

# Application analysis of "Internet + BIM technology" in architectural design

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**Abstract:** With the continuous development and leap of the times, in the context of the development of the Internet, the maturity of information technology has already had a profound impact on all walks of life in society. In the development of the architectural field, developed countries have carried out more exploration and research, and their informatization practices are relatively mature. This article will introduce BIM technology and its development as an introduction to analyze the "Internet + BIM technology" in architectural design. It plays an important role and discusses the strategy of developing BIM technology.

## 1. Introduction

Since the new era, Internet technology has developed rapidly, setting off a major information technology revolution worldwide, and social development has gradually transitioned to the information age, and various information technologies have been actively used in various industries. And development. The construction industry is an important industry that promotes the development of the national economy and occupies a high position in my country's economic development. For this reason, the promotion of its informatization development is more urgent. In the traditional architectural design, due to the inadequacy of the design method, it is inevitable that there will be more deficiencies when it comes to some more complex constructions. Various kinds of information are independent of each other, resulting in unsmooth communication of information. Nature, which seriously hinders the comprehensive development of architectural design. Corresponding to the traditional architectural design method is the popular BIM technology. Its purpose is to break the deadlock of traditional architectural design, provide a more efficient development model for the development of the construction industry in the new era, and then promote the construction. The improvement of material quality and life cycle has promoted the improvement of construction level.

## 2. Overview of BIM technology

### 2.1 The emergence of BIM technology

The emergence of BIM technology can be traced back to the United States in the 1970s, but due to the low level of information technology at that time, it is difficult for BIM technology to be better developed and promoted. With the advent of the new century, information technology worldwide has ushered in rapid development, which has also promoted the further development and popularization of BIM technology. The so-called BIM technology (Building Information Modeling) refers to the measurement of some physical characteristics of the building and the life cycle of the building through computer calculations, which provides reliable decision-making information for the construction of the building, and makes the construction. The development has become more scientific, which has promoted the improvement of building quality and construction level.

### 2.2 Characteristics and specific applications of BIM technology

With the blessing of information technology, BIM technology has good visibility, simulation,

information, graphics, balance and improvement. In the current development of BIM technology, there are mainly the following architectural design software: AUTODESK REVIT, REVIT MEP, NAVISWORKS of AUTODESK; ARCHICAD of GRAPHISOFT; NEMETSCHEK ARCHITECT of NEMETSCHEK; BENETLY BUILDING of BENTLEY.

### **2.3 Current status of BIM technology**

BIM originated in the United States. Since 2003, the US government has formulated a series of methods for using BIM technology. As of 2010, the Japanese government has also begun to call for the use of BIM technology nationwide. At the same time, countries such as Europe have also begun to apply BIM technology and have begun to formulate corresponding usage specifications. Although my country started late in BIM technology, under the attention of the country, the research and development of BIM technology has gradually been put on the agenda.

## **3. The development of BIM technology in China**

### **3.1 The current development of BIM technology in my country**

BIM technology has been introduced into my country's construction industry since 2003. After more than ten years of development, it has also been fully applied in the construction industry. Both the government and private institutions are promoting the development of BIM technology. Although the development of my country's BIM technology is not mature enough, its technology involves the core competitiveness of enterprises in the construction industry and is closely related to the future development of enterprises. For this reason, the development enthusiasm of construction companies is still high, which has promoted the transformation and reform of the construction industry and promoted the popularization of "Internet + BIM" technology.

### **3.2 The trend of my country's development of BIM technology**

The promotion and development of BIM technology is based on the popularization and maturity of Internet information technology. BIM technology can be applied to different stages of the project to promote coordination between different departments, make the level of operation development higher, and greatly promote the development and reform of the traditional construction industry.

In recent years, with the promotion of various aspects by the government, the level of development of BIM technology in China has gradually improved, and it has gradually been in line with national development.<sup>[1]</sup>At the same time, the government is also actively holding relevant exchange meetings in China to introduce foreign experience and promote the promotion of BIM technology.

The main development trends for the future are as follows:

Improve the scientific nature of decision-making. By installing corresponding sensing devices in the building, the construction personnel monitor multiple indicators in the building from time to time, and gather them together in the hands of the engineers, helping engineers make decisions in an intuitive and clear way, and promote the scientific decision-making .

The improvement of cloud computing capabilities. The development of the construction industry is indispensable for the calculation of costs, materials, etc., and cloud computing enables engineers to analyze and make decisions on the design of buildings more quickly and conveniently, making the design of the plan more efficient and convenient.

The improvement of reality capture technology. In the design process of the construction industry, engineers can use laser scanning to obtain relevant data of the building, and then to establish the corresponding 3D building structure, to help engineers show the engineering design in a more intuitive way.

Promote the improvement of departmental collaboration. BIM technology can provide a complete mutual collaboration platform for the development of project engineering, further strengthen the connection between engineers and customers, make building design more satisfied,

and improve the efficiency of engineers. <sup>[2]</sup>

In today's era, BIM technology is becoming more and more important in the field of green environmental protection. With the help of "Internet + BIM technology", engineers can promote the design of buildings to be more green, energy-saving and efficient, and promote the upgrading and development of the construction industry.

#### **4. the development ideas of BIM technology in the field of architectural design**

The intuitive embodiment of the application of BIM technology in architectural design is the three-dimensional design of the project, from the design plan to the architectural drawings, and then to the architectural structure and electromechanical planning. However, under the restriction of many factors, my country's construction enterprises are stuck in the "semi-three-dimensional" stage, which can only achieve part of the design stage. Therefore, based on the current BIM technology, this article proposes two design ideas, namely: using 2D as an auxiliary tool, fully applying the 3D platform for design, and promoting the improvement of quality; secondly, using 2D to build 3D BIM Structure, while using 3D design to optimize 2D design.

#### **5. Advantages of "Internet + BIM Technology"**

##### **5.1 Promote the improvement of construction engineering efficiency**

With the help of "Internet + BIM technology", engineers' architectural design methods can be optimized and reformed, which can improve the core competitiveness of enterprises and get rid of unhealthy competition in the industry.

##### **5.2 Promote the improvement of building quality**

Compared with the CAD platform's professional independence and work repetition, the problem of many loopholes in architectural design, the BIM platform makes the work of each part more collaborative, and the work line is simple, the information resource sharing is high, and it promotes the quality of the building.

##### **5.3 Promote transparency in the construction field**

For a long time, under the unfavorable competition in the construction industry, the price transparency of industry products has been poor, and the emergence of BIM technology has made the competition in the construction industry increasingly better.

#### **6. Application of "Internet + BIM Technology" in the field of architectural design**

Promote the optimization of field layout design. Before starting construction, engineers can use the visualization characteristics of BIM technology to build the entire site layout in 3D mode to ensure the rationality of each construction stage.

Promote the optimization of drawings. In the design phase of a construction project, some problems that may arise during the construction process will be ignored by the engineer. For this reason, timely inspection of drawings is of higher significance, which is related to the smooth development of construction. And BIM technology can use visualization technology to improve the efficiency of architectural design.

Improve the effectiveness of project handover. During the construction process, for some key and difficult construction problems, construction management personnel are prone to poor communication during the handover of the project, leading to more follow-up problems. With the help of BIM technology, the accuracy of construction project disclosure can be effectively improved, ensuring the smooth development of the project, and improving the implementation efficiency of the building.

## **7. Conclusion**

In the current big wave, my country's construction industry has ushered in a critical moment of development. Green environmental protection has become the theme of today's era. The emergence of "Internet + BIM technology" has injected new vitality into the development of my country's construction industry and promoted the green development of the construction industry.

## **References**

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