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Supervisor's Review of the PhD Thesis

Title: The paradigm of implementation of BIM technologies in the architectural and construction practice of the Republic of Kazakhstan»

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Degree: Doctor of Philosophy (PhD) in Architecture and Urban Planning

1. Relevance of the Study

The dissertation addresses an important and timely topic—the implementation of Building Information Modeling (BIM) technologies in Kazakhstan's construction sector, in line with the country's strategic goals of digital transformation. The study responds to the need for improving efficiency, sustainability, and quality in the architectural, engineering, and construction (AEC) industries. The relevance is confirmed by the increasing global adoption of BIM as a standard approach in design, construction, and operation.

2. Aim and Objectives

The aim of the research is to develop recommendations for the effective implementation of BIM technologies in Kazakhstan's construction industry. To achieve this, the dissertation systematically examines international and national experiences, institutional frameworks, and educational mechanisms.

3. Scientific Novelty

The scientific novelty of the dissertation lies in its integrated approach to the institutional, regulatory, and educational aspects of BIM adoption. For the first time in Kazakhstan, a critical analysis of national BIM implementation is conducted with a focus on identifying systemic barriers and proposing concrete solutions. The introduction of a Smart Campus project and a digital twin of Satbayev University represents an innovative contribution to project-based BIM education and practice.



4. Methodology and Theoretical Framework

The research employs a comprehensive set of methods, including comparative and systems analysis, content analysis of regulatory frameworks, expert interviews, and modeling of educational programs. The theoretical foundation draws from the works of leading international scholars such as Eastman, Succar, Sacks, and Underwood, and integrates current ISO 19650 standards. The methodology is appropriate and ensures the reliability of the research outcomes.

5. Structure and Content

The dissertation is structured logically into three main chapters: the first covers the global evolution of BIM and automation in design; the second analyzes state-level BIM implementation strategies; and the third proposes practical recommendations for Kazakhstan, including educational innovations. The structure supports clarity and coherence of argumentation.

6. Theoretical and Practical Significance

The study expands the theoretical understanding of BIM as both a digital and organizational paradigm in architecture and construction. Practically, the research provides concrete recommendations for updating national BIM strategies, aligning educational standards, and developing professional competencies. The author's involvement in creating a BIM curriculum and textbook further enhances the applied value of the work.

7. Strengths of the Dissertation

- Comprehensive analysis combining global and local perspectives.
- Integration of education and practice through the Smart Campus initiative.
- Clear structure and strong logical argumentation.
- Broad publication base, including indexed journals and international conferences.
- Practical recommendations for improving Kazakhstan's BIM ecosystem.

8. Remarks and Areas for Improvement

While the dissertation is of high quality, the following minor improvements are suggested:

- Expand details on survey methodology and data interpretation.
- Strengthen quantitative evaluation of BIM implementation outcomes.
- Enhance the conclusion with forward-looking recommendations for policy and research.

These remarks, however, do not diminish the overall scientific and practical value of the work.



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9. Conclusion and Recommendation

The dissertation by Vladimir Vladimirovich Yaskevich is a well-structured, original, and practically significant scientific work that meets the requirements for a PhD degree in Architecture and Urban Planning. The research demonstrates the author's deep theoretical knowledge, analytical skills, and commitment to the modernization of architectural education and practice in Kazakhstan.

I recommend the dissertation for defense and the conferral of the degree of Doctor of Philosophy (PhD) in Architecture and Urban Planning.

Sincerely

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