

Formation and Development Methods of Managerial Competences in IT-Components of Energy Efficiency Projects for Local Communities

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The scientific task of increasing the local communities' competencies in energy efficiency projects of municipal infrastructure is set. The model of levels for local community competencies in energy efficiency projects is proposed. The model consists of three levels – "initial", "in development", "developed". Each level of the model is characterized. The method of assessing the competence level of the local community in energy efficiency projects, as well as the method of developing the competence of the local community in energy efficiency projects is proposed. Perspectives of further research in the chosen direction are outlined.

Keywords: project management, energy efficiency project, local community, competence.

Introductory part. The development of the country at the present stage can be characterized as advancement through reforms. One of these reforms, which is carried out, and quite successfully – is a local reform. However, one of the most important issues remains the energy efficiency of the economy as a whole, and the energy efficiency of the municipal economy in particular. Therefore, an important and relevant scientific and practical direction is the preparation and implementation of energy efficiency projects for municipal infrastructure. Such projects require the use of scientific and practical developments at the junction of three branches – the subject area (energy efficiency technologies), the field of project and program management, IT technologies and tools, used in management activities. Such a combination of industries is somewhat unique, so the scientific instruments that will be developed for the described projects have the foundation for being characterized by scientific novelty.

Let's describe the legislative and scientific basis for the implementation of energy efficiency projects for municipal infrastructure. One of the threats to energy security in the Strategy of National Security of Ukraine [1] is the "ineffective energy efficiency and energy efficiency policy". In response to this threat and in order to overcome it, the Energy Strategy of Ukraine for the period up to 2035 [2] was developed, which emphasizes the importance of the municipal dimension. Developed and further develops the legislative framework for the implementation of relevant projects [3].

Recent studies on the implementation of energy efficient solutions [4-7] emphasize the importance of using the project approach, but the issues regarding the municipal dimension of such projects are not sufficiently covered and the issue of developing the local community competence in relevant projects is not addressed at all.

Project management standards [8-12] consider the development of team competence deeply enough, however, based on the universality of these standards, the issue of such development for municipal energy efficiency projects is not considered.

Energy efficiency projects of municipal infrastructure considered as a separate class project authors in previous studies [13-15]. However, the development of the local communities' competence in relevant projects was not considered. The foregoing confirms the relevance of the subject matter of this article.

Main part. Let's highlight those aspects of municipal energy infrastructure efficiency projects that require the use of IT components:

- a base of technologies and technological decisions for transfer of technologies;
- information mining methods for improving energy efficiency;
- communication system of the project (document flow system);
- network scheduling system;
- system of electronic trading (tenders);
- flexible project management tools.

It should be noted that for the project described, there is only a first aspect (the basis of technology and technology solutions for the transfer of technology). Other aspects can be compared to the level of literacy in the field of modern IT technologies. However, the competence of the local community has developed in these main directions: specialization project, general IT competence, competence in the field of IT project management tools.

From these positions for municipal energy infrastructure projects, we propose:

- the model of levels of local community competence in energy efficiency projects (subject area, project management industry, ownership of IT tools);
- the method of competence level assessment;
- the method for developing the competence of the local community.

The model of local community competence levels in energy efficiency projects is presented in Fig. 1. Description of the model elements is presented in Table 1.

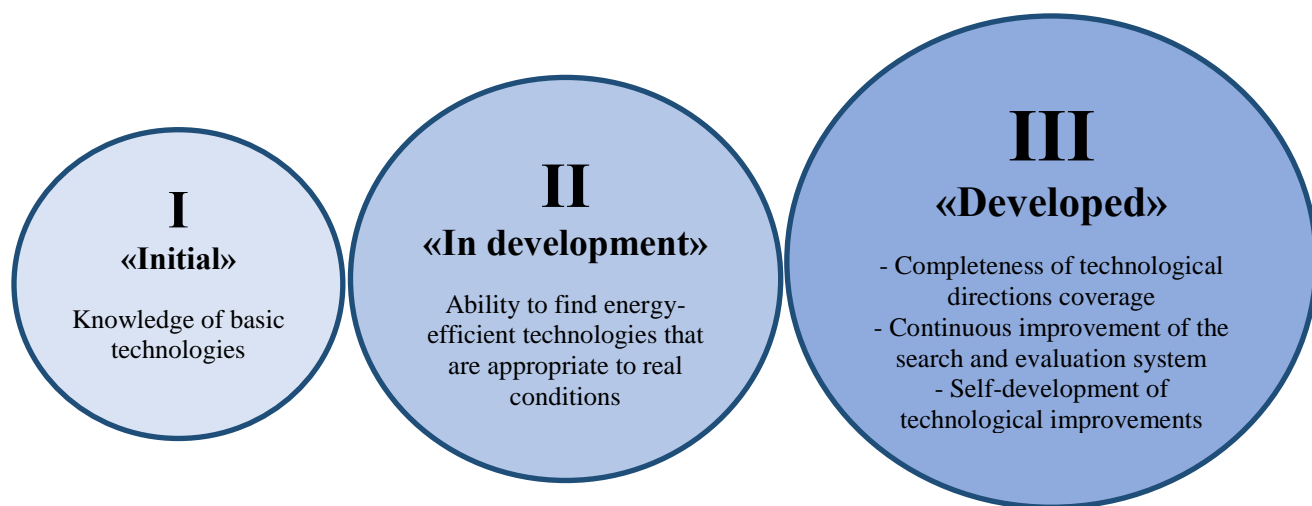


Fig. 1. Model of local community competence levels in energy efficiency projects

Table 1. Description of local community competence model elements in energy efficiency projects

Sectors	Subject area	Project management area (standards and IT)	IT and tools
I level ("Initial")	Knowledge of energy efficiency technologies	- PMBOK standard; - IT project management tools	- Knowledge of databases and energy-efficiency technologies
II level ("In Development")	Knowledge and experience in the field of energy efficiency technologies	- several project management standards; - IT project management tools	- Knowledge of IT technologies and communication tools
III level ("Developed")	Ability to provide suggestions for improving existing technologies	- Agile methodology; - IT project management tools	- IT tools for conducting electronic trading

Let's describe below the method of assessing the level of competence in local community energy efficiency projects. The method should consist of the following steps:

- analysis of the necessary areas of competence assessment (in the fields of: subject area, IT, project management, psychology, communication, motivation, etc.);
- development of criteria for assessing local community competence;
- designing the variable part of the system of criteria that will vary according to community and energy efficiency projects that will be addressed;
- harmonization of criteria, development of weight coefficients for each criterion;
- development of IT model for competence assessment;
- selection of a community (several communities) to test the IT model;
- testing of the IT model for assessing the local community competence;
- making changes to the IT model based on testing results;
- rules elaboration of local communities' evaluation in energy efficiency projects;
- carrying out an assessment of competence;
- correction of the method parameters based on the evaluation results;
- recommendations development for improving the competence of the local community based on the evaluation results.

Let's also describe the local community competence development method in energy efficiency projects in the following stages:

- analysis of the state of local community competence development at the current moment (for example, based on the assessment of competence);
- analysis of the competence development areas (in the field of: subject area, IT industry, project management, psychology, communication, motivation, etc.);
- analysis of competence development trends of each direction;
- innovations identification that are appropriate for learning and implementation in the local community;
- recommendations analysis for enhancing the local community competence, generated on the basis of the competence assessment results;
- necessary directions selection for the development of the local community competence;
- synthesis of the necessary sets of knowledge and skills that need to be developed in the local community;
- development of the project for enhancing the local community competence;
- realization of the project of enhancing the local community competence;
- project results analysis, learning lessons, formulating promising directions for further development of the local community competence.

Conclusions. Model of community competence levels, the method of assessing the level of competence of the local community in energy efficiency projects, the method of developing the competence of the local community in energy efficiency projects that have been developed, promote its competence. In turn, enhancing the local communities competence will increase the effectiveness of energy efficiency projects implementation. And this, in turn, will contribute to accelerating the development of the Ukrainian economy. Consequently, models and methods for developing the local community competence in energy efficiency projects are of great scientific and practical importance. Further research can be devoted to the formalization of the proposed methods.

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