

METHODOLOGICAL PRINCIPLES OF ELECTRONIC INFORMATION RESOURCES OF BRANCH

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Здійснені аналіз і систематизація сучасної української філії електронних інформаційних ресурсів. Описані методологічні принципи їх організації та функціонування з точки зору їх інтеграції.

Ключові слова: Електронні інформаційні ресурси, класифікація, інтеграція, взаємодія, електронний уряд.

The analysis and systematization of modern Ukrainian branch electronic information resources are carried out. The methodological principles of their organization, functioning and terms of their integration are described.

Keywords: electronic information resources, classification, integration, interaction, e-government.

Топікаліті

According to regulatory documents [1], the national system of electronic information resources is a set of both national resources needed to solve the problems of socio-economic development and electronic information resources of the National Registry which are arranged with the help of the single technology. In the National Registry, it is also indicated which electronic information resources can be treated as national, state, public, and private ones.

However, as it follows from investigation, it is expedient to separate the branch electronic information resources (BEIR) as a particular type. The BEIR consists of information resources which are related to a particular branch, and are formed and administered by means of automated information systems of the public authority of a corresponding branch. As an example, we can mention the following BEIR: Unified State Register of legal entities and natural persons (entrepreneurs, AIS, "State Budget", AS "Treasury", State Register of Encumbrances of Movable Property, etc).

Each of these systems was formed separately, mainly according to the branch concept:

it functions in its subject area;

it is based on its programme platform;

it has its own databases, a system of classifications and reference books, which are formed particularly;

it ensures a particular customer's interface.

The importance of a separation of the consideration of the branch electronic information resources is related to the need of their integration into a single system of e-governance of Ukraine.

For effective organization of such electronic information coordination, it is necessary to coordinate interaction of proper software, hardware, as well as regulatory and organizational documents.

A thorough study of the branch electronic information resources can help to create a mechanism of their integration more effectively, to account the specific characteristics and functioning of each of them more accurately.

Overview of references

References review shows that in this area the research is usually conducted either in the direction of solving the general methodological problems of the formation and functioning of information resources of public authorities [2,3], or towards the analysis of the functioning of individual branch information and analytic systems [4.5].

An attempt to classify the information and analytic systems with the use of growing pyramidal system in terms of logical-linguistic information models is done in the work [6].

However, the task of detailed analysis and systematization of the branch electronic information resources as the basic structures of the e-government system of the state remains topical.

Objective

The purpose of this paper is to analyze the normative and methodological principles of the branch information resources formation as well as their classification based on their structural and functional features.

In connection with the specific of information that functions in automated information systems of Ukrainian banks, the electronic information resources of the banking sector in this study are not considered.

The main material

1. The history of formation

The process of formation of national branch electronic information resources started in the early years of the formation of the independent Ukrainian state, but not always it was systematic.

The tasks of construction of automated information systems in various areas of governance were formulated within the National informatization program's frame, but a lot of them have not been performed yet [7].

Among electronic information resources that were quite completely assembled in the course of accomplishment of National informatization program, we should name the automated information systems of the State Tax Administration, Ministry of Finance, State Treasury, State Customs Service, etc.

2. Requirements to the branch information resources

Despite the obvious functional differences between different BEIR, they are characterized by a unity of normative and methodological principles of organization and functioning. In particular, the process of creation and functioning of the BEIR is strictly regulated by the relevant regulatory acts.

Resolution of the Cabinet of Ministers of Ukraine on 04.02.1998 № 121 "On approval of the list of compulsory stages of the work in the design, implementation, and service of systems and means of automated data processing and data transfer" determines the list of required stages of the work in the design, implementation, and service of systems and the means of automated data processing and data transfer. There it is also said that the budgetary financing the design, implementation and operation of the information means for the purposes of the executive authorities activities informatization is carried out only under the condition of performance of the compulsory stages of the work in accordance with the state standards, and under the presence of a positive expertise of these stages' content, which is provided by the Science, Innovation and Information State Agency.

The processes of the supply, development and technical maintenance of software that is purchased or developed on the request of public authorities, are statutory stated [8].

Conditions of the software functioning in the executive authorities are also regulated by a respective Decree of the Cabinet of Ministers of Ukraine [9]. In particular, there it is said to purchase only licensed copies of the software or copies of freeware, which have to be provided with documentation confirming the legality of their use under license or their belonging to freeware.

In the case of absence of licenses, the procedure of software legalization in the executive authorities is used. It involves the bringing of the software use in accordance with the requirements of copyright law by replacing unlicensed copies of software with the licensed.

The interaction of public authorities in the sphere of information resources protection in the information and telecommunications systems are regulated by the Decree of the Cabinet of Ministers of Ukraine [10] and other documents.

Organization and functioning of the internal electronic information resources of public authorities is also governed by corresponding regulatory documents [11, 12].

3. BEIR classification

Among the large number of the branch electronic information resources being considered, it is possible to single out certain groups which are built on the same structural and functional bases, namely, accounting, and functional, special, and internal ones.

Accounting BEIR

Automated information systems whose main task is to systematize and account the relevant data are referred to the accounting BEIR. These are various registers, inventories, databases.

As examples of accounting BEIR, we can cite the following:

1) The register of information, telecommunication, and information and telecommunication systems of executive authorities, and enterprises, institutions and organizations, which are under their control. This information system is dedicated to accumulation, accounting, processing and storage of data on the composition, structure, location, functioning conditions, purpose, the state of information security in information, telecommunication, and information and telecommunication systems containing government electronic information resources or being planned for this, executive authorities as well as enterprises, institutions and organizations being under their control. Registry Administrator is an authorized structural subdivision of the State Special Communication Administration of the Administration of Civil Service for Special Communication and Information Protection of Ukraine.

2) Unified State Register of Legal Entities and Natural Persons (entrepreneurs) is an automated system of collection, accumulation, protection, accounting and providing with the information on legal entities and natural persons (entrepreneurs). The administrator of the system is the Ministry of Justice of Ukraine.

3) Unified Register of State Property is an automated system for collecting, accounting, storage, processing, protection and providing with the information on real estate, including leased one, leasing, concession or pledge of state enterprises and their associations, institutions and organizations, and also the state corporate rights and the state property not included in the share capital of business companies established during the privatization and corporatization. Administrator is the State Property Fund.

4) Unified State Register of Legal Acts is an automated system of collection, storage and processing of legislations. The administrator of the system is the Ministry of Justice of Ukraine

5) State Register of Encumbrances Over Movable Property is a unique computer database of the origin, change, termination of encumbrances as well as the repossession encumbrance. The administrator of the system is the Ministry of Justice of Ukraine .

6) State Land Cadastre is a unique state geographic information system of data on land located within the state border of Ukraine, its intended use, restrictions in its use, as well as the quantitative and qualitative characteristics of land, its estimation, the distribution of land between owners and users. The administrator of the system is the State Agency of Land Resources.

Functional BEIR

Systems providing automated implementation of the basic functions of the public authority, where they function, we refer to functional BEIR.

They include such automated information systems as “Treasury” of the State Treasury, “State Budget” of the Ministry of Finance, “Tax Unit” of the Revenue Service and others.

Their common feature is that the information that they have handled, is not static and the structure of the systems themselves is related to the functional structure of the bodies to which they belong.

Automated system of treasury budget execution AS “**Treasury**” is composed of subsystems “Treasury-Revenues” and “Treasury-Expenditures” [13].

Subsystem “Treasury-Revenues” with a special tool “Differentiation and accumulation” and with transactions that include all types of accounting transactions performs the following:

- distribute all revenues from taxpayers into two streams: government revenues and local revenues in terms of funds (general and special);
- allocate costs according to legislation between different budgets, budget funds, levels of budgets and recipients with the help of specific system modules;
- on time, every day, to transfer all revenues for their intended purpose;
- receive timely, prompt and reliable reporting on budget execution at all levels.

Implementation mechanism of treasury performance of budgets of all levels in terms of expenditure is realized by means of the automated system “Treasury-Expenditures”. It is designed for execution

accounting of state budget expenditures in the bodies of the State Treasury and based on its data compiling the financial and management reporting in accordance with applicable regulations and laws of Ukraine.

AS “Treasury-Expenditures” is based on Web-technologies and is provided with adequate protection against unauthorized access.

AIS “State Budget” of the Ministry of Finance of Ukraine is the base operating information system that provides the information and analytical support for all major stages of the budget process. [13]

This system consists of two software systems – software complex of the central level, and software for main administrators of funds.

Both software systems contain subsystems of exchange that provide the data exchange between the Ministry of Finance, State Treasury and main administrators of funds.

AIS “State Budget” provides drafting the state budget for the planned year, compiling a temporary list and the state budget list, analysis of budget execution, formation of state budget financing execution reporting.

The system of “Tax Unit” of the State Tax Service is designed to perform the tasks assigned to the State Tax Service Authorities [14]:

- informing taxpayers about their tax obligations and clarifying tax laws;
- tax accounting and registration of taxpayers;
- acceptance and processing of tax reporting and accounting fees;
- check of tax reports for compliance with requirements and standards established by the laws and regulatory acts of Ukraine;
- application of measures for repayment of tax debt in the cases of the violation of tax compliance by taxpayers;
- resolve disputes on the amount of tax additional charges and tax debt and like.

Special BEIR

We suggest the information resources that are designed to automate the specific functions of the state and which are neither economic nor business to refer to special BEIR.

A typical representative of such systems is the Unified Information Analytic System (UIAS) “Election”. This is a set of interrelated regulatory legal, organizational and administrative measures, and program-technical, telecommunication means to support the collection, processing, accumulation, analysis, storage and disclosure of information on elections and referendums. The main purpose of UIAS “Elections” is the computerization of processes undertaken in the course of the preparation and holding of elections and referendums in Ukraine, as well as the Central Election Commission activity, election commissions of presidential elections in Ukraine, people's deputies of Ukraine, deputies of local councils and village and settlement heads, mayors, commissions on national and local referendums [15].

UIAS “Elections” has a multilevel structure that corresponds to the organizational structure of the preparation and holding of elections and referendums in Ukraine, namely:

- a complex of UIAS “Elections” of the Central Election Commission level;
- a complex of UIAS “Elections” of election commissions and commissions on referendum of the lower level;
- corporate network of UIAS “Elections”.

At the level of the corresponding election commissions and commissions on referendum, UIAS “Elections” is a set of logically complete, functionally separate, but conceptually and information related subsystems.

It is possible to consider Central State Electronic Archive of Ukraine as special BEIR. It performs the tasks and functions of the state management of Archives and records management, provides accounting, storage of electronic documents of the National Archival Fund and electronic information resources and the use of their information [16].

Internal BEIR

Each central public authority has internal software complexes that provide automation of the corresponding internal processes of the corresponding authority. They include the electronic document management system, automated information systems of personnel services, finance accounting, internal and external websites, etc.

Conclusions

On the basis of done analysis, it is possible to draw the conclusion about the functional diversity and multi-sectoral aspect of the branch electronic information resources.

With this, for the effective functioning of the considered BEIR, it is necessary to solve the following two problems.

On the one hand, every branch resource within its functional purpose should completely *satisfy the needs of users*. For this purpose, the responsible central authorities form appropriate interfaces of interaction with users (sites, portals, system of electronic exchange, e-receptions, etc).

On the other hand, BEIR should be most effectively integrated into the state system of e-government. For this purpose, it is necessary to develop appropriate standards and technologies of such integration. One of the solutions to this problem can be a technology of UDDI with XML standard of data exchange [16].

The preliminary classification of BEIR, which is suggested in this article, allows us to develop the typical integration solutions for each type of electronic information resources.

1. Розпорядження Кабінету Міністрів України від 05.05.2003 № 259-р “Про затвердження Концепції формування системи національних електронних інформаційних ресурсів”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 2. Додонов О.Г. Архітектура автоматизованих інформаційно-аналітичних систем органів державної влади / О.Г. Додонов, О.В. Нестеренко, М.М. Будько // *Мат. машини і системи*. – 2003. – № 3–4. – С. 138–146. 3. Нестеренко О.В. Основи побудови автоматизованих інформаційно-аналітичних систем органів державної влади: моногр. / О.В. Нестеренко; Ін-т пробл. реєстрації інформації НАН України. – К.: Наук. думка, 2005. – 627 с. 4. Яремко С.А. Застосування інформаційних систем і технологій в контрольно-ревізійному процесі як запорука його удосконалення та ефективного функціонування / С.А. Яремко, Ю.М. Данильчук, Ю.О. Мухомора // *Міжвузівський збірник “Комп’ютерно-інтегровані технології: освіта, наука, виробництво”*. – Луцьк, 2011. Випуск № 4. – С. 291–293. 5. Гора О.Б. Інформаційно-аналітичні системи контролю за виконанням державних рішень / О.Б. Гора // *Реєстрація, зберігання і оброб. даних*. – 2009. – Т. 11, № 4. – С. 43–49. 6. Нестеренко А.В. Методология классификации и структурирования автоматизированных информационно-аналитических систем органов государственной власти / А.В. Нестеренко // *Искусств. интеллект*. – 2005. – № 3. – С. 504–520. 7. Вітер М.Б. Національна програма інформатизації та розвиток інформаційних технологій в органах виконавчої влади України / М.Б. Вітер // *Проблеми інформатизації та управління: Збірник праць*. – 2013. – Випуск 2 (42). – С. 19–23. 8. Постанова Кабінету Міністрів України від 12.08. 2009 р. № 869 “Про затвердження загальних вимог до програмних продуктів, які закуповуються та створюються на замовлення державних органів”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 9. Постанова Кабінету Міністрів України від 10.09.2003 № 1433 “Про затвердження Порядку використання комп’ютерних програм в органах виконавчої влади”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 10. Постанова Кабінету Міністрів України від 16.11.2002 № 1772 “Про затвердження Порядку взаємодії органів виконавчої влади з питань захисту державних інформаційних ресурсів в інформаційних та телекомунікаційних системах”. 11. Наказ Державного комітету інформаційної політики, телебачення і радіомовлення України, Державного комітету зв’язку та інформатизації України від 25.11.2002 № 327/225 “Про затвердження Порядку інформаційного наповнення та технічного забезпечення Єдиного веб-порталу органів виконавчої влади та Порядку функціонування веб-сайтів органів виконавчої влади”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 12. Постанова Кабінету

Міністрів України від 28.10.2004 № 1453 “Про затвердження Типового порядку здійснення електронного документообігу в органах виконавчої влади”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 13. Сендзюк М.А. Інформаційні системи і технології в економіці: навч. посібн. / М.А. Сендзюк, М.Б. Вітер. – К.: КНЕУ, 2011. – 422 с. 14. Сайт Міністерства доходів і зборів України – [Електронний ресурс]. – Режим доступу: <http://minrd.gov.ua/>. 15. Постанова Центральної виборчої комісії від 21.03.2003 № 16 “Про затвердження Концепції Єдиної інформаційно-аналітичної системи “Вибори”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 16. Наказ Міністерства юстиції України від 21.05.2012 № 759/5 “Про затвердження Положення про Центральний державний електронний архів України”. – [Електронний ресурс]. – Режим доступу: <http://zakon1.rada.gov.ua/laws/>. 17. Данилин А.В. Среда електронного взаємодія для електронного правительствa // Информационное общество. – 2003.– № 1. – С. 41–52.

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ЕЛЕКТРОННІ БІБЛІОТЕКИ: ОБСЛУГОВУВАННЯ ОСІБ З ОСОБЛИВИМИ ПОТРЕБАМИ

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Розглянуто шляхи підвищення ефективності подання інформації за допомогою мультимедійних технологій, забезпечуючи тим самим використання нового потужного інструменту для сприйняття інформації особами з різними формами нозології. Проаналізовані особливості формування мультимедійного інформаційного контенту для користувачів з особливими потребами. В роботі розглянуто електронну бібліотеку як інформаційну систему, в якій формується та нагромаджується контент з різних джерел, сортується, структурується та інтелектуально опрацьовується. Запропоновано набір інформаційно-технологічних послуг, що робить мультимедійний інформаційний контент доступним для користувачів з різними формами нозології.

Ключові слова: мультимедіа, користувачі з особливими потребами, цифрова бібліотека, інформаційний контент.

The ways of efficiency improving of information presenting with using of multimedia technology were examined in this article, thus ensuring the use of a new powerful tool for perception of information by disabled persons. The formation peculiarities of multimedia information content for disabled persons were analyzed. This paper considers a digital library as an information system, where the information is formed and collected from different sources, also, it is sorted, structured and intellectually processed. It's proposed a set of information-technology services, which make multimedia information content accessible for disabled persons.

Keywords: multimedia, disabled persons, digital library, information content

Постановка проблеми

У сучасному інформаційному суспільстві для ефективного бібліотечного обслуговування користувачів з обмеженими можливостями необхідне переосмислення традиційних форм роботи з читачами. Все більшої актуальності набуває потреба розширення можливостей зручного подання інформації для осіб з особливими потребами в різних доступних для їхнього сприйняття форматах. Розробляються та вдосконалюються інформаційні технології, методи та засоби, що реалізують комплектування та формування фондів електронних бібліотек спеціалізованими інформаційними