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Comparison of background for the implementation of BIM in Kazakhstan and the UK

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Abstract. At present, Kazakhstan is gradually introducing and developing BIM technologies - a highly effective architectural and construction design method. The state and initiative companies have made significant efforts to study foreign experience, adapt it to Kazakhstan's conditions, and issue relevant regulatory documents. However, since the results of these studies have not been published in open sources, it is not clear precisely what differences in the construction industry impact the implementation of technology and how they should be considered. This article discusses some of these factors. A comparison of economic indicators and qualitative features of the architectural and construction industry in Kazakhstan and the UK and their analysis as prerequisites for introducing BIM technology in both countries was carried out. As a result, comments on the existing BIM implementation program in Kazakhstan were proposed.

Keywords: *BIM technology, recommendations for implementation, architecture and construction, comparative analysis, economic indicators, UK, Kazakhstan, advantages and disadvantages of BIM.*

1. Introduction

In the rapidly evolving realm of modern construction and architecture, a transformative trend has taken center stage: the integration and utilization of Building Information Modeling (BIM) technologies. The widespread embrace of BIM is underpinned by a multitude of advantages, extensively documented in numerous scholarly works [1-4]. Its most remarkable attribute, however, lies in its capacity to establish a more agile, transparent, and all-encompassing framework for engaging with clients, consumers, and the entities tasked with the upkeep of buildings [1].

At the heart of BIM's appeal is its potential to revolutionize how construction projects are conceived, executed, and maintained. This distinctive quality has made BIM exceptionally appealing to governments, positioning it as a powerful instrument for optimizing expenditures in the construction and operational phases of projects that receive state funding or support. Consequently, the implementation of BIM is often not merely endorsed but, in some instances, spearheaded by various governmental bodies [3].

Kazakhstan, a vast and dynamically developing nation, currently stands at the threshold of BIM technology adoption and integration [5]. Aligning with the «Action Plan for the Implementation of Information Modeling Technology in the Design of Construction Objects», which garnered approval in 2017 [6], Kazakhstan has embarked on a transformative journey. It is stipulated that, commencing in 2020, major and technologically intricate projects that receive government funding must undergo meticulous design with the indispensable aid of BIM. Looking ahead, there are ambitious plans to extend the utilization of BIM to encompass the operational aspects of such buildings by 2022. This ambitious leap into the future is

underscored by Kazakhstan's determination to harness the potential of BIM fully.

Significantly, the architects of the BIM implementation concept and the standards governing its utilization in Kazakhstan [7] drew substantial inspiration from the rich and innovative experience of the United Kingdom. The United Kingdom, celebrated as a pioneering force in the field of BIM adoption and its practical application, has emerged as a beacon of success in this transformative journey. With a wealth of experience and progressive approaches, the United Kingdom's BIM implementation practices have been instrumental in shaping the trajectory of BIM adoption in Kazakhstan [3].

A Comparative Odyssey: Exploring BIM on Two Fronts

This study embarks on a comprehensive comparative analysis of various dimensions of BIM implementation in Kazakhstan and the United Kingdom, with the primary objective of shedding light on the current state of BIM adoption within the Kazakhstani context. The juxtaposition of these two distinct landscapes on their respective BIM adoption journeys promises to provide valuable insights for policymakers, industry practitioners, and scholars. This comparative exploration delves into not only the current status of BIM implementation but also the underlying economic and structural factors that influence the course of this technological transformation.

BIM is not just a technological shift; it's a paradigm change that reshapes the core of the construction industry. To comprehend the complex interplay between technology and this industry, we delve into various economic indicators and architectural nuances that shape the landscape of BIM adoption. By undertaking this journey, we aim to offer a holistic view of the challenges, opportunities, and intricacies that Kazakhstan faces as it progresses on its path of embracing BIM.

Understanding BIM in Economic Context: A Comparative Perspective

In the pursuit of our research objectives, we have adopted a multifaceted approach to scrutinize and compare the prerequisites for BIM implementation in both Kazakhstan and the United Kingdom. Our emphasis is particularly geared towards unraveling the intricate economic aspects of this implementation process, which are often instrumental in shaping the trajectory of technological advancements in the construction industry. BIM, residing at the intersection of technology and construction, necessitates a comprehensive understanding of how it intertwines with the economic dynamics of this industry.

To unlock these insights, we meticulously handpicked a set of economic indicators, each offering a unique vantage point on the influence and potential of BIM. These indicators include the cost per square meter in design, cost per square meter in construction, cost per square meter for sales, income of construction companies as a percentage of construction cost, and construction volume, with an emphasis on residential construction.

The Rich Tapestry of Data and Context

The rich and diverse data used in this study was meticulously curated from a multitude of reputable and validated sources. These encompassed government reports, scholarly studies, industry publications, and financial reports from construction companies. The methodological underpinning of our research relied on the diversity and robustness of these data sources, ensuring that our analysis provides a comprehensive, incisive, and comparative assessment of the prerequisites for BIM implementation in Kazakhstan and the United Kingdom.

The Promise and Challenge of BIM Implementation

The nuanced exploration of these economic indicators, within the broader context of BIM adoption, promises to shed light on the intricacies of BIM readiness and adoption factors, ensuring that our findings hold relevance for policy-makers, industry practitioners, and scholars alike. Moreover, by taking a closer look at the economic realities, the profitability of construction companies, and the interplay of architectural practices, we aim to provide a holistic understanding of how BIM fits into the diverse construction landscapes of Kazakhstan and the United Kingdom. These findings will underscore the need for a nuanced approach.

2. Materials and methods

In our unwavering commitment to comprehensively investigate and compare the prerequisites for Building Information Modeling (BIM) implementation in Kazakhstan and the United Kingdom, our research approach has been deliberately multifaceted. We recognize that the implementation of BIM is a multifaceted process influenced by a wide array of economic and structural factors. Thus, our research methodology has been carefully crafted to encompass a range of indicators, each offering a unique perspective into the complex interplay of economic dynamics within the construction industry.

Selection of Economic Indicators

Understanding the profound impact of BIM on the construction industry necessitates a meticulous selection of economic indicators that reflect the intricacies of this sector. Our choice of economic indicators is underpinned by their direct relevance to the economic landscape of construction projects

and how BIM can potentially shape this landscape. These indicators have been chosen as our compass, guiding us through the intricate terrain of economic factors at play. Each of these selected indicators serves as a key building block in our multifaceted analysis.

1. **Cost per Square Meter in Design:** This foundational metric is expressed as a percentage of the overall construction cost and stands as a fundamental yardstick in our analysis. It allows us to assess the efficiency and cost-effectiveness of the design phase in construction projects. By examining this indicator, we aim to underscore the pivotal role of BIM in potentially optimizing the design process. This optimization can result in substantial cost reductions and the more judicious allocation of resources. We rely on a rich tapestry of data sources, including authoritative government reports, scholarly research findings, and industry publications, to ensure the robustness of our insights.

2. **Cost per Square Meter in Construction (Almaty and London Focus):** The cost of construction is a linchpin factor in the construction industry, and it is profoundly influenced by the adoption of BIM. Our deliberate comparison of construction costs in two distinct regions, Almaty and London, serves to illuminate regional disparities and appraise BIM's potential to standardize or fine-tune construction expenditures. Our data sources encompass a diverse array of construction industry reports, comprehensive government statistics, and location-specific cost indices.

3. **Cost per Square Meter for Sales:** To gain insight into the economic viability and profitability of real estate ventures, scrutinizing the selling price per square meter is essential. This indicator offers a valuable gauge of the potential return on investment, a critical consideration in both Kazakhstan and the United Kingdom. By examining this data, we aim to unveil priceless insights into the intricate market dynamics susceptible to the influence of BIM.

4. **Income of Construction Companies:** This metric, evaluated as a percentage of the overall construction cost, provides an indispensable lens into the financial performance of construction firms. It plays a pivotal role in assessing the economic sustainability and growth prospects of the construction sector, particularly within the context of BIM integration. Our sources span a spectrum from in-depth financial reports to comprehensive industry studies and reliable government data.

5. **Construction Volume (with Emphasis on Residential Construction):** Diving into the volume of construction projects, with a particular emphasis on the residential sector, empowers us to discern the scale and growth trends within the construction domain. This dimension is instrumental because BIM's transformative impact on process efficiency holds the potential for far-reaching consequences on the volume of construction projects. Our analysis draws from a wealth of official statistics and authoritative industry reports to offer a comprehensive perspective.

Data Collection and Curation

The diverse and rich dataset harnessed for this study has been meticulously curated from a multitude of reputable and validated sources. Our commitment to data integrity and reliability is unwavering, as the accuracy of our analysis relies on the quality of these sources. The sources of our data encompass a broad spectrum, including official government reports, insightful scholarly studies, illuminating industry publications, and the transparency of financial reports from

construction companies. This methodological diversity ensures that our analysis provides not only a comprehensive view but also a penetrating, incisive, and comparative assessment of the prerequisites for BIM implementation in both Kazakhstan and the United Kingdom.

The Holistic Approach to BIM Implementation Analysis

Our exploration of these economic indicators, within the wider context of BIM adoption, promises to shed light on the intricacies of BIM readiness and adoption factors. These findings are designed to hold substantial relevance for policymakers, industry practitioners, and scholars alike. Our commitment to this research extends beyond the surface, aiming for a profound and comprehensive understanding of how these indicators interact with the adoption and impact of BIM in the construction sector of both nations.

Real-World Relevance and Practical Application

This extensive analysis strengthens our capacity to uncover the complexities and potential opportunities presented by BIM in both Kazakhstan and the United Kingdom. It ensures that our findings are not only insightful but also practically and pragmatically relevant in the real-world scenarios of these two distinct yet interconnected economies. Our multifaceted approach allows us to present a comprehensive and nuanced perspective, encompassing the economic intricacies that underpin BIM adoption and impact, offering valuable insights to stakeholders in both nations and beyond. The multifaceted nature of our research approach ensures that our analysis is both comprehensive and incisive, delivering a deeper understanding of the multifaceted challenges and opportunities that lie ahead in the world of BIM implementation.

3. Results and discussion

In our journey to compare the key economic indicators of the construction industry in Kazakhstan and the United Kingdom, we unveil a compelling narrative of contrasts and intricacies that shape the landscape of BIM implementation.

Table 1. A Comparative Snapshot of Architectural and Construction Industry Indicators in Kazakhstan and the United Kingdom (Gathered from [8-15])

Indicators	Kazakhstan	United Kingdom
Cost per Square Meter in Design (as a % of Construction Cost)	Up to 4%	5-15%
Cost per Square Meter in Construction (Almaty and London)	\$612	\$3.213
Cost per Square Meter for Sales	\$1.190	\$16.816
Income of Construction Companies (as a % of Construction Cost)	5-7%	1.5-2%
Construction Volume (Residential Construction, in billions \$)	\$2.7 billion	\$112 billion

Disparity in Property Sale Prices

The most striking revelation within these comparative metrics is the colossal 1400% difference in property sale prices between the two nations. This striking gap is a testament to the varying market conditions and purchasing power of consumers. In the United Kingdom, high property sale prices reflect a robust real estate market and the strong purchasing power of its residents. In contrast, Kazakhstan's lower property sale prices are indicative of a different economic landscape. This stark contrast underscores the importance of adopting a nuanced approach to BIM implemen-

tation that considers the unique economic contexts in which it operates.

The implications of this property sale price gap are far-reaching. BIM adoption may significantly impact the real estate market in both nations. In the United Kingdom, where property sale prices are high, BIM can play a crucial role in influencing profitability, investment decisions, and the return on investment. The efficient utilization of BIM can potentially reduce construction costs and enhance overall profitability. However, the high property prices may necessitate more sophisticated and technologically intricate construction, aligning well with the capabilities of BIM.

In Kazakhstan, the relatively lower property sale prices and differing market conditions present a different set of challenges and opportunities. While BIM adoption aligns with international standards and can introduce efficiency and modernization, it may also introduce higher costs and complexities into the construction process. Therefore, in Kazakhstan, the adoption of BIM requires a careful weighing of potential benefits against the costs involved.

Significant Divergence in Construction Costs

Beyond property sale prices, construction costs themselves exhibit a substantial 560% difference between Kazakhstan and the United Kingdom. While this difference is substantial, it's notable that it's almost three times less pronounced than the gap in property sale prices. The result is an astounding 2300% disparity between the cost of sale and construction in the United Kingdom compared to Kazakhstan. This economic gulf highlights the administrative and ancillary expenses in construction that weigh more heavily on the financial ledger in the United Kingdom.

BIM, by streamlining and simplifying these procedures, emerges as an efficient solution to bridge this cost gap. In the United Kingdom, where administrative expenses are notably higher, BIM adoption can yield substantial cost reductions and resource optimization. The streamlined design and construction process can mitigate the impact of high administrative costs. Furthermore, in a market with high property prices, BIM's role in controlling construction costs becomes even more significant. The efficient allocation of resources becomes imperative, and BIM serves as a powerful tool to achieve this.

Conversely, in Kazakhstan, where construction costs are relatively lower, the introduction of BIM may require a critical assessment. While it aligns with international standards and promises efficiency, the added costs and complexities introduced by BIM should be carefully considered in the context of the local economy. The decision to embrace BIM must be informed by a balanced analysis of the potential benefits it offers against the economic realities of the Kazakhstani construction industry.

Impact on Construction Companies

A significant aspect of our analysis revolves around the impact on construction companies. In the United Kingdom, these companies operate within a slim profit margin, capping at a mere 2%. In contrast, Kazakhstan enjoyed more lucrative figures ranging from 15-20% until recent years, when it decreased to 5-7% due to global economic conditions affecting the average citizen's purchasing power. This shift signals a potential decrease in the proportion of high-quality, technologically intricate construction, especially in the housing sector.

Such economic conditions in Kazakhstan cast a shadow on the willingness of project participants and construction

stakeholders to invest in advanced but more expensive technologies, such as BIM. The lower profit margins in the United Kingdom necessitate a focus on cost efficiency and resource optimization, making BIM adoption a strategic choice. The efficient use of BIM can help these companies thrive in a highly competitive and cost-sensitive environment.

Challenges in Design Services

The cost of design services poses another dimension of contrast between the two nations. In the United Kingdom, design fees can range from 5% to 15% of construction costs, translating to \$160 to \$480 per square meter. In Kazakhstan, the corresponding figure rarely surpasses 3%, amounting to \$50 per square meter. This substantial discrepancy could present a challenge for the adoption of innovative technologies.

An increase in design costs, approximately 20% higher in Kazakhstan when incorporating BIM, might not be as appealing to developers. While BIM promises advanced design capabilities, the economic realities of the Kazakhstani construction market require a balanced approach. The adoption of BIM should not substantially increase the design costs to the point where it discourages developers from embracing it.

Construction Volume Disparities

The stark contrast in construction volume is also noteworthy. In 2018, Kazakhstan invested \$2.7 billion in residential construction, while the United Kingdom's investments in this sector reached a staggering \$112 billion during the same period. This significant difference in construction volume underlines that the United Kingdom's construction industry experiences a higher turnover and a more competitive environment among designers and developers.

The abundance of opportunities for testing and refining new technologies in the United Kingdom, along with quicker returns on investment, aligns well with the adoption of innovative tools like BIM. The high construction volume allows for more extensive testing of BIM's capabilities and the refinement of construction processes, making it an attractive proposition for developers and construction companies.

Technological Complexity and Architectural Differences

The technological complexity of architectural and construction solutions significantly affects the feasibility of BIM implementation. The incorporation of advanced solutions elevates the intricacy of design work, increases the risk of errors in project documentation, necessitates changes in building operation processes, and demands adjustments in manufacturing and material requirements. This complexity creates a context where the utilization of BIM proves highly effective, driving innovation and efficiency.

A fundamental determinant in this intricate equation is the substantial disparity in architectural practices between Kazakhstan and the United Kingdom. The United Kingdom boasts rich design traditions, advanced manufacturing capabilities, high levels of construction and engineering sophistication, and a robust focus on meeting modern requirements for energy-efficient, green, and smart architecture. Additionally, the considerably higher purchasing power of clients in the UK supports the creation of technologically intricate projects.

In contrast, Kazakhstan's architectural landscape presents a different narrative, where the effectiveness of BIM implementation cannot be neatly proportional to that in the United Kingdom. The economic and architectural differences between the two nations extend their influence into the rationality of deploying BIM in building operations.

By traversing this labyrinth of data and contextual considerations, a richer tapestry emerges, shedding light on how the unique economic dynamics and idiosyncrasies of each nation's construction industry intertwine with the prospects and challenges of BIM implementation. The contrasts and complexities unveiled in our analysis underscore the need for tailored strategies and considerations in the adoption of BIM in these two distinct yet interconnected economies. It is clear that BIM is not a one-size-fits-all solution, and successful implementation depends on a deep understanding of the economic intricacies at play. This knowledge forms the basis for informed decisions and policies that can maximize the potential benefits of BIM while addressing the unique challenges presented by each economic landscape.

4. Conclusions

In conclusion, our comprehensive analysis has unveiled a spectrum of crucial insights, shedding light on the prerequisites for BIM implementation in Kazakhstan and the multifaceted economic implications inherent in this journey.

Strategic Approach to Mandatory BIM Implementation: Our scrutiny reveals that the decision to refrain from making BIM mandatory for the entire Kazakhstani construction industry in the immediate future is a rational and well-considered choice. This prudence is particularly salient when applied to typical projects where the potential efficiency gains afforded by BIM might be somewhat constrained. By adopting a measured approach, Kazakhstan can effectively align BIM usage with projects that are most poised to reap its benefits, optimizing the allocation of resources and securing incremental progress.

Developers' Conundrum: The introduction of BIM in Kazakhstan presents an intricate challenge for developers. Their profitability is underpinned by a delicate balance, and the introduction of advanced BIM levels amplifies the intricacy of this equilibrium. Developers face a conundrum where the benefits of BIM are weighed against the increased costs of project services. This challenge calls for a balanced strategy where BIM's adoption aligns with projects and contexts that stand to gain the most.

Client-Centric BIM Adoption: It becomes evident that the comparatively higher income of developers in Kazakhstan, partly attributable to pricing opacity, may serve as a deterrent to viewing BIM adoption as a cost-effective strategy. Therefore, the demand for BIM is likely to be primarily propelled by clients who have a vested interest in optimized projects. To catalyze adoption, a concerted effort should be placed on educating and engaging investors and financial professionals who play a pivotal role in shaping the trajectory of BIM in the Kazakhstani construction landscape.

Managing Expectations and Timelines: It is apparent that the prevailing economic conditions and the current state of the industry in Kazakhstan constrain BIM implementation, rendering it unlikely to achieve the same level of efficiency observed in the United Kingdom. To navigate this discrepancy effectively, it is imperative to factor in these disparities when setting the course for implementation timelines and calibrating expectations. A tempered and realistic approach will yield more sustainable results.

Prospects of Widespread Adoption: With the increasing ubiquity of BIM software products and the potential for cost reductions, there looms the prospect of widespread adoption.

This anticipated growth trajectory holds the promise of catalyzing the industry, bolstering both productivity and cost-effectiveness. The ascendance of BIM in Kazakhstan augurs well for the sector's competitiveness and operational efficiencies.

These findings underscore the imperative for a nuanced and adaptable approach to BIM adoption in Kazakhstan, one that considers the unique economic and industry-specific variables at play. Furthermore, these insights accentuate the significance of continuous monitoring and adjustment of implementation strategies to ensure long-term success. The dynamic nature of the construction industry calls for an agile approach that aligns BIM implementation with the evolving needs and aspirations of both stakeholders and the broader Kazakhstani economy.

References

- [1] Eastman, C., Teicholz, P., Sacks, R. & Liston, K. (2011). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers, and Contractors - 2nd edition. Wiley
- [2] Jalaei, F., Jade, A. (2015). Integrate building information modeling (BIM) and sustainable design at the conceptual stage of building projects. *Sustainable Cities and Society*
- [3] Bataw, A. (2016). On the integration of Building Information Modeling in undergraduate civil engineering programs in the United Kingdom. *University of Manchester*
- [4] Yaskevich, V.V., Khodzhirov, A.V. & Samojlov, K.I. (2019). Potential BIM-tehnologii v formirovanii garmonichnoj gorodskoj sredy. *Nauka i obrazovanie segodnya*, 10(45)
- [5] Online Zakon. (2017). Konceptciya vnedreniya tekhnologii informacionnogo modelirovaniya v promyshlennoe i grazhdanskoe stroitelstvo Respubliki Kazakhstan. Retrieved from: http://https://online.zakon.kz/Document/?doc_id=39585910#pos=0;102
- [6] Talapov, V. Konceptciya vnedreniya BIM v Kazakhstane: osnovnye fakty [Electronic resource]. Retrieved from: http://http://isicad.ru/ru/articles.php?article_num=19638
- [7] KazNIISA. (2017). Primenenie informacionnogo modelirovaniya v proektnoj organizacii. Retrieved from: <https://onedrive.live.com/?authkey=%21AIQshGsmbirVfIQ&cid=F56E4BE4078AAC51&id=F56E4BE4078AAC51%212553&parId=F56E4BE4078AAC51%212550&o=OneUp>
- [8] RIBA. (2006). Architect's fees. Retrieved from: http://www.bparchitecture.co.uk/downloads/arch_fees/RIBA_Fee_guide_Graphs.pdf
- [9] Electronic resource. (2018). Architects fees in the UK. Retrieved from: <https://architectureforlondon.com/news/architects-fees-in-the-uk/>
- [10] Electronic resource. (2017). International construction market survey 2017. Turner & Townsend. Retrieved from: <https://www.turnerandtowntsend.com/media/2412/international-construction-market-survey-2017-final.pdf>
- [11] Electronic resource. NUMBEO. (2019). Price Rankings by City of Price per Square Meter to Buy Apartment in City Centre (Buy Apartment Price). Retrieved from: https://www.numbeo.com/cost-of-living/city_price_rankings?itemId=100
- [12] LSM.kz. (2017). Stroitelnye kompanii sokratili marzhu v chetyre raza. Retrieved from: <https://www.lsm.kz/spros-na-zhil-e-v-otlichie-ot-vozmozhnostej-est-vsegda-stroiteli>
- [13] The construction index. (2017). Trouble at the top – the 2017 TCI Top 100. Retrieved from: <https://www.theconstructionindex.co.uk/news/view/trouble-at-the-top-2017-top-100>
- [14] Zakon.kz. (2018). Osnovnye pokazateli zhilishhnogo stroitelstva za noyabr 2018 goda. Retrieved from: <https://www.zakon.kz/4951949-osnovnye-pokazateli-zhilishhnogo.html>
- [15] Office for National Statistics. (2019). Annual gross fixed capital formation by industry and asset. Retrieved from: <https://www.ons.gov.uk/economy/grossdomesticproductgdp/data/sets/annualgrossfixedcapitalformationbyindustryandasset>

Қазақстан мен Британияда BIM кіругі кейбір алдын алушылардың салдарының салыстыруы

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Аңдатпа. Қазіргі уақытта Қазақстанда сәулет-құрылысты жобалаудың жоғары тиімді әдісі – BIM технологиялары біртіндеп енгізіліп, дамып келеді. Мемлекет пен бастамашыл компаниялар шетелдік тәжірибені зерделеу және оны Қазақстанда қалыптасқан жағдайларға бейімдеу, сондай-ақ тиісті нормативтік құжаттарды шығару бойынша айтарлықтай күш-жігер жұмсады. Дегенмен, бұл зерттеулердің нәтижелері ашық дереккөздерде жарияланбағандықтан, құрылыс индустриясындағы қандай айырмашылықтар технологияны енгізуге әсер ететіні және оларды қалай ескеру керектігі анық емес. Бұл мақалада осы факторлардың кейбірі қарастырылады. Қазақстан мен Ұлыбританияның сәулет-құрылыс саласының экономикалық көрсеткіштері мен сапалық ерекшеліктерін салыстыру және оларды екі елде BIM технологиясын енгізудің алғышарттары ретінде талдау жүргізілді. Нәтижесінде Қазақстандағы қолданыстағы BIM енгізу бағдарламасы бойынша түсініктемелер ұсынылды.

Негізгі сөздер: BIM технологиясы, енгізу бойынша ұсыныстар, сәулет және құрылыс, салыстырмалы талдау, экономикалық көрсеткіштер, Ұлыбритания, Қазақстан, BIM артықшылықтары мен кемшіліктері.

Сравнение предпосылок для внедрения BIM в Казахстане и Великобритании

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Аннотация. В настоящее время в Казахстане ведется постепенное внедрение и развитие BIM технологий – высокоэффективной методики архитектурно-строительного проектирования. Государством и инициативными компаниями были предприняты значительные усилия по изучению зарубежного опыта и адаптации его к существующим в Казахстане условиям, а также выпуску соответствующих регламентирующих документов. Однако, поскольку результаты этих исследований не были опубликованы в открытых источниках, представляется недостаточно ясным какие именно различия в строительной отрасли имеют влияние на внедрение технологии и как их следует учитывать. В данной статье рассматриваются некоторые из таких факторов. Проведено сравнение экономических показателей и качественных особенностей архитектурно-строительной отрасли Казахстана и Великобритании и их анализ в качестве предпосылок внедрения BIM технологии в обеих странах. В качестве итогов предложены замечания к существующей программе внедрения BIM в Казахстане.

Ключевые слова: BIM-технология, рекомендации к внедрению, архитектура и строительство, сравнительный анализ, экономические показатели, Великобритания, Казахстан, преимущества и недостатки BIM.

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