

A blended mental space as an environmental for the Intelligent Data Acquisition

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The implementation of any project requires not only the development of project documents: the criteria for the project success, WBS-structure, the Matrix of Responsibilities, the budget, the Gantt diagram, etc., but also an unambiguous understanding of all these documents by all participants in the project process: stakeholders, project manager and movable context. As practice shows, this unambiguous understanding may be absent. This is a typical situation for countries in which the project approach is only being introduced or is in a state of development. The unambiguous understanding arises when the participants of the project-oriented process exist in a single project mental space. This is the space of a single project understanding, starting from the values, mission, vision, strategy, goals, objectives and results of the project until the approaches and methods of project implementation. The single mental space existing is especially very important for projects where a creation of a new automatized informational system will be a project's product.

The single project mental space appears as a result of the project activity and represents a mental space that includes the knowledge, skills, and practices of all participants in the project-oriented process. We will call this space as a Blended Mental Space (hereinafter – the BMS).

The aim of the BMS is the creation and functioning of a mental space in the process of the project implementation. The mental space creates an unambiguous understanding of the project process for all its participants, beginning with the birth of the project and until its closure.

The main goal of the research is studying the BMS creation, development, and function during the project implementation. The result of the research will be presented in the example of the infrastructure informational project “Rural Land Titling and Cadastre System Development” (hereafter – the Project), which was implemented in Ukraine (World Bank, 2013). It was one of the biggest investment infrastructure project in Ukraine.

For the goal achievement, we will research from what the BMS elements consist and what links, transformations, and transitions between these elements exist in the different phases of the project lifecycle.

Inasmuch as the BMS is a mental space, knowledge will be the main elements of it. But apart from knowledge, according to P2M, any project should create value, i.e. benefits that will create the project product, when all the requirements of the project mission will be satisfied (Tanaka, 2016). In addition, practices and skills will be the elements of the BMS too. But, knowledge, skills, practices and values are not single elements. This is the accumulated knowledge, skills, practice, and values.

Thus elements of the BMS will be the knowledge, skills, practices and values sets (Verenych, 2015), which will be transformed and changed during the project implementation. The knowledge, skills, practices and values sets in the BMS are consist of elements of the project manager's, project's, movable context's and stakeholders' mental spaces. But, as was shown in (Verenych, 2015, 2016), such the space is based not on the unification (absorption) of other mental spaces, but on the union of their elements, which can be original or changed both at the entrance to the BMS and in the process of its existence.

The space creates new elements and transforms existing elements that are already included. Inasmuch as the BMS is temporary and exists only during project implementation, then all the BMS elements return to mental spaces of the project manager, stakeholders, movable context and project in the original or transformed form upon completing the project. In the future, they can be used to create and operate other blended mental spaces of other projects.

The BMS structure will consist of three sets: knowledge, practices, and values.

Each set will be considered and researched on the different phases of the project lifecycle.

The Initiation phase

A formal recognition of a fact that the new project exists takes place at the project initialization. There is a transformation of intentions into the implemented activities, which is carried out in the BMS. A knowledge set will be the first set. It will consist of elements of knowledge set of the project manager and stakeholders.

During the initiation phase of the Project among the stakeholders, we will mark the State Committee for Land Resources of Ukraine as the initiator of the Project, the state of Ukraine as the customer, a project manager, in the frame of the phase, was the Cadaster and Registration of Rights department of the State Committee of Ukraine for Land Resources. In addition, among the stakeholders should be noted the International Bank for Reconstruction and Development (hereinafter – the IBRD). In this phase, the IBRD was presented in two positions as a financing organization and as a project manager in the context of providing explicit knowledge about the project. The project manager, having heard the initiator's and the customer's idea, using his/her the professional knowledge, specified the aspects of the future system and the necessary conditions for its appearance. Some of the necessary conditions presented below:

- to prepare specialists, who can manage the cadastral informational system;
- to describe the future automated information system, taking into account its functionality: it will be a single cadastral-registration system or a cadastral system;
- to formalize the project idea.

Not half of all customer's knowledge about the project was formalized in the frame of the phase. It had a very negative influence on the project in the future. Then, the project manager, applying his/her practices and skills, transformed the BMS's knowledge. The knowledge set in the BMS is being formed. The project documents in electronic and printed forms formed the knowledge set in the mental space of the project.

The planning phase

The goals are being defined and refined, the activities are being planned for the goals and objectives achievement. The phase is one of the most basic and complex, as it is necessary to plan the entire project in detail.

The knowledge set in the BMS will significantly expand, the practices set will appear, and the values set may either remain as it was formed during the initiation phase and can be transformed. The mental space of the movable context will influence on the BMS as well as the mental spaces of the project manager, stakeholders, and the project (Verenych, 2016).

During the planning phase of the Project, the project manager was responsible for the project documents preparation. The IBRD assisted the project manager preparing the documents using its employees and providing of documents templates. The movable context had a significant impact on the project product, for example:

- the country's legislative framework. A lack of the approach at the legislative level relating to the informational system creation had the negative influence (Verenych, 2016);
- the logistic support of the land resources that was absent in needed volumes and qualities for the future project product function (Verenych, 2016).

When designing the project product, the project manager had a number of foreign business trips to the United Kingdom, the Netherland, and Germany. The main goal of business trips was studying cadastral systems in these countries. On the basis of the trips and provided analysis, a cadastral and registration system was designed as the project product.

Based on the analysis and decomposition of the project goal, the project manager prepared a package of all project documents, in fact, the project manager formalized the elements of the knowledge set in the BMS. At the same time, the cadastre and registration system would have to be carried out for the first time ever. The best world practice approach, described in the project documents, was used to solve such tasks.

The implementation phase

Implementation all approved plans and the design solutions take place in the implementation phase. In fact, the implementation of all developed and planned the decisions taken at the planning phase is carried out.

The mental spaces of the project manager, stakeholders, and the movable context will be influenced on the BMS in the frame of the phase. The knowledge set in the BMS will expand due to the transformation of the knowledge set in mental spaces of the project manager (mostly) and stakeholders (to a lesser extent). The knowledge set in mental space of the project is fully included into the knowledge set in the BMS. The values set in the BMS will change a little bit.

The practices set in the BMS will have significant expanding.

The Project had some specifics. Documents and documents creation of the implementing organization, the industry, and the country had the biggest impact.

The State Land Cadastre Law (hereinafter - the Law) (the Verkhovna Rada of Ukraine, 2017) was absent before the implementation phase starting and practically until the project closing. The Law was a legislative basis for the creation of the State Land Cadaster automated informational system that was the main project product. It was adopted only in July 2011, 7 years after the start of the implementation phase and 1.5 years before the project closing. The Law adoption allowed the project manager to implement activities on the automated informational system creation, but according to the Law, significant changes were made to its architecture. The automated informational system was planned as the single cadastral and registration system in the planning phase. In connection with the competitive interests between the Ministry of Agrarian Policy and Food of Ukraine and the Ministry of Justice of Ukraine, the authority to maintain the cadastral and registration part of the system was divided and legislated between the above-mentioned ministries. The Ministry of Agrarian Policy and Food of Ukraine received the authority to maintain the land cadaster, and the Ministry of Justice of Ukraine received the authority to maintain the registration of rights. It was the base for significant updating of the automated informational system prototype required.

The values were changed according to the changes in the architecture of the automated informational system for maintaining the State Land Cadaster. For the customer, the value was the creation of the single automated informational system for maintaining the State Land Cadaster (the value decreased). For the project manager, such changes required the skills of rapid analysis and decision-making about changes in the project product, which should be implemented as soon as possible (1.5 years). The project manager's values have increased. For the movable context, the values have diminished from the regulation of land issues and land ownership issues only to the regulation of land issues.

The Monitoring and Control phase

Comparing the planned and actual indicators of the project implementation takes place on the monitoring and control phase. Also, the project manager analyzes deviations in the indicators and their causes. In the frame of the phase, possible alternatives are evaluated and the project manager offers corrective activities to eliminate unwanted deviations if it's necessary.

Considering the BMS at this phase, it can be argued that the professional knowledge, the explicit practices, and skills sets in the mental space of the project manager will be influenced by it. The knowledge set in the BMS will be expanded due to supplementing the professional knowledge, practices, and skills of the project manager in the aspect of project control implementation.

The values set in the BMS will not change, inasmuch as monitoring and control don't change the values.

The monitoring and control were carried out by comparing the planned with actual. Inasmuch as the project was funded by the Loan's money, usage funds were the main criterion evaluation of project implementation success. The project's financial manager prepared information about funds expenditure: planned and actual. The managers, responsible for the directions in the project, prepared explanatory notes about the discrepancy between the planned and actual financing. The project manager analyzed the received information and, together with the direction managers, estimated the obtained data and developed approaches and solutions to problems in those situations where were significant discrepancies, offering them to the supervisory bodies of the IBRD and Ukraine.

The Closing phase

The project tasks are being finished and the project is being closed officially at the closing stage. The acquired knowledge, practices and values will be transferred from the BMS to the mental spaces of the project manager, stakeholders, and the project, expanding them. In the future, obtained during the project the knowledge, practices, and skills will be applied to other projects implementation.

At the closing phase in the frame of the Project, several types of reports have been prepared: for the IBRD, for the Cabinet of Ministers of Ukraine, for the State Committee of Ukraine for Land Resources. All obtained in the frame of the project knowledge and practices have been formalized during preparing of these reports. All the knowledge, practices and values in the BMS have been transferred into the mental spaces of the project manager, stakeholders, the project, and the movable context as a result of the project implementation.

Successful projects implementation requires an unambiguous understanding of the project process by all its participants. The project doesn't exist separately from the movable context, the stakeholders, and the project managers. From its initiations to closing, it is necessary to unite the opinions, approaches, principles of implementation and evaluation of the project. Such a unity can exist in a blended mental space, which is formed from the moment of the project idea to its closing.

Researching of the space allows us to understand the complex structure of interaction between the mental spaces of the project manager, stakeholders, the movable context and the project. Understanding the structure will allow considering the approaches in a future for its building. And it also allows developing management methods for its control that will help the project manager in successfully implement projects.

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