WAYS TO IMPROVE THE QUALITY OF SERVICES OF JSC "UZBEKISTAN RAILWAYS" IN THE CONTEXT OF MODERNIZATION AND DEVELOPMENT OF SECTORS OF THE ECONOMY

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Annotation: The authors will give an overview of the railway market, with a focus on JSC "O'zbekiston temir yo'llari", before seeing the challenges to face, before listing some benefits of rail links in terms of development, ecology, security, space management, etc. The authors will then give an overview of the development of BIM, its benefits, risks and issues. The purpose of this paper is to verify that the BIM can provide the railway with the tools to face some of its challenges and improve its productivity.

Key words: BIM, railway construction, economic progress, safety, challenges and improve its productivity.

Аннотация: Авторы представят обзор железнодорожного рынка с акцентом на АО «Узбекистон темир йуллари», прежде чем увидят стоящие перед ним проблемы, прежде чем перечислить некоторые преимущества железнодорожного сообщения с точки зрения развития, экологии, безопасности. , управление пространством и т. д. Затем авторы сделают обзор развития BIM, его преимуществ, рисков и проблем. Цель этой статьи - убедиться, что BIM может предоставить железной дороге инструменты для решения некоторых задач и повышения производительности.

Ключевые слова: BIM, железнодорожное строительство, экономический прогресс, безопасность, проблемы и повышение его производительности.

During the last decade, academic research and industrial development have evolved significantly in the field of building information modeling and have resulted in models to support the improvement of various aspects of design, architecture, engineering, construction and operation. Building Information Modeling – BIM – is a new approach to managing infrastructure projects that is based on an intelligent digital model of 3D representation. BIM promises to foster work collaboration around a database (or digital model), optimize the overall project planning and deepen the mastery of economic data throughout the entire life cycle. In recent years, scientific research and industrial progress have focused their efforts on the development of building information modeling and have tested and used models to support various aspects of architecture, engineering, construction and construction and facilities. “BIM allows participants to collaborate in a shared software-based environment to share information, enabling better decision-making throughout the project life cycle” .

The cases study discussed in this paper and previous research confirms the hypotheses of the literature. The integration of BIM into railway projects can have several advantages: collaboration, time saving, cost optimization, prevention of conflicts between networks, construction before construction, optimization of facility management, improvement of the quality of works, prefabrication. They also allowed us to illustrate the risks (status and appropriation of the BIM model, lack of standardization of versions or software and lack of understanding of the basics of schedules and specifications) and limitations (lack of feedback, lack of adaptability and convergence of tools). These experiences have also shown that the use of BIM is not just a technological transition, but a revolution in the project management process, which requires several key success factors (participation of all, commitment, change management and adoption of the collaborative approach). Visualization, collaboration and conflict elimination are the three main chapters where the benefits of BIM can be organized. In fact, there is a lot of intersection between these chapters, but they have been chosen as the main ideas around which all the benefits can be better understood. Visualization primarily addresses the

benefits to an individual and improving one's personal understanding as a result of using BIM. The collaboration refers to the cooperative action of several team members, which is encouraged and facilitated by BIM. Conflict elimination mainly concerns project-related benefits, such as conflict reduction, waste, risks, costs and time. For railway infrastructure projects, the main purpose of using BIM is to improve the design integration process, internal project team communication and collision detection to eliminate risk of rehabilitation.

Railway is hardly able to contribute actively to the economic development of the regions and to the balanced development of their territory. In the global race to improve logistics, allowing for more and more goods to be exchanged, and thanks to its greater reliability in the face of uncertainties and climatic hazards, the railway could reduce delivery times and mitigate disruptions of stocks, thus ensuring relative safety during harvest peaks and limiting waste. Thus, regarding the railway projects sector, the choices and investments are heavy, their implementation is laborious and their profitability is slow to assert itself. Political will is crucial in this respect . It is undeniable today that the strengths of rail are extremely important. To name only these:

• Safety: the train represents a solution to reduce the deplorable human invoice due to road accident.

• Space saving: for cities congestion, rail is an asset. Also, it should be noted that a double rail track requires 14 m against 40 m for highway.

• The environment: the reduction of greenhouse gas emissions, the reduction of energy pressure and dangerous goods transport solutions are important for decision-makers today.

As part of this literature review (Bensalah et al., 2018c), we have estimated that BIM has several levels of maturity. They are the steps to move toward collaborative BIM:

• BIM level 1: the isolated BIM includes the realization of the digital model, the use by one or more actors, but does not include the exchanges between the models, each one updates its data individually.

• BIM level 2: establishment of collaborative work between actors where several models linked and put in common and allows to combine all the models into a single or federated model. It includes: a graphic model or 3D digital mockup, non-graphical data (information for the use and maintenance of the work), structured data, documentation, a native file format (IFC).

• BIM Level 3: the ultimate goal of BIM (for many, only level of the BIM process), a unique model shared by all actors. It allows the possible intervention by all and at the same time. It includes “Level 2” + storage on a centralized server.

Objects must be drawn in such a way as to take these dimensions into account. Studies on the BIM model took longer as it required redrawing everything, including topographic acquisition. The advantage of integrating BIM in the sketching phase shows its relevance; One of the difficulties encountered was to redesign mechanical and electrical equipment. Not all equipment providers are on BIM logic. Hence the interest of integration when defining contractual obligations; In the absence of local standards, railway standards or object libraries, it was necessary to draw everything; The team members and the client are wondering about the implementation schedule and fear that the integration of the BIM will delay the progress of the project (because they did not understand firstly the investment of time to build the BIM modeling and secondly that this modeling started when the project had already started for months). This reflects the misunderstanding around BIM: It is not a simple 3D design process, but a management approach that should accompany the project from the idea and throughout the entire life cycle of the infrastructure

From this paper, we can identify interesting lines of research for our research project to integrate. BIM into railway projects:

• Standardization of the stages and phases of rail project management by integrating BIM, a comparative study of cases.

• Technological development and software tools to integrate rail libraries, special and normative constraints of large linear projects.

These themes, which are not very rich in literature, can make a major contribution to the successful integration of BIM in the railway sector, especially in developing countries

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