

Discuss the Impact of BIM on the Engineering Cost Industry in the Era of Big Data and the Countermeasures

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Abstract: *In the development process of the Big data era, all industries have begun to use new technical methods to carry out business activities to improve work quality and efficiency. In terms of the construction and development of the engineering cost industry, managers can use the BIM technology in the Big data era to solve problems in engineering cost management and improve the effectiveness of cost management. This paper mainly analyzes the factors that affect project cost and the impact of BIM on the project cost industry, and puts forward countermeasures to optimize the application effect of BIM technology in the construction of the project cost industry in the Big data era.*

Keywords: Big data; BIM technology; Cost industry.

1. INTRODUCTION

In recent years, people's lives have been affected by the construction and development of Big data, and Applied science and technology have been widely applied in learning, life and work to improve the quality of life and learning and work. Among them, the application of BIM technology in the field of engineering cost can effectively solve the problem of delayed data transmission, improve the accuracy of cost data, and achieve refined control of engineering project costs. Based on this, it is necessary to clarify the impact of BIM technology in practical application, and combine the development characteristics of the Big data era to mine the functions of BIM technology to fully reflect the value of new technology methods. Behavioral validity, as understood and defined from the perspective of measurement, refers to the degree to which teachers and students perceive the value of their respective participation in art education activities, i.e., the consistency with established teaching objectives, learning goals, teaching content, and learning content, among other elements. Teachers and students immersed in the primary school art education environment should pay attention to and reflect on the effectiveness of their art education and learning behaviors. It is crucial for art teachers and students to always be clear about the purpose, nature, significance, and effectiveness of the activities they engage in, rather than blindly going through the motions. This is where art education assessment thinking plays a significant role. A strong assessment mindset helps teachers and students understand that participation does not necessarily equate to effectiveness, and growth may not necessarily mean reaching the desired level. Therefore, teachers and students need to contemplate which behaviors they should focus on and reflect upon. Within the scope of this research, teachers can improve behavioral validity through several avenues.

2. MAIN FACTORS AFFECTING PROJECT COST

The overall evolution of calligraphy in the past 40 years, on the basis of inheriting the previous generation of calligraphy and stele studies, has taken a big step forward under the promotion of national exhibitions. The future is an extension of the present, and contemporary calligraphy is the nearest future we can see. Looking at the official script works of previous national exhibitions, we can enter the exhibition with a high probability by taking some mainstream inscriptions such as Cao Quanbei, Ritual Monument, Zhang Qianbei, Ode to Shimen, Ode to the West Narrow Cave, Shi Chenbei and Yiyong Monument, but we should think about whether such works will become the future creative direction of the creators. It is difficult to see a calligrapher with an independent face from the works of national exhibitions. The author believes that after having the basic skillful technical ability, we should think more about how to be inclusive, how to find and establish ourselves. After the history of calligraphy from ancient times to now, we should learn from the method widely, try to combine steles and slips, and strive to explore the new height of official script creation.

Calligraphy creation must form its own unique features, and more attention should be paid to improving learning accomplishment. The cultural attribute of calligraphy is the strongest. In the past, most excellent calligraphers had

the status of scholars and scholars, and calligraphy also valued whether they were bookish or not. This kind of atmosphere can only be cultivated by reading more. If you only have pen and ink skills and ignore the cultural connotation of calligraphy, I am afraid it will be difficult to create pen and ink works that will last forever. There is also emphasis on the existence of "people" in the works, because calligraphy is also the overall external embodiment of a "person's character, ideals, emotions, temperament, knowledge, and all other factors.

2.1 Post bid budget

The engineering cost industry involves a lot of professional content in the process of construction and development, especially when carrying out specific engineering project cost management work, it is necessary to reflect strong cost systematicity. Management personnel need to comprehensively consider various work contents in order to form high-quality cost plans and reduce cost expenditures during project construction. In terms of current engineering cost management, the construction unit has not attached enough importance to the post bid budget as expected. This work has certain particularity and will have a profound impact on engineering cost management. In the absence of sufficient attention, the most significant feature reflected in the construction goals of engineering projects is practicality. Management personnel neglect detail management in handling post bid work, which poses significant constraints on the effectiveness of engineering cost. In the process of continuous development of the Big data era, the construction environment of engineering projects has also changed to a certain extent. When implementing cost management, some construction units will still follow the traditional cost method, and the operation concept presented runs counter to the development of the new era. The most important thing is that the cost management personnel rely too much on the static investment budget method and lack of Management by objectives of the project, which affects the embodiment of the advantages of the project cost.

2.2 Management System

When managers conduct cost management for engineering projects, the most important thing is to ensure the standardization of practical operations and reduce potential problems in accordance with the content and requirements of the management system. The impact of the management system on engineering cost management cannot be ignored, although most construction orders. The staff recruited and hired can meet basic business requirements, but in long-term practice, negative work emotions and attitudes are inevitable, leading to arbitrariness and blindness in cost management. Most engineering construction units have not established a management system that is in line with their own development situation, resulting in a lack of institutional basis for the implementation of many tasks. In the later stage of construction management, the operability of engineering construction will also be reduced. In the absence of a sound management system, the cost management process is superficial and there are formal issues. In the later stage of work, it will also be affected by factors such as market environment, which will affect the effectiveness of cost management and fail to meet regulatory requirements, thereby damaging the economic benefits of the construction unit.

2.3 Cost input

Cost investment is the core of the construction and development of the cost industry. When carrying out construction cost management work for each engineering project, management personnel need to increase control efforts in cost investment, in order to obtain the highest benefits with as little cost as possible and achieve the goal of improving resource utilization. In the process of utilizing BIM technology, it is necessary to achieve high R&D cost investment requirements, and all staff in various positions need to invest in it, highlighting the effectiveness of comprehensive construction based on their professional theoretical foundation and work experience. As a new type of technical method, it requires a long period of practice in the actual application process. Management personnel not only need to build three-dimensional models, but also establish databases related to construction projects, and do a good job in upgrading and maintaining BIM software. Therefore, a large amount of manpower, material resources, and financial resources need to be invested. Combining various resources that need to be utilized in the construction of engineering projects, a large amount of capital costs need to be invested in the implementation of engineering project construction, which is difficult for many construction units to bear and will affect the application performance of BIM technology in cost management.

3. THE IMPACT OF BIM ON THE ENGINEERING COST INDUSTRY

China's calligraphy aesthetics has clear standards, elegance and vulgarity; High and low; The brushwork structure, lines and composition form; Bookish, popular, mountain forest, jujube, Jianghu, etc.; Seal script focuses on ancient,

official script focuses on simplicity, regular script focuses on end, running script focuses on interest, and cursive script focuses on ease. Although China's calligraphy is mysterious and mysterious, it is not unspeakable that professional calligraphers who have been immersed in calligraphy for many years have a very clear evaluation standard for calligraphy.

Generally speaking, the official script works of the contemporary national exhibition have shown the characteristics of the times different from those of various periods in the history of calligraphy, showing the status quo of focusing on innovation, diversified forms and diversified development. What is worrying is that although the style evolution is vivid and varied, it lacks the traditional aesthetic connotation, and the creative desire is strong, but the works that do not go beyond the rules are rare. Some works are hard to gain a good reputation, and some works are like raw rice, and even vulgar official scripts and Jianghu official scripts are flooding the exhibition hall. Looking back at all these reasons, it is undeniable that excellent official script works still exist, but the future official script creation is worthy of serious reflection by contemporary official script writers.

3.1 Promote information exchange

In the development of the engineering cost industry, each construction unit is required to make reasonable use of the capital cost, which requires the specific information and data of the project as the basis to improve the Management science cost management. BIM for engineering cost management.

The impact of the industry lies in its ability to promote information exchange to a large extent, collect cost information of construction projects in the new era, and lay a good foundation for the scientific and rational cost management. When applying BIM technology to the cost industry, it can have a profound impact on the overall development of the industry. The uniqueness of this technology lies in its ability to form comprehensive information content, replace outdated data information in the database, ensure real-time information, and obtain complete data to improve the accuracy of cost management. In terms of information transformation in the cost industry, the most significant factor lies in the fluctuations in prices of materials, equipment, and other materials in the market. Under the influence of BIM, managers can timely grasp the specific changes in prices, thereby improving the quality of cost management and preventing unnecessary waste of funds.

3.2 Improve the level of information processing

Information processing is an important part of cost management. When implementing cost management and control work for engineering projects, management personnel need to comprehensively analyze the information content related to the construction of engineering projects. In the process of gradually applying BIM to the engineering cost industry, it can fundamentally improve the level of information processing, promote managers to have more accurate cost accounting for engineering projects, and thus more accurately arrange the investment of funds and other resources in each link, strengthening the overall engineering arrangement ability. Information processing plays a very important role in cost accounting. In the process of developing the cost industry, BIM technology and Big data technology can be combined together to master the cost demand of project construction through diversified technical means. On the basis of ensuring the rationality of cost management, strengthen the use of funds and play the fundamental role of information data.

3.3 Optimize detail management

When implementing cost management for engineering projects, managers often overlook the details of management content and fail to meet the requirements of construction and development in the new era. In the era of Big data, BIM can effectively optimize the detail management of the cost industry. When implementing cost management, it takes into account the development of all aspects of the enterprise, and then takes corresponding solutions in combination with the actual problems existing in the construction of engineering projects. In the development process of the cost industry, it is necessary to integrate with engineering project design, construction, etc. to ensure the accuracy of engineering settlement. So, BIM can have a positive impact on the cost of engineering projects, allowing managers to effectively coordinate the work of each stage in a three-dimensional model, achieve dynamic management, highlight the value of project construction funds, time, and resource investment, reduce capital losses during construction, and reflect the effectiveness of detail management.

3.4 Improve the level of information technology construction

BIM technology itself is a form of information technology in the new era. Its application in the cost industry can effectively improve the level of information construction and meet the needs of project cost management in the Big data era. BIM technology is generated with the development of the Big data era. When cost management personnel use it to carry out relevant operations, they need to use professional technical ability and information management mode. As a foundation, the scientific application of BIM technology can be achieved. Management personnel can use BIM technology to quickly extract useful engineering project construction cost data information during operation, achieving accurate estimation of engineering prices. When encountering cost information content that is difficult to fully determine, information technology can also be used to clarify the meaning behind each price, making the process of auditing more convenient and greatly improving the operational efficiency of cost units.

4. APPLICATION COUNTERMEASURES OF BIM TECHNOLOGY IN COST INDUSTRY IN THE ERA OF BIG DATA

The author believes that the understanding of the official script works of the National Exhibition is closely related to the aesthetic expectation of the audience and the reversal of the calligraphy and painting market. Except for a few calligraphers, most official script writers began to lose their pen and ink ideals after reaching a certain popularity, social status and social influence, and gradually succumbed to the market. It can be said that the contemporary official script calligraphy creation is generally facing difficulties and conflicts brought about by marketization, which is also a reason for the evolution of the style of official script works of the National Exhibition.

4.1 Establish strategic partnership

Cost enterprises can establish cooperative relationships with other companies through the application of BIM technology in the Big data era, especially strengthen technical cooperation with software companies, and improve the informatization management level of project cost. Many cost enterprises have mastered a very comprehensive and scientific cost management method. In the process of production and operation, they can establish strategic cooperation relationships with external companies and purchase professional BIM software and databases to fundamentally meet the cost management requirements of the Big data era. When forming cooperation with other companies, cost enterprises can introduce information and data technology through strategic alliances or establishing subsidiaries, improve data analysis capabilities in implementing cost management work, and achieve the goal of enriching data and information sources. In addition, it is also possible to form close cooperation with the cost consulting structure, jointly utilize BIM technology to improve the level of cost technology, provide richer data information and technical methods for engineering costs, and strengthen the effectiveness of construction, development, and innovation in the cost industry.

4.2 Pay attention to drawing review

Drawing review is an important part of project cost. The cost industry should pay more attention to it during its development, and take scientific and reasonable drawing review methods as the basic guarantee to meet the actual construction and development requirements of the cost industry in the era of Big data. Cost management personnel need to provide guidance to grassroots staff based on their professional abilities when jointly conducting engineering project drawing review work. When participating in the joint review of drawings, BIM technology can be fully used to integrate the details of engineering project construction, so as to make the Building information modeling more perfect, intuitively present various parameters, and improve the accuracy of drawing review. In the era of Big data, BIM technology can also be used to mark the problems in the process of drawing review, so that construction personnel and cost management personnel can jointly analyze and sort them out. It can also form corresponding records, adjust the project planning in combination with the requirements of engineering construction, promote cost management to be more proactive, and avoid economic losses caused by improper drawing design.

4.3 Optimize technical means

The application of BIM technology puts forward higher requirements for the working ability of cost management personnel. It not only needs to master the basic requirements for the construction and development of the cost industry, but also needs to analyze reliable technical methods in combination with the application needs of BIM technology in the Big data era, and highlight the application value of technology by optimizing technical means. As for the development of business work in the cost industry, the most basic thing is to do a good job in the

preparation of budget estimates, and to use BIM technology to carry out. In this work, staff should choose advanced budgeting methods, abandon traditional work concepts and forms, and adopt dynamic control methods to improve the accuracy of budgeting, thereby determining feasible budgeting plans. In the era of Big data, BIM technology can be used to optimize technical means and analyze. The construction conflict problem in the BIM model can also be combined with the engineering price data information system to provide accurate quotations and improve the accuracy of cost data in accordance with standardized engineering project construction management regulations.

4.4 Building an information system

There are many unforeseeable influencing factors in the cost management of engineering project construction, which can have a negative impact on project cost management and are not conducive to the sustainable development of the cost industry. With the support of BIM technology in the Big data era, enterprises can build an information system, establish a complete project cost system module, form basic information content, so that managers can grasp the precise cost of human resources, construction materials and mechanical equipment that need to be used in the construction of different projects, thus forming a scientific cost management model. In the process of building an information system, cost management personnel can construct differentiated cost management plans for different work contents to improve the feasibility of scheme application. When using BIM technology as a reference, cost enterprises can develop a reasonable engineering cost model based on the actual situation and needs of engineering project construction, and then simulate the process of cost management by combining information system content to grasp the progress of engineering project construction, clarify the funding expenditure of each project, and ensure that the construction of information systems can play a substantive role.

4.5 Implement full process management

The whole process management has been widely applied in current engineering cost management, which requires cost management personnel to compare early management, mid-term management, and later management, so as to improve engineering bidding, construction, and settlement management and solve cost expenditure problems. In the era of Big data, managers need to use BIM technology to reasonably estimate the existing data information content, determine the cost to be consumed in project construction, and then determine the final cost content in combination with the specific situation of project bidding to calculate the overall cost of bidding. When applying BIM technology to cost management during the construction phase of engineering construction, management personnel should coordinate and cooperate with designers, construction personnel, etc., and make adjustments based on potential issues that may arise while clarifying the technical standards for project construction. In this stage, the BIM model can reflect the fundamental role, allowing managers to improve procurement plans based on the application of engineering project costs reflected in the model. During the settlement phase, It is necessary to guide construction personnel to clarify the quality issues that exist in project construction, and if necessary, to file a claim. Based on BIM information data, determine the amount of the claim and coordinate the basic work of project cost.

4.6 Refined management methods

Due to the fact that cost management personnel are prone to problems during operation, it affects the effectiveness of cost management in engineering projects. In the era of Big data, using BIM technology can promote the development of the cost industry through the implementation of refined management means. Management personnel should have a detailed understanding of the specific situation of engineering project construction, ensure that the determination of cost management content is consistent with the situation on the construction site, and improve the applicability of cost management plans. If the management personnel discover problems during the cost review, they need to make timely adjustments. When setting relevant content, they should include the human resource management content of the engineering project, consider personnel issues in the construction of the engineering project, and avoid unnecessary waste of funds. The implementation of refined management methods requires management personnel to clarify their job responsibilities, especially when using BIM technology, to meet relevant supervision and management needs. It is also necessary to conduct spot checks on the work situation of cost personnel, make timely modifications when problems are found, and if necessary, re handle them to improve the level of cost management.

5. CONCLUSION

The application of BIM technology in the cost industry in the era of Big data can effectively improve the effectiveness of project construction management and improve the efficiency and quality of cost management. When integrating BIM technology in practice, cost management personnel should attach importance to the effective processing of data information, build a BIM software project management platform, strengthen coordination and cooperation among various departments, and provide guarantees for the healthy and sustainable development of the cost industry. There is a very abnormal phenomenon that "literature is not the first, and martial arts is not the second", that is, there is no universally applicable scale, so it is impossible to avoid the deviation and confusion of calligraphy aesthetics, method selection and book review from the root, which will lead to the dilemma of "sticking to one's own opinions and going its own way". This requires us to treat our own creations and the current mainstream official script works rationally and observe these works with a sense of confidence in the times, but more often, we need to be brave enough to adhere to the critical spirit and examine the books and the times from different perspectives such as creators, viewers, critics and historians.

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