙСКОГО СОЮЗА

Аннотация. Статья посвящена исследованию наиболее актуальной проблемы внедрения электронного управления в Европейском Союзе — обеспечению совместимости как на местном, так и на национальном уровнях. В статье проанализирована новая рамковая программа Европейского Союза по совместимости и План действий по совместимости, которые разработаны в соответствии с современными условиями развития электронного управления и формирования единого европейского цифрового рынка. Исследованы самые интересные инструменты и решения, которые разработаны и используются в Европейском Союзе с целью внедрения совместимости в сфере электронного управления. Сделаны выводы по поводу возможности использования опыта Европейского Союза для обеспечения совместимости при внедрении электронного управления на местном уровне в Украине.

Ключевые слова: электронное управление, электронное управление на местном уровне, совместимость, принципы совместимости, электронные услуги.

Formulation of the problem. In recent years, the attention of the government's leadership in implementing e-governance has been increasing in Ukraine. The interest in the development of the e-governance also arises at the level of local self-government and local administrations. This is explained by effectiveness of use of the e-government in the fight against corruption, the establishment of interconnection with civil society, improvement of quality of the public services, etc. Especially, the implementation of the e-governance becomes relevant in the context of European integration processes, that take place in our country. Unfortunately, these processes are moving not

so actively as the Ukrainians seek and, above all, it is connected with the necessity of priority solution of the number of the problems, that hinder the path to this goal. One of the pressing issues, that impede the effective implementation of the e-governance at both the national and local levels in Ukraine is the compatibility issue. The solution to this problem depends on the reform of the public administration system, in particular the quality of providing electronic services to citizens and businesses, the exchange of information and data, the electronic interaction between government and local self-government bodies, and the protection of personal data and information resources. For

the European Union in the context of the e-government development and the emergence of a single European digital market, the constant task is to ensure compatibility between legal instruments, business processes, information exchange and components, that are necessary for the provision of electronic European public services.

Analysis of recent researches and publications. The issue of compatibility in the implementation of the e-governance has not yet become the subject of a separate study of domestic scholars. Among the publications of domestic researchers, it should be noted the work of S. A. Chukut and O. V. Zagvoysky [1], where the issue of compatibility was considered in the context of the need of training the masters in the e-governance in the light of European experience.

The recently approved decree of the Cabinet of Ministers of Ukraine dated September 20, 2017, the Concept of e-governance development in Ukraine [2], includes, in particular, the following two important principles, which are directly related to the problem of compatibility: one-time input of information and default compatibility, which determines the need for the design and operation of information and telecommunication systems in the authorities in accordance with common open standards and requirements for ensuring their further interoperability and electronic interactions and reuse.

The purpose of the article is to analyze the experience of the European Union in solving the compatibility problem with the introduction of the e-governance with the possibility of its adaptation to Ukraine's needs.

Presenting main material. In March 2010, the European Commission launched the Europe 2020 Strategy [3] to cope with the crisis and prepare the EU economy for challenges of the next decade. The strategy aims to achieve a high level of employment, productivity and social cohesion, to be implemented in concrete actions at the level of the EU and the Member States.

One of the seven initiatives of the Strategy is the "Digital Agenda for Europe" [4], adopted in 2010, which identifies the key role of ICTs in meeting the ambitious objectives of the "Europe 2020" Strategy. The purpose of the agenda is to determine the course for maximizing the social and economic potential of ICT, first of all, the Internet as an intermediary in economic and social activities: for business, work and receiving of electronic (digital) services.

Particular attention in this context is the solution to the problem of compatibility, since without this, it is impossible to form an effective digital agenda. In particular, the importance of achieving compatibility of software and content, optimization of relevant standards. At the same time, it is envisaged to improve the existing legislation to increase interoperability in order to ensure effective communication between digital components such as devices, networks and data warehouses. Achieving this goal will promote innovation, economic growth, improving the lives of citizens, addressing the challenges of Europe, and ensuring a better quality of life, for example, better health care systems, safe and efficient transport links, a cleaner environment, new media opportunities, lightweight access to public e-services and cultural content. In

addition, the combination of new technologies, open technical conditions, innovation architecture and public sector information will provide more opportunities for people with limited resources.

The ISA² program [6] was adopted in November 2015 by the European Parliament and the Council of the European Union. The goal of the program is to support the development of digital solutions, that enable public administrations, businesses and citizens of Europe to use compatible cross-border and inter-sectoral public services. The ISA² is for the period from January 1, 2016 to December 31, 2020. It has become a logical continuation of the ISA program [5], which lasted from 2010–2015. Features of the new program include: Ensuring proper coordination at the EU-level cooperation activities; development and adoption of administrative decisions by state administrations, based on the needs of business and citizens; the introduction of the necessary tools for enhancing interoperability at the level of the European Union and at the national level, including the local and regional levels of implementation of e-governance.

The ***European Interoperability Strategy*** (EIS), which includes recommendations on the interaction, exchange and cooperation between European state administrations for the provision of European public services across national borders and sectors, should be singled out.

In March 2017 the European Interoperability Framework (EIF) [7] and the Compatibility Action Plan [8], for the period 2017–2020, were adopted. It should be noted, that the Compatibility Action Plan provides specific

guidance on the establishment of compatible electronics (digital) public services. In particular, in this plan, state administrations are offered specific recommendations for improving interoperability management, establishing interrelationships between organizations, and simplifying the processes, needed to provide e-services. In addition, legislative regulation of interoperability is envisaged in order to avoid obstacles to its implementation. Successful implementation of the EIF should improve the quality of European public services and create an environment in which state administrations can collaborate digitally.

Compatibility is defined as the ability of organizations (public administrations or their associations) to interact for the achievement of common and agreed goals, including the exchange of information and knowledge between these organizations, through business processes, through the exchange of data between their ICT systems [7, p. 5].

The compatibility action plan focuses on five main areas [8]:

- 1) ensuring the management, coordination and exchange of interoperability initiatives, envisaging the regulation and coordination of interoperability initiatives in the EU and national levels, as well as ensuring implementation and monitoring of the implementation of the compatibility action plan;

- 2) Developing interoperability organizational solutions by ensuring and using appropriate capabilities (such as interoperability agreements) and artifacts (for example, business process models);

- 3) engagement of interested parties and increased awareness of interoper-

ability, implies encouraging state administrations to use existing and new compatibility solutions in applying the EIF principles, as well as relevant recommendations and models.

Attention will also be paid to the design and development of utilities, based on the needs of users.

4) development, maintenance and growth of the basic interoperability systems includes:

identification, development, improvement, support and design of compatible services and tools, standards and specifications;

5) design, support and development of auxiliary tools for interoperability includes:

identification, development, improvement, support and design of tools, that support the implementation, assessment and monitoring of interoperability activities.

The interoperability framework defines three types of interactions:

- A2A (administration to administration), which refers to interactions between public administrations (e. g. Member State or EU Institutions);

- A2B (administration to business), which refers to interactions between public administrations (in a Member State or an EU Institution) and businesses;

- A2C (administration to citizen), which refers to interactions between public administrations (in a Member State or an EU institution) and citizens.

Particular attention should be paid for implementation of e-government in compliance with the principles of interoperability, namely: subsidiarity (priority systems) and proportionality; openness; Transparency; reuseabil-

ity; technological neutrality and data transfer; custom-centricity; inclusion and accessibility; security and privacy; multilingualism; administrative simplification; information storage; evaluation of efficiency and effectiveness [7].

Joinup is a joint platform, set up by the European Commission and funded by the European Union to help establish a relationship between state administrations, businesses and citizens (within the framework of the ISA² program). This platform has several services, that enable e-government professionals to share experiences with each other.

In addition, the search, select, reuse, develop and implement a variety of compatibility solutions is a priority. In particular, on this platform it is possible to find an interesting and useful experience of compatibility with the introduction of the e-government on the local level in France (Burgundy region) and Belgium (Flanders Region).

OSLO — Open Standards for Local Administrations in Flanders [9] is a strategy, designed to improve the provision of services by the government with the use of modern ICTs, based on the fact, that citizens and businesses have only one time to ask for what they need from their own Government, and in the future it will work automatically. The OSLO feature is that this is the result of a public-private partnership, initiated by V-ICT-OR (Flemish ICT Organization, a member organization for all local authorities, involved in ICT and information management) and funded by Flemish ICT providers and local state administrations

The project was launched in February 2012 when a working group of ex-

perts from local, regional and federal state administrations and ICT providers was created to reach consensus on information exchange standards. The working group, for the first time, conducted an inventory of more than 60 tasks, related to the exchange of information for local authorities in Flanders in four areas: individual, organization, location and civil service. The OSLO dictionary is a simplified, multiple, and expandable data model, that captures the OSLO Flemish Project Standards for the core OSLOs in the “Man”, “Business”, “Location” and “Public Service” dictionaries, created at the European level in the context of the ISA Program (decision on compatibility of the European state administrations) of the European Union. These four basic dictionaries are simplified, reusable, and expandable specifications for the exchange of information.

<https://joinup.ec.europa.eu/solution/core-person-vocabulary>

<https://joinup.ec.europa.eu/solution/registered-organization-vocabulary>

<https://joinup.ec.europa.eu/solution/core-location-vocabulary>

<https://joinup.ec.europa.eu/solution/core-public-service>

<http://ec.europa.eu/isa/>

This approach is conditioned by the problems that exist, namely, that even in one organization, the public services are documented differently, according to national, regional or local civil service models. In addition, the description of public services, provided through e-government portals is usually not structured, not machine-readable. This fragmented view of the concept of civil service and the lack of machine-read-

able public service descriptions affect the quality and effectiveness of public services, increase administrative burden and make services more expensive for citizens, impede the effective implementation of e-governance, and the formation of a single digital market.

The OSLO dictionary offers technology, that consists in the independent, general presentation of contact information, localization and services, provided by the public administration. Thus, the vocabulary is a common ground for existing national, regional and local civil service models, that can overcome language barriers, exchange services and information in various e-government systems.

Another interesting and useful experience for the effective implementation of e-government at the local and regional levels is the French experience of providing e-service compatibility through the e-Bourgogne [10], a platform, that provides 20 e-services to more than 2,000 local NGOs in the Burgundy region (France), municipalities, cities and other local legal entities.

The first three E-Burgundy operations services were:

1. PROCURE — e-service for e-procurement (the first e-service on the e-Bourgogne platform).

2. The only entrance for companies, that apply for financial support and/or require support for their business in Burgundy “J’entreprensen Bourgogne”.

3. Digitization of legal and accounting documents between local authorities and central administrations.

PROCURE is the electronic service, that provides full access to all regional public tenders, which simplifies and re-

duces the cost of filing an application. E-Burgundy is organized through a special management model, that covers all interested parties of the regional legal entities (local authorities (LA) and local legal entities (LLE)). This management model guarantees the continuity of service delivery regardless of any political changes. GIP provides services to all legal entities, that are autonomous in terms of procurement (legal bodies, universities, colleges, chambers of commerce, etc.) and represent their individual interests.

The e-Bourgogne platform and e-services comply with the French compatibility standards, that are in line with European directives. Priority gives to the software with open source.

Since the beginning of 2005, 23 000 tenders have been published on the e-Bourgogne platform, which resulted in 200 000 downloaded documents (by January 2009). By December 2011, the existing service was used by 17,000 companies. The e-bourgogne leadership is currently the state-owned holding GIP (Publication Group d'Intérêt Public), which has united 2,000 local organizations. Cost savings through the PROCURE annually make up to 6 million euros, not counting savings of 5 million sheets of paper. Surveys conducted in the Burgundy eGOV, show a very high level of satisfaction with the services received. Thus, almost 90 % of local organizations are very satisfied with the platform; and the PROCURE became a top priority for them. In addition, business has become more interested in taking part in open tenders, especially for small and medium-sized enterprises, that have received easier access to these tenders. The Bur-

gundy Regional Council has applied to the European Commission to check the PROCURE electronic service in other European regions. The project started in early 2007 and lasted 2 years in 5 regions: Central Czechia, Piedmont (Italy), Uddevalli (Sweden), Brittany (France), Guadeloupe. The results and main findings were made public in Brussels on March 17, 2009. Among the most striking is that the return on investment amounted to over 10,000,000 euros.

Conclusions and perspectives of further research. Thus, the new European Integration Framework (EIF) aims to contribute to the creation of a single European digital market. The public sector, accounting for more than a quarter of the total employment and accounting for about one fifth of the European Union's GDP at the expense of public procurement, plays an important role in the single market for digital services as a regulator, service provider and employers. Beginning in 2010, the European Union has consistently linked the development of e-governance to address interoperability. The priorities are design, development, and reuse. Particular attention is paid to the design and further development of open source software for all interested users.

In Ukraine, e-governance development is taking place not only at the national level, but also at the local and regional levels. The problems and obstacles on this path are diverse software, used by public authorities and local self-government, inconsistency of actions at the local and national level, the lack of uniform standards for the provision of electronic services, etc. Unfortunately, in the recently ap-

proved by the Cabinet of Ministers of Ukraine Concept of e-governance development, although the goal and the definition of interoperability, but it is considered only in the context of the development of organizational, technical and semantic interoperability of information and telecommunication systems of the authorities. It also provides for the creation, development and operation of information and telecommunication systems of the authorities, which should be implemented taking into account the need for their compatibility with the basic information and telecommunication infrastructure of e-governance and the requirements of information protection legislation.

However, this approach does not take into account common European rules and compatibility requirements, especially compliance with the principles of interoperability, namely: subsidiarity and proportionality; openness; transparency; reuse possibilities; technological neutrality and data transfer; custom-centricity; inclusion and accessibility; security and privacy; multilingualism; administrative simplification; information storage; evaluation of efficiency and effectiveness. These principles should be observed when implementing e-governance at both national and local levels in Ukraine, which will help to overcome existing problems and obstacles along the way, save money, promote the provision of high-quality electronic services and the creation of the Common European digital market.

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