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Research on Problems and Strategies of Optimisation in Construction Project Management

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Abstract: *This study focuses on the problems in construction project management and proposes corresponding optimisation strategies. In terms of problems, they mainly include organisational structure problems, information communication problems and cost control problems in construction project management. For the organisational structure problem, the study shows that the current management structure is unreasonable and needs to be optimised and adjusted. The information communication problem is due to the poor information transmission channels, which makes it difficult to transmit information to the relevant parties in a timely and accurate manner. As for cost control, the accuracy of cost prediction and control needs to be improved in order to reduce project costs. And for these problems, the study also proposes corresponding optimisation strategies. In terms of organisational structure, management levels, division of responsibilities and coordination mechanisms can be optimised to enhance efficiency and flexibility. Optimisation strategies for information communication include establishing an information management platform, improving communication channels and enhancing information sharing. The optimisation strategies in cost control are to improve cost management by developing scientific cost control mechanisms and establishing effective prediction models. The results of these studies provide useful references for construction project management and help to improve the efficiency and quality of project management.*

Keywords: *Construction Project Management, Problems, Optimisation Strategies, Organisational Structure, Information Communication, Cost Control*

1. Introduction

With the development of social economy and the acceleration of urbanisation, construction engineering plays an extremely important role in modern society. However, there are a series of problems in the process of construction project management, which may lead to project delays, cost overruns, substandard quality and even accidents. Therefore, it is of great significance to conduct an in-depth study on the problems in construction project management and seek solutions to improve the efficiency and quality of construction project management. The aim of the study is to explore the problems and their causes in construction project management, analyse their impact on project progress and quality, and provide effective methods and strategies to solve these problems [1]. By gaining a deeper understanding of the nature and root causes of construction project management problems, we can find ways to improve management effectiveness, reduce risks and optimise the use of resources. In the current context, construction project management faces many challenges. Firstly, the scale of construction projects is becoming increasingly large, and the interests involved are complex and diverse. Secondly, the construction project involves a large number of links and participants, and the coordination and management is difficult. Again, the development of information technology and intelligence has brought new challenges and opportunities to construction project management. Therefore, it is of great significance to study the problems in construction project management to improve management efficiency, optimise resource allocation, reduce costs and increase the success rate of the project. The significance of the study is not only to provide theoretical basis and practical guidance for solving the problems in construction project management, but more importantly, to explore the future development direction of construction project management. Through in-depth research on the problems of construction project management, it can effectively reduce management risks, improve management efficiency, optimise the use of resources and achieve sustainable construction project development. At the same time, the research results can also provide feasible decision-making basis and management experience for relevant management departments and

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practitioners, and promote the standardisation and scientific development of construction engineering management.

In conclusion, the problems in construction engineering management have an important impact on the sustainable development of social economy and environment. The quality and efficiency of construction project management can be effectively improved and the success rate of the project can be increased through in-depth study of the causes and solutions of construction project management problems. This study aims to provide valuable references for construction project managers and related practitioners, as well as to propose new ideas and directions for the development of construction project management.

2. Problems in Construction Engineering Project Management

2.1 Organisational Structure Problems of Construction Engineering Project Management

The organisational structure problem of construction engineering project management is an important problem prevalent in the current field of construction engineering. In the process of project implementation, the organisational structure of the construction project management team plays a crucial role in the success or failure of the project. A reasonable organisational structure can improve the efficiency of project execution, reduce costs, and ensure that the project is completed on time and with quality. However, many construction projects currently have a number of problems with their organisational structure, and these problems have caused problems for the progress of the project.

Firstly, many construction projects have too many management levels in the organisational structure [2]. These layers are numerous and complex, resulting in poor information flow and slower decision-making. Too many management levels also make the various aspects of the project execution process produce too many management links, resulting in a waste of resources and a reduction in efficiency. Therefore, when optimising the organisational structure of construction projects, it is necessary to reduce the number of management levels, so that managers can more effectively guide and coordinate all aspects of the project, thus improving management efficiency.

Secondly, there is the problem of unclear responsibilities in construction project management. In some projects, the unclear division of responsibilities within the management team leads to poor communication and unclear responsibilities in project execution. Such a situation can easily lead to difficulties in coordinating the various aspects of the project, affecting the progress and quality of the project. Therefore, when organising the construction project management team, it is necessary to clarify the responsibilities of each member and establish a corresponding collaboration mechanism to ensure the smooth progress of the project.

In addition, there is the problem of insufficient technical ability in construction project management. Some project management teams lack sufficient technical expertise and experience to cope with complex management environments and problems that arise during project execution. Such a situation can easily lead to the frequent occurrence of technical errors and problems in the project. Therefore, when optimising the organisational structure of construction engineering projects, it is necessary to give full consideration to the professional background and technical ability of each management member and reasonably allocate tasks in order to improve the overall technical level of the team [3].

In general, the organisational structure problem of construction engineering project management involves many aspects, including too many management levels, unclear responsibilities and insufficient technical capabilities. In order to solve these problems, the management team of construction engineering projects should endeavour to reduce the management levels, clarify the responsibilities of each member and improve the technical ability of the team. Only in this way can the organisational structure of construction engineering projects be optimised and the efficiency and quality of project execution be improved.

2.2 Information Communication Problems of Construction Engineering Project Management

Information communication of construction project management is a key issue that cannot be ignored. Effective transmission and timely communication of information are crucial to the success of a project. However, in construction project management, there are various information communication problems, which may lead to a series of negative impacts such as communication disruption, inaccurate information, and wrong decisions [4].

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Firstly, construction projects usually involve multiple participants, including designers, construction teams, supervisors and so on. Each participant has its own specialised terminology and way of working, which leads to language barriers and understanding barriers in the communication process. For example, the designer may use specialised terminology to describe the design intent, while the construction team may not understand these terms, resulting in poor information transfer.

Secondly, due to the complexity and diversity of construction projects, more and complicated information is involved. This requires construction project managers to have strong information processing and management skills to ensure that the information collected from all aspects can be properly understood and transmitted. However, in practice, information loss and misdelivery are very common, which often leads to misunderstandings, delays and other problems.

In addition, a large amount of information in construction projects needs to be transmitted and shared at various stages, including design documents, construction drawings, technical specifications and so on. However, traditional information transfer methods, such as fax and paper documents, are inefficient and easily lost. The wide application of modern technology provides a new way to solve this problem, such as e-mail, cloud storage, etc., which can improve the efficiency and accuracy of information transfer.

A series of optimisation strategies can be adopted to address the problem of information communication in construction project management. Firstly, it is important to establish clear communication channels and communication methods. The project management team should ensure smooth communication between the various parties involved, which can be maintained through regular meetings, the use of online collaboration tools and other ways to maintain smooth communication.

Secondly, improving the information processing and management skills of construction project managers is also key. The management team should focus on training and improving the information technology literacy of project managers, so that they can better understand and process all kinds of information and deliver it to relevant parties in a timely manner [5].

In addition, it is essential to use modern technological means to improve the information transmission method. The construction project management team can make use of digital technology and information technology platforms to achieve rapid transmission and sharing of information. For example, by using Building Information Modeling technology, information from the design, construction and operation stages can be integrated together to achieve information sharing and collaboration throughout the process.

In conclusion, the problem of information communication in construction project management is something we need to pay attention to and solve. By establishing clear communication channels, improving the information processing ability of managers and using modern technical means, we can improve the efficiency and accuracy of information transfer and enhance the overall effect of construction project management [6].

2.3 Cost Control Problems of Construction Project Management

Cost control of construction project management is an extremely important aspect of construction project management, which plays a vital role in the success of the project. In the process of construction project management, cost control issues are often a major challenge for project managers.

In construction project management, cost control problems are mainly reflected in the following aspects:

Firstly, there is often uncertainty in the cost budget of a construction project. Due to the complexity and uncertainty of construction projects, the preparation of cost budgets is difficult. Many factors, such as fluctuations in material prices and labour costs, may lead to deviations in the cost budget. Therefore, construction project managers need to take a series of measures to ensure that the cost of the project is within control.

Secondly, cost overruns often exist in construction projects. Cost overruns in projects occur from time to time due to the complexities and challenges in various aspects of project management. For example, schedule delays and engineering changes may occur in a project, and these factors may lead to project cost overruns. Therefore, construction project managers need to monitor and control project costs in a timely manner to avoid overruns from occurring.

In addition, cost control in construction project management also needs to take into account the

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project quality. While pursuing cost control, project managers cannot ignore the requirements of project quality. Low cost does not mean low quality, project managers need to take into account the quality requirements of the project under the premise of maintaining cost control.

In order to solve the cost control problems in construction project management, the following optimisation strategies can be adopted:

First, establish an effective cost management system. Construction project managers should establish a scientific and perfect cost management system, including cost control system, cost management norms and so on. Through the establishment of these systems and norms, it can help project managers grasp the cost information of the project in a timely manner, and find and solve cost control problems in a timely manner.

Secondly, strengthen the monitoring and analysis of project costs. Project managers should establish an effective cost monitoring mechanism, through the collection, collation and analysis of project cost data, to understand the cost status of the project in a timely manner. At the same time, project managers also need to carry out a comprehensive and accurate analysis of the cost control process to find out the problems and hidden dangers of cost control and take corresponding measures to solve them.

In addition, construction project managers can also take reasonable technical means to improve the effect of cost control. For example, computer software can be used to carry out cost estimation and cost control, through data analysis and simulation, effectively grasp the cost information of the project, early warning and solve potential cost control problems [7].

In conclusion, the cost control problem of construction project management is a complex and important subject. Project managers need to comprehensively consider the impact of various factors when carrying out cost control and adopt effective optimisation strategies to solve cost control problems in order to ensure the successful implementation of the project.

3. Research on Optimisation Strategies of Construction Project Management

3.1 Organisational Structure Optimisation Strategy of Construction Project Management

The organisational structure of construction project management refers to how to optimise and adjust at the organisational and management level for a construction project in order to improve the efficiency of the project and coordinate the work of various departments. In construction project management, the rationality and scientificity of organisational structure is one of the key factors for project success.

In the organisational structure optimisation strategy of construction project management, the following aspects need to be considered.

Clear division of labour. In the organisational structure of the project, the responsibilities and division of labour of each department and position need to be clear. By clarifying the responsibilities of each department and position, the redundancy of decision-making and duplication of work can be effectively reduced, and work efficiency can be improved.

Communication and coordination. A good communication and coordination mechanism is an indispensable part of the organisational structure of construction project management. Establish a regular communication mechanism to ensure smooth information flow between various departments and to identify and solve problems. At the same time, an effective coordination mechanism is established to ensure collaboration and co-operation between various departments to avoid the emergence of inter-departmental barriers and contradictions.

Flexibility and adaptability. The construction project management organisational structure needs to have a certain degree of flexibility and adaptability. As the project proceeds, it may face a variety of changes and challenges that require timely adjustment and adaptation. Therefore, the organisational structure should be able to quickly adapt to environmental changes and flexibly allocate resources [8].

Balance of efficiency and effectiveness. In the organisational structure of construction project management, there is a need to balance the considerations of efficiency and effectiveness. On the one hand, it is necessary to pursue the high efficiency of the work to ensure that the project is completed on time and with quality; on the other hand, it is necessary to pay attention to the quality and effectiveness of the project to avoid only pursuing the speed and neglecting the quality.

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Accumulation and reuse of project experience. In the strategy of optimising the organisational structure of construction project management, the accumulation and reuse of project experience should be paid attention to. By summarising and sharing project experience, the ability and level of the project management team can be improved, and errors and risks can be reduced.

In conclusion, the organisational structure optimisation strategy of construction project management is one of the key factors to improve the efficiency and quality of project management. By clarifying the division of labour, strengthening communication and coordination, maintaining flexibility and adaptability, balancing efficiency and effectiveness, and accumulating project experience, project management can be effectively improved and the smooth progress of construction engineering projects can be achieved [9].

3.2 Strategies for Optimising Information Communication in Construction Project Management

Information communication plays an important role in construction project management. Effective information communication can promote the cooperation and coordination of the project team, reduce communication misunderstandings and conflicts, and improve the efficiency and quality of engineering projects. However, there are some information communication problems in the current construction project management, such as untimely information transmission, unreasonable communication methods, and wrong information entry, which seriously affect the progress and management effect of engineering projects.

In order to optimise the information communication of construction project management, the following strategies can be adopted.

Establish clear communication channels and mechanisms. In the project initiation stage, the main channels and processes of communication should be clarified. Various communication tools such as team meetings, project management software, shared documents, etc. can be established to ensure that all relevant parties can obtain the necessary information. At the same time, establish a regular communication mechanism, such as weekly meetings and monthly reports, in order to solve problems and exchange work progress in a timely manner.

Provide clear communication guidelines and norms. To ensure accurate and consistent information, communication guidelines or manuals can be prepared and issued to clarify the basic principles, format and content requirements for communication. Guidelines include written and verbal communication, such as project reports, meeting minutes, emails, etc., as well as matters to be noted when communicating, such as language expression and communication style. This will enhance the clarity and accuracy of the message and prevent misunderstanding and incorrect dissemination of information.

Develop good communication skills and awareness. Project management team members should have good communication skills and awareness to understand and meet the communication needs of others. They should learn to listen and express themselves to ensure smooth transmission and understanding of information. At the same time, training in teamwork and communication should be strengthened to improve the efficiency and quality of communication. It is also important to establish a good communication atmosphere and culture, encouraging team members to take the initiative to share information and opinions, and establishing an open and transparent communication environment.

Use technology to improve communication effect. The effectiveness and convenience of information communication can be improved with the help of modern technology. Project management software and information technology systems can be used to achieve centralised management and sharing of information, reducing the time and cost of information transfer. At the same time, you can also use Internet technology, such as online meetings, instant messaging tools, etc., to facilitate remote communication and collaboration of the project team. These technical means can improve the efficiency and convenience of information communication, and bring convenience and advantages to construction project management.

In summary, the information communication optimisation strategies for construction project management include establishing clear communication channels and mechanisms, providing clear communication guidelines and norms, cultivating good communication skills and awareness, and applying technological means to enhance communication effects. Through the implementation of these strategies, the current information communication problems can be effectively solved, and the efficiency and quality of construction project management can be improved.

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3.3 Cost Control Optimisation Strategies for Construction Project Management

Cost control is a crucial task in construction project management, which can effectively reduce costs, improve project profitability, and ensure that the project is completed on time and in accordance with quality. However, there are some cost control problems in the current construction project management, such as high project cost, inaccurate cost estimation and insufficient scientific cost control means. To address these problems, this section will propose some cost control optimisation strategies for construction project management to help project teams better manage and control costs.

First of all, the establishment of a perfect cost management system is a prerequisite for the implementation of cost control. The project team should establish a scientific and standardised cost management system, including cost accounting, cost control and cost evaluation. Through the comprehensive management of costs, cost problems can be found in a timely manner and corresponding measures can be taken to adjust, thus effectively reducing costs.

Secondly, reasonable formulation of cost budget is the basis of cost control. Before the start of the project, the project team should make a detailed prediction and analysis of the cost of the project, and formulate a reasonable cost budget, including the costs of human resources, material procurement, equipment leasing and other aspects. At the same time, in the process of project execution, the actual expenditure of the cost should be closely monitored and compared and analysed with the budget in a timely manner to ensure that the cost of the project is controlled within a reasonable range [10].

In addition, optimising procurement management is also an important means of cost control. In construction projects, procurement costs can account for a large part of the total project cost. Therefore, the project team should strictly control the cost in the procurement process, select suitable suppliers through bidding and price comparison, obtain lower procurement prices, and negotiate effectively with suppliers in order to reduce the procurement cost.

In addition, the establishment of performance appraisal mechanism is also one of the important strategies for cost control optimisation. The project team should establish a set of scientific and fair performance appraisal mechanism to evaluate and assess the work of project members. Through the incentive and constraint mechanism, the work enthusiasm of the project members is stimulated and the work efficiency is improved, so as to reduce the cost.

Finally, cost control by means of information technology is a trend. At present, the rapid development of information technology provides more tools and means for construction project management. The project team can use project management software, cost control software, etc., to monitor and analyse the cost of the project in real time, find and deal with cost problems in time, so as to improve the effect of cost control.

In summary, cost control in construction project management is a complex and important work, which requires the project team to focus on the details and constantly optimise and improve the cost control strategy. By establishing a perfect cost management system, reasonably formulating cost budgets, optimising procurement management, establishing a performance appraisal mechanism and cost control by means of information technology, project costs can be effectively reduced and project profitability and competitiveness can be improved.

4. Conclusion

There are some problems in construction project management, mainly including the organisational structure of construction project management, information communication problems and cost control problems. For the organisational structure problem, the research shows that the current management structure is unreasonable and needs to be optimised and adjusted. The information communication problem is due to the poor information transmission channels, which makes it difficult to transmit information to the relevant parties in a timely and accurate manner. As for cost control, the accuracy of cost prediction and control needs to be improved in order to reduce project costs. And for these problems, corresponding optimisation strategies are proposed. In terms of organisational structure, management levels, division of responsibilities and coordination mechanisms can be optimised to enhance efficiency and flexibility. Optimisation strategies for information communication include establishing an information management platform, improving communication channels and enhancing information sharing. The optimisation strategy of cost control is to improve the cost management level by formulating scientific cost control mechanism and establishing effective prediction model. Through

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in-depth research on the problems of construction project management, it can effectively reduce management risks, improve management efficiency, optimise resource utilisation and achieve sustainable construction project development. At the same time, the research results can also provide feasible decision-making basis and management experience for relevant management departments and practitioners, and promote the standardisation and scientific development of construction engineering management.

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