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Construction management in the 4.0 era

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Abstract

The 4.0 technology era is having an impact on changes in industries, especially in the field of construction in general and construction management in particular. To manage construction well, we must constantly apply 4.0 technology. The article presents trends in 4.0 technology related to the field of construction management such as: information connection platform, BIM construction information model, VR virtual reality technology.

Keywords: 4.0 technology, construction management

1. Introduction

The 4.0 technology revolution is and will have a huge impact on the construction sector. Technology helps businesses approach projects better, design more rationally and manage more effectively. Applying building information modeling (BIM) in construction activities and project operation management, from being mainly implemented in a number of projects with foreign elements, has now been applied by many agencies and organizations. Domestic organizations choose it because of the obvious benefits that BIM brings. In particular, for the construction industry, this is also an important solution to approach the 4.0 industrial revolution. Recognizing, understanding and applying technology to the construction industry is an urgent need for businesses that want to create competitive advantages in the modern business environment. Therefore, the article presents trends in the 4.0 industrial revolution related to the field of construction management.

2. Research methods

The author uses the method of analysis and synthesis from available research results at home and abroad, on theory and international practice on project management trends in the 4.0 industrial revolution along with Collect, process and analyze potential factors according to actual development needs. Each method and technique is used in accordance with each specific research content and placed in overall relationships to provide an objective and comprehensive view of project management models and organizations. suitable project in the 4.0 industrial revolution.

3. Content

3.1. Information connection platform

Accessing information or building a network of relationships in the traditional way is gradually being replaced by more effective communication methods thanks to technology and connection platforms via the Internet. Market experts have recognized and anticipated this trend, creating highly interactive connection platforms, providing valuable market information and connecting the construction industry community to continue Approach and implement projects effectively and cost-effectively.

Big data is used to refer to a large volume of structured and unstructured data that is so large that it is difficult to process using traditional software and database techniques. In most enterprise scenarios, the volume of data is too large or it moves too fast or exceeds current processing capacity. In today's digital era, the computer world is filled with data. The more data you have, the easier it is to gain new insights and even predict what will happen in the future. By analyzing volumes of data using intelligent algorithms, problems and relationships can be discovered that were previously undetectable. And being able to understand the relationships between data points helps better predict future outcomes and make smarter decisions about what to do next.

3.2. Building Information Modeling (BIM)

As a process for creating and managing information on construction projects, building information modeling (BIM) has established best practices for how data and information are communicated on and off the job site.

BIM is not only a design model, but also contains a lot of information about construction projects, which will be transferred to construction units. Information during the construction process will be updated, stored in BIM and continued to be transferred to the construction unit effectively.

With the benefits of BIM in construction management accumulating, this technology is gradually becoming an important and indispensable tool for project managers.

3.3. Virtual reality technology

Virtual reality is being used in the construction industry to improve design, enhance safety, increase the efficiency of exchanging information and ideas with customers and avoid additional costs. With virtual reality, builders not only see structures in 3D but also work in them as in the real world.

Virtual reality technology is widely used in architectural and interior design. It is a useful tool that allows users to enter an interactive 3D environment, providing the opportunity to explore the virtual reality construction of an apartment when it is not yet built.

Virtual reality in architecture acts as a presentation tool, allowing clients to understand how designs will look when completed. To be truly effective, VR technology should allow customers to interact with a virtual model. These engagement levels are then recorded, to form part of customer feedback. This feedback is recorded and incorporated into the final design, increasing customer satisfaction.

Virtual reality technology also helps project managers plan and track a construction project not only the work completed but also the next steps without having to be on-site. This will significantly save time and travel costs while still ensuring work efficiency.

3.4. Mobile and Cloud - based Technologies

Mobile technology and cloud computing can greatly improve the efficiency and productivity of organizations working in the construction industry. Go to any construction site today and you're sure to see mobile and cloud technology being used. Maybe it's a foreman filing daily reports using his smartphone or a project manager reviewing plans and specifications on a tablet...

Mobile technology enables real-time data collection and transmission between the construction site and project

managers in the office, saving a lot of time and improving communication and operational flow, optimizing amount of time required for a particular construction project. Cloud-based solutions enable workers on the jobsite to submit time cards, daily reports, requests for information (RFIs), work records, job changes, and other documents.

4. Conclusion

Along with the development of technology 4.0, more and more new technologies will be developed, so in order to maximize the applications of technology, they need to be integrated together and consistent with the model. activities of each type of business. Integrating technologies to enhance cooperation, exchange, and synchronization of information within businesses continues to be a development trend in the construction industry.

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