

Research on Dynamic Management Mode of Construction Cost Based on Deep Learning

Yuxin Xie, Yin Bai*

Liaoning Institute of Science and Technology, Benxi, 117004, China

*Corresponding author

Abstract: In construction projects, only by doing a good job in engineering cost can we help the construction units to complete the construction objectives and benefit objectives, thus helping enterprises to improve their comprehensive competitiveness in the construction market. As far as construction engineering is concerned, it will be affected by various factors in the actual construction process, resulting in changes, including transportation, labor and material expenses. If it is not effectively controlled, a certain amount of money will be wasted. In the fierce market competition, construction enterprises must carry out reasonable and efficient management and control of the project cost, so as to effectively guarantee the economic and social benefits. Based on the general situation of dynamic management and control of construction engineering cost, this paper analyzes the existing problems of dynamic management and control of construction engineering cost, and puts forward a dynamic management mode of construction engineering cost based on deep learning, aiming at realizing effective control of construction engineering cost.

Keywords: Construction engineering; Engineering cost; Dynamic management

1. Introduction

With the development of urbanization, people have higher and higher requirements for the quality of buildings, which not only increases the cost of construction projects, but also greatly increases the difficulty of quality management of construction projects [1]. As far as the development of diversified times is concerned, the number of construction projects is increasing gradually, because the dynamic management of construction costs has an impact on the final quality and economic benefits of construction projects. Therefore, driven by time, the dynamic management of construction costs has gradually gained people's attention and attention [2]. In the process of controlling the project cost, enterprises should choose scientific methods and use dynamic management to master all links in the project. After managing and adjusting the project cost, the quality of the project will be significantly improved [3]. The implementation of dynamic management of construction project cost is consistent with the inherent requirements of contingency management, that is, the management strategy should be adjusted according to the changes of the internal and external environment of the management object, so as to finally achieve the established goal. In order to avoid the influence of unfavorable factors on the development of construction enterprises, we must do a good job in the dynamic management and control of construction cost [4]. Dynamic cost management and cost optimization control are the main methods of cost control in construction enterprises. Dynamic cost management mode can optimize cost control in the project period and maximize the economic benefits of enterprises.

If an enterprise wants to gain a firm foothold in the market, it must strictly control the project cost and adopt the dynamic management method to effectively manage and control the construction project cost [5]. In the investment management of engineering construction projects, the early stage of the project has the greatest influence on the project investment, and in this stage, the project investment estimation in the feasibility study stage is the basis for project decision-making and project cost control [6]. Therefore, it has become an urgent need for the construction industry to explore a set of fast, simple and practical engineering cost estimation methods. Project cost estimation is the cost estimation of the project cost and the consumption of main engineering materials according to the initial data and experience data of the project and the experience of engineers. It is the basis of project acquisition and cost control, and also an important content of the project feasibility study report [7]. If an enterprise wants to develop better in the fierce market competition, it needs to pay attention to the construction project cost management and effectively control the cost expenditure, so as to obtain more economic benefits [8]. Based on the general situation of dynamic management and control of construction

engineering cost, this paper analyzes the existing problems of dynamic management and control of construction engineering cost, and puts forward a dynamic management mode of construction engineering cost based on deep learning, aiming at realizing effective control of construction engineering cost.

2. Overview of dynamic management of construction cost

Construction cost management refers to the control and management of each construction project in the process of engineering construction. Its goal is to control all kinds of capital expenditure in engineering construction on the premise of ensuring the construction effect, and to ensure that the project construction can be completed on the basis that the enterprise's capital budget is not overspent. Engineering cost is an important part of construction projects, which mainly refers to the cost of the whole process of construction projects. According to the results of engineering cost, the construction unit can intuitively understand the construction cost of construction projects, so as to determine whether it can obtain sufficient economic benefits. In the process of dynamic management of construction project cost, cost managers should first clearly understand the project design and planning scheme, divide each process stage of construction project, estimate its price and cost, and set the cost control target according to the available data and experience. Engineering cost work is very important for the whole construction project, therefore, the engineering cost work of construction projects is usually undertaken by specialized departments or units [9]. When carrying out the project cost work, it is necessary for the engineering cost engineer not only to have a high skill level and rich experience, but also to be familiar with the whole construction project.

In the process of construction engineering, the introduction of scientific and reasonable cost dynamic control measures can ensure the continuous reduction of the overall construction cost of the project and reduce the occurrence of over-expenditure. The construction cost work runs through the whole project, including bidding, design, completion settlement, etc. Through the dynamic management and control of the construction cost, we can effectively ensure that all the construction costs in the construction project are reasonable and effective, and ensure the legitimate rights and interests of the contractor and the employer. In the process of actual construction projects, the changes of market environment and social environment will also affect the cost of construction projects, and the dynamic management of construction project cost means that construction projects can effectively rectify the cost control measures of construction projects in combination with the influencing factors, so as to improve the applicability and practicability of the project cost. The professionalism, technicality and strategy of engineering cost in the process of dynamic control can flexibly deal with all kinds of cost problems. In the actual project process, construction enterprises should introduce cost control into the whole project construction, such as material cost management and project design. An excellent and efficient dynamic management and control mode of construction cost can not only improve the management ability of construction units, but also reduce the cost.

3. Present situation of dynamic management of construction cost

3.1. Dynamic management and control system problems

The dynamic management and control of construction cost in China is still in the development stage, and it lacks experience in many aspects. Especially, most enterprises pay little attention to the dynamic management and control of construction cost, and fail to build the corresponding management system, which brings great challenges to the development of the dynamic management and control of construction cost. Dynamic cost management refers to an innovative cost management system in which an enterprise can realize its established business objectives and manage its future business objectives through rapid cost information transmission and cost decision-making mechanism in a changeable competitive environment, and promote the enterprise to keep the comparative advantage of operating cost and risk cost and improve its strategic position. It can timely adjust the construction schedule and supplement the construction plan. Traditional cost management methods of engineering projects are single, and construction enterprises usually employ a large number of employees and purchase sufficient materials and advanced equipment, but the efficiency of construction projects is still low.

In construction units, the personnel engaged in project cost management are often short of professional training, and they have not been engaged in special work for a long time and have insufficient work experience, so it is often difficult to make a quick response in the face of the

ever-changing market environment. When these cost staff participate in the dynamic management of actual cost, they may not be able to effectively control the project cost and it is difficult to reflect the actual value of the cost [10]. The construction needs a lot of manpower, financial resources and material resources, and the construction scale is large and the period is long. If the dynamic management and control system of the construction cost is not perfect, then the enterprise can't make the corresponding construction plan, which will affect the construction progress and the overall quality of the project, and even damage the social reputation of the enterprise.

3.2. Planning problems

After the signing of the construction contract, the construction enterprise must organize the engineering design according to the requirements of the contract. In the process of organization design, the participating enterprises must strictly supervise and audit the methods adopted by the engineering design organization, so as to avoid mistakes in the construction process and affect the overall quality of the project. In the early stage of construction planning, enterprises usually introduce the concept of dynamic management and control of project cost according to the construction objectives of the whole project. The link enterprises often focus on the construction technology, while ignoring the importance of the construction planning, which eventually leads to a big deviation between the project cost and the budget. If workers blindly optimize the whole construction process, but ignore a series of expenses behind it, the project cost will be affected to varying degrees, and even the budget will be exceeded in severe cases.

In large-scale construction projects, there are often many participating enterprises, and each enterprise has certain differences in its management philosophy and construction methods. In the overall design process of the construction project, the design schemes are quite different, and the construction difficulty is also different. Therefore, the construction enterprises should have a comprehensive and detailed understanding of the project, combine the actual situation of the project construction and previous work experience, and make corresponding emergency plans for some possible problems and emergencies in the whole process. Once any problems arise, they should be dealt with in time.

4. Dynamic management mode of construction cost based on deep learning

4.1. Enhance the emphasis on dynamic management.

In order to improve the overall quality of construction projects, we must further strengthen the emphasis on dynamic cost management, overall design and arrangement of all links. Judging from the current development situation, the overall planning needs to be further improved in the actual development of the project to ensure that the dynamic control plays its real role. The role of great economic benefits. Therefore, in order to improve the economic and social benefits of construction units more effectively, enterprises should pay attention to this work, and at the same time construct directional control measures according to the actual situation, so as to promote the overall strength of enterprises and realize the continuous progress of enterprises. The dynamic control logic of construction cost is shown in Figure 1.

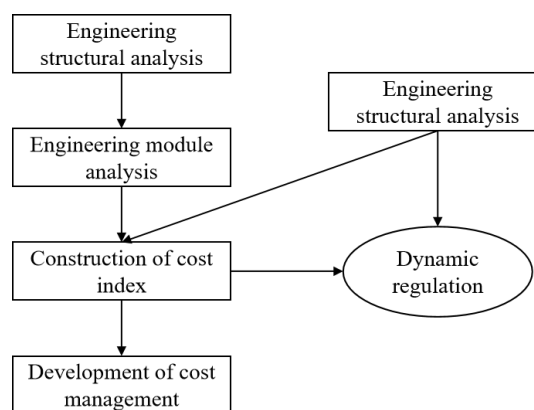


Figure 1: Dynamic control logic of construction cost

The project cost usually includes the budgeted cost and the actual cost. The main reason why the actual cost is higher than the budgeted cost is the increase of labor cost. Therefore, it is necessary to establish an early warning system to collect information from the market, which can quickly and accurately make judgments according to the market conditions. It is necessary to improve the rationality of relevant management and control modes, so as to further improve the engineering quality and meet the development requirements of the construction industry under the new situation. At the same time, strengthen the training of professional skills and comprehensive quality of relevant staff, so that they can meet all kinds of needs in practical projects, and promote the orderly development of dynamic cost management to the greatest extent.

4.2. Optimize information exchange and sharing.

Optimizing information exchange and sharing is helpful to improve the fluency and continuity of each link of construction cost and promote the smooth development of the whole project. At the present stage, the problem that each link is not closely connected is still serious. Aiming at the problem that each link is separated from each other at present, in actual projects, engineers should further improve the communication and communication work to promote the exchange of all kinds of data and information. When optimizing the dynamic management system, we should fully combine the actual situation of the current enterprises, put scientific ideas into all links of the project construction, fully control all funds of the project, and ensure its overall social and economic benefits. The architecture of cost anomaly identification system based on deep learning is shown in the figure 2.

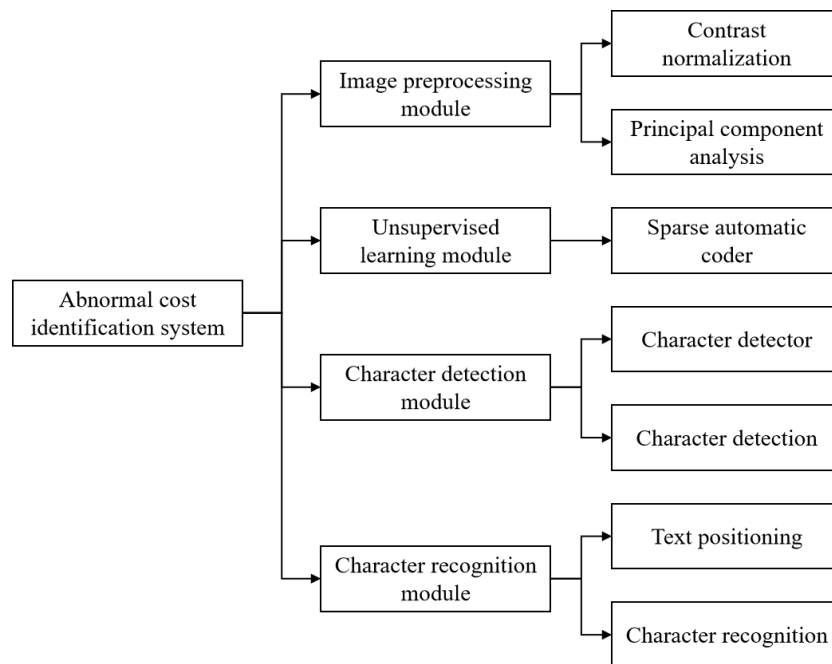


Figure 2: Architecture of cost anomaly identification system based on deep learning

Dynamic management system includes all stages of project construction, that is, vertical control in the project. The establishment of information communication and sharing platform for dynamic management of engineering cost can not only promote the communication and sharing of information and data, but also effectively improve the transparency of cost management and avoid the phenomenon of breaking the law and discipline. While enhancing the awareness of dynamic management of cost, the internal managers of enterprises should set up a perfect dynamic management system, which can be adjusted according to the current market conditions and scientific management methods even if there is an emergency during the project construction, so as to ensure the normal progress of the project.

5. Conclusions

Construction units should also improve the professional level of employees to ensure that they can be competent for the management and control of project cost in all links, so as to achieve the expected goal of project cost management and control on the basis of ensuring the construction quality. In the

development process of the project, we should improve the dynamic management mode from many aspects in combination with the actual situation, and comprehensively and meticulously control it, so as to finally improve the actual effect of construction cost management and ensure the economic benefits of construction enterprises. Deep learning, an advanced artificial intelligence technology, can realize intelligent comparison and analysis of the cost data of power transmission and transformation projects, improve the efficiency of abnormal cost analysis, and provide an effective means for construction enterprises to effectively control the project cost. Enterprises should start from a long-term perspective, strengthen the dynamic management and control of construction cost, persist in dynamic management in the construction process, effectively reduce costs, improve economic benefits, ensure the quality and duration of construction projects, and then realize effective control of construction cost.

References

- [1] Zhang Chunmei. *Dynamic management of construction cost and analysis of effective control measures [J]. Building Materials and Decoration*, 2022(027):018.
- [2] Xu Dan, Wen Weining, Lu Yanchao, et al. *Research on Dynamic Management System of Power Grid Project Cost [J]. Engineering Economics*, 2018, 28(4):4.
- [3] Chen Lu. *Thoughts on dynamic management of construction cost [J]. Architectural Technology Research*, 2021, 3(12):45-46.
- [4] Chen Liang. *Research on Dynamic Management and Control of Construction Cost [J]. Marketing*, 2020(42):140-141.
- [5] Li Qiaochang. *Analysis of dynamic management and effective control measures of construction cost [J]. Building Materials and Decoration*, 2018(20):1.
- [6] Huo Hongxia. *Research on Dynamic Management of Construction Cost [J]. Green Building Materials*, 2017(11):1.
- [7] Ma Wenxiong. *Problems and countermeasures in dynamic management of subway project cost [J]. Value Engineering*, 2018, 37(17):3.
- [8] Wang Bin. *Analysis and control measures of dynamic management of construction cost [J]. Building Materials and Decoration*, 2017(48):2.
- [9] Huang Weihua. *Dynamic management of railway engineering cost and optimization strategy of cost control [J]. Engineering Technology Research*, 2021, 6(13):2.
- [10] Wang Xuelei. *Thoughts on dynamic management of construction cost and cost optimization control [J]. Building Materials Development Orientation*, 2022(009):020.