UDC 004.6

FEATURES OF CREATION OF THE E-XTENSION SOFTWARE PLATFORM IN UKRAINE

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The features of architecture and project management of creating an e-Xtension system of E-consultancy in agriculture in Ukraine are considered.

Information system, architecture, project management, e-consulting, e-Xtension.

One of the promising directions for informatization of Ukraine's agricultural sector is creating a network of information resources, which are aimed at different participants in the agricultural business. National University of Life and Environmental Sciences of Ukraine initiated the creation of an electronic system for the consultation in agricultural sphere of Ukraine [1, 3]. One of the samples at the existing similar systems was taken system e-Xtension, which successfully operates in the U.S.

The objective of the Ukrainian project is to create a software platform for e-Xtension system with Internet access, including from mobile devices, and the system have to provide an advice on the full range of issues related to agricultural production, through the creation of information resources for all participants, authorized access to data warehousing intelligent calculation modules, information services and so on.

The **purpose of research** – a review of the problems of building a software platform for Web-based e-Xtension system for advisory in agriculture, including description of the overall architecture, levels of access to resources, project management features.

Materials and methods of research. Standards for software development is a methodological basis for creating the software platform: ISO/IEC 15288:2005 "Information technology. Processes of the life cycle of the system", ISO 3149-95 "System of Database Standards. Databases language SQL with integrity extension", ISO 4302:2004 "Information Technology. Guidelines for documentation of Computer programs", ISO/IEC 12119-2003 "Information Technology. Packages of programs. Testing and quality requirements", ISO/IEC 14764-2002 "Information Technology. Maintenance of software" and so on.

Modern e-Xtension has origins from traditional (pre-computer) systems.

Comparison of characteristics of e-consultation in the United States, China and the Philippines

Country	Philippines	China	USA
History of extension system	•Launched the e-Extension Portal and the first component - e-Learning - in 2007	•Agriculture Extension Special task force was started in 1998	•Has a history starting from 1860
Overview of the system	•Maximizes use of ICT to create an interactive bridge where farmers, fishermen and other stakeholders	•Uses demand driven mechanisms to link farmers more directly to improved technology, new business models and product markets	•Extension has 83 offices across Nebraska serving all 93 counties in the state
Key Features of system	•Farmers' Contact Center with Text Support functions •e-Learning with collaboration with government agencies, state universities and colleges & NGO's	•Innovations on incentives and win-win partnership •Multi-sector coordinated policy support across national and local levels	•Crop & Livestock Production and Stewardship •Youth Development (4-H) •Entrepreneurship: Programs are helping nurture entrepreneurship & local business •Distance Education
Recognition	•In 2010, the Philippines has been cited as among the top 10 countries worldwide doing e-extension	•Covers over 1,800 counties in China, benefitting over 60% of its large rural population of 720 M people •Categorized as a best practice by UNDP in Poverty reduction by scaling up local innovations	•University of Nebraska e-Xtension system is the most successful non-credit educational system in the world

The target groups of the national system are: farmers and other participants in the agricultural business, scientific and educational institutions, teachers and students, consultants, public and private e-Xtension services, agricultural associations, local governments, rural population, etc.

Ukrainian model of the system has several features:

- Multilevel differential access to information and services;
- Availability of the database content and intellectual calculation modules;
- Subsystem online consulting ("ask an expert");
- The means of thematic communities;
- Means a structured communication between users;
- Availability subsystem e-Learning and training;
- The potential of the university to implement the concept of the system.

System architecture development of e-Xtension platform is based on 6-steps approach that is widely used in many IT companies, for example, IBM, and is generally accepted [2].

Buy-in: receive support from the leadership and government agencies that provide funding for the project.

Design: description of the requirements, specifications, description, user behavior scenarios and thematic communities, modeling and design.

Implement: development and implementation of the system, checking its operation, documentation, etc.

Marketing: launching a marketing campaign to disseminate information about the system.

Fine-tune & Scale: establishment and maintenance of target user groups use their vision system development, wishes etc.

Maintain: support and system maintenance, software updates code and content support team should work full time.

Given that the project is positioned in the ICT industry and its IT component focuses on technological stages (Fig. 1).

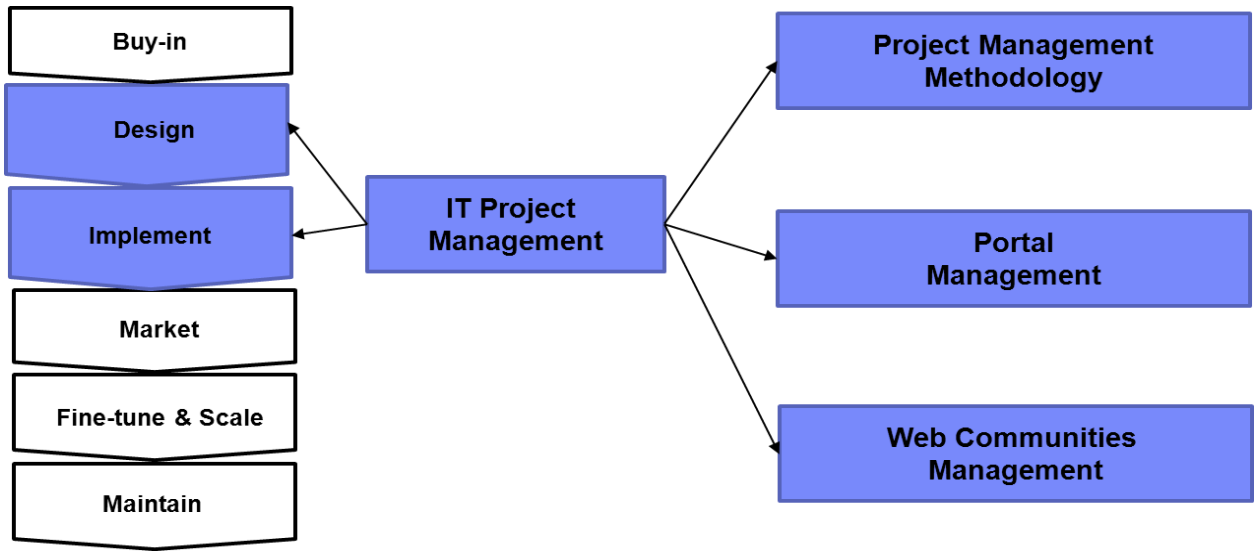

Figure. 1. IT project management of the e-Xtension platform

Terms of design the e-Xtension software platform is a multilevel, and it include Web-layer (Fig. 2).

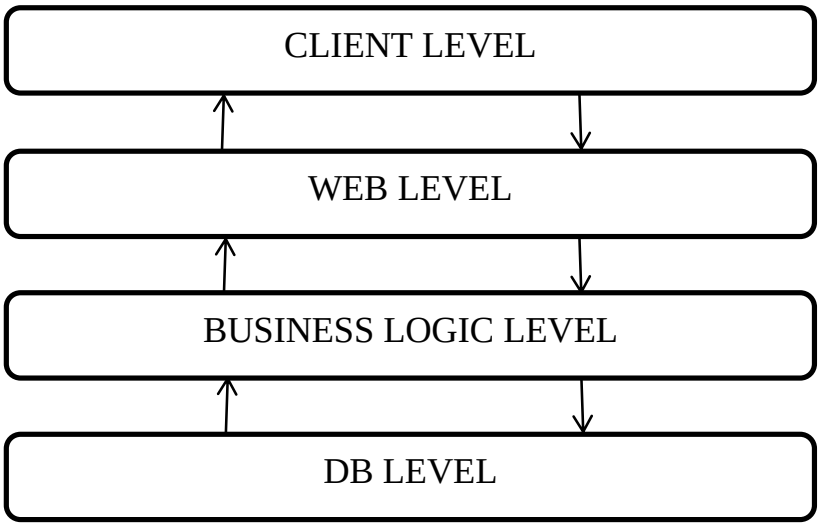

Figure. 2. Multilevel design of e-Xtension software platform

Business design provides different levels of access to information and services for different categories of users (Figure 3). Thus, the deepest access to data and services have registered users who have access to the system under subscription. However, there's a guest access to much of the reference and training materials.

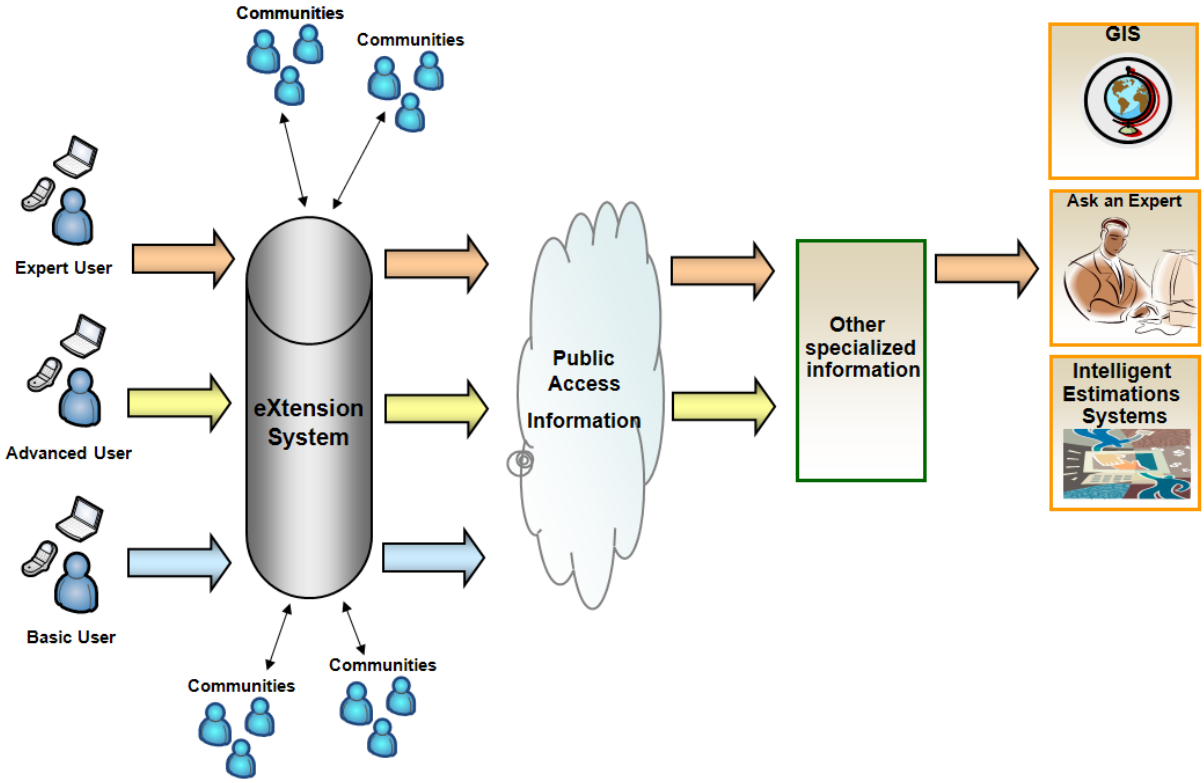

Figure. 3. Business design of e-Xtension

Given the trend of the transfer of personal computing to mobile devices, the system must contain the appropriate modules.

Results of research. The features of the national system of e-Xtension was determined in comparing with similar systems in other countries. These features are related primarily functional for the user. In developing the proposed architecture to consider Web-oriented and differentiated access to system services and adhere to generally accepted 6-steps approach. IT project management component of an e-Xtension software platform causes most importance steps – design and implementation, and includes components: methodology management, portal, content management of user communities.

Conclusions

Systems electronic consultation in recent years implemented in different countries, their effectiveness varies and depending on the local circumstances in general, especially – from public policy and technological level of agriculture.

This system combines educational focus, which is reflected in the subsystems of communication at the horizontal level, at the level of "client-consultant", as well as e-learning modules.

The feature of Ukrainian e-Xtension system should be calculated modules and the GIS components that increase the level of self-sufficiency.

Список літератури

1. Cotton D., Tkachenko O. e-Xtetension System in Ukraine: Features, Challenges and Prospects // Proceedings of the International Scientific Conference "Global and Regional Problems of Informatization in Society and Nature Using '2013", Kyiv, June 13-14, 2013. – Kyiv: "Agrar Media Group ", 2013. – 186 p.
2. Соммервилл И. Инженерия программного обеспечения / И.Соммервилл; пер. с англ. – [6-е издание].– М.: "Издательский дом "Вильямс", 2002. – 624 с.
3. Ткаченко О.М. Інформаційно-аналітична система підтримки прийняття рішень у рослинництві як складова системи електронного дорадництва // Комп’ютерно-інтегровані технології: освіта, наука, виробництво. – 2012. – №10. – С.189-198.