

Research on the Full-Process Management of University Construction Projects

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Abstract: University construction projects are not only critical for the internal educational quality and innovation capabilities of universities but also have a significant impact on societal, economic, and national development, further driving progress and prosperity in education and society. Therefore, full-process management of university construction projects can ensure the smooth progress of projects, maintain quality control, and achieve the optimal balance in terms of economy, time, and resources. This is of great significance for the stable development of universities and the enhancement of their overall competitiveness.

Keywords: Full-process management; University; Construction projects

Introduction

University construction projects mainly involve the construction, renovation, expansion, or maintenance of various academic resources, information technology projects, infrastructure, teaching equipment, laboratories (and practical training facilities), and other related projects within the campus of universities. These projects encompass not only multiple fields and the development of professional resources but also cover aspects like the renovation and upgrading of infrastructure, and the introduction and updating of equipment. The construction of these projects aims to provide better conditions for teaching, learning, and research, creating an improved educational environment that fosters sustainable development for the institution. This, in turn, helps meet the evolving needs of education and the challenges of the changing times while enhancing the overall competitiveness of the university.

1. Purpose of Research on Full Lifecycle Management of University Construction Projects

The research on full lifecycle management of university construction projects aims to enhance project efficiency, quality, and sustainability, ensuring that project outcomes continue to have a positive impact over the long term. Its main objectives are as follows:

Firstly, in-depth study of the theory, methods, and practices of full lifecycle management, exploring its applicability and effectiveness in university construction projects.

Secondly, identification of potential issues and challenges within university construction projects through analysis and research, along with the proposal of corresponding solutions and improvement recommendations.

Thirdly, further improvement of the management skills and capabilities of university project management teams to better plan, execute, and monitor projects.

Fourthly, sharing and summarizing successful experiences and lessons learned in full lifecycle management of university construction projects, providing guidance and reference for other universities and relevant organizations.

Fifthly, promotion of sustainable development in universities through research and application of full lifecycle management, ensuring that project outcomes continue to have a positive impact over the long term.

2. Weaknesses in Full Lifecycle Management of University Construction Projects

2.1 Insufficient Preliminary Project Planning and Research

Inadequate research and justification during the initial project planning phase may result in unclear project requirements, potentially leading to late-stage changes in requirements and project adjustments, thereby increasing project uncertainty and risk.

2.2 Lack of In-Depth Technical Proposal Justification

The depth of justification for technical proposals is a critical factor in ensuring project success. If the justification of technical proposals lacks depth, it can lead to technical challenges, cost overruns, and schedule delays during project implementation.

2.3 Inadequate Risk Management in Project Process

Inadequate risk management during project processes, including incomplete risk identification, inaccurate assessment, inadequate response strategies, delayed monitoring, weak risk awareness, and imperfect mechanisms, may all lead to unforeseen issues and obstacles during project implementation, affecting project progress, quality, and outcomes.

2.4 Inadequate Communication Among Project Stakeholders

Inadequate and untimely communication within the university, between various departments, and with external contractors may result from insufficient planning. This can lead to poor communication among project stakeholders, delayed information sharing, misunderstandings, and decision-making errors.

2.5 Unreasonable Allocation of Project Resources

Inadequate allocation of resources in terms of manpower, materials, and finances may lead to inefficient project execution, resource waste, and even impact project progress and quality.

2.6 Time Management in Project Construction

Inadequate project planning or uncontrollable external factors may result in inaccurate time estimates, leading to project delays and affecting the timely completion of the project.

2.7 Inadequate Project Quality Control

Inadequate quality standards and requirements, insufficient inspection and testing, improper control of non-conforming products, and the lack of effective quality supervision mechanisms can lead to project deliverables not meeting expectations or encountering safety issues, affecting the project's sustainability.

2.8 Insufficient Project Data Management

Incomplete data collection, low data quality, inadequate analysis, and challenges in data sharing and communication among stakeholders throughout the project management process can result in inaccurate information, unscientific decision-making, communication challenges, and overall project management difficulties.

2.9 Inadequate Project Supervision and Evaluation

Lack of effective supervision mechanisms and untimely monitoring and evaluation can lead to uncontrolled project progress, an inability to detect problems in a timely manner, affecting project quality and outcomes, and making it challenging to effectively measure project management effectiveness.

3. Improvement Measures and Suggestions for Whole-process Management of University Construction Projects

By establishing a scientific and standardized management system for the whole process of university construction projects, the efficiency and quality of project management can be improved, ensuring that projects are smoothly implemented and yield good results.

3.1 Establish a Sound Whole-Process Project Management System

In response to factors such as the university's own development and environmental changes, timely and effective establishment of a sound management system for construction projects can improve project management efficiency, transparency, and standardization. Implementing a "comprehensive management, centralized responsibility" system clarifies roles and defines management authority, ensuring that each level understands its role in decision-making. This enhances the sense of responsibility and execution capabilities among all team members, reduces management conflicts and confusion, and creates favorable conditions for successful project implementation.

3.2 Optimize the Organizational Structure for Whole-Process Project Management

According to the university's internal control system and financial regulations, optimize the organizational structure for whole-process project management. Firstly, establish a dedicated project management office responsible for coordinating, supervising, and supporting whole-process project management, providing specialized project management services. Secondly, optimize the step-by-step decision-making process for projects to make it transparent, efficient, and standardized, ensuring the quality and rationality of decisions while reducing decision-making risks. Thirdly, on the basis of "collective decision-making," scientifically involve experts in the decision-making process. Utilize the diverse professional backgrounds of different experts to comprehensively evaluate the basis for project decisions and provide more specialized opinions. This helps enhance the fairness, scientificity, and professionalism of decision-making.

3.3 Enhance the Risk Prevention and Control System for Whole-Process Project Management

Firstly, strengthen functional supervision, discipline inspection, and audit supervision of projects through regular or irregular inspections or spot checks to promptly identify and resolve issues. Secondly, promote self-supervision by the project leader. During the official project approval and budget allocation phases, the project leader signs a "Commitment for Financial Management Responsibility" with the project office. Thirdly, encourage supervision by project teaching and administrative staff. It is recommended to invite project review observers to attend review meetings throughout the process, ensuring the proper oversight of the review process. Relevant information should be made public before the official approval of project establishment and the announcement of project acceptance conclusions. Fourthly, enhance financial and accounting supervision of projects. Align budget management with project management and asset management, and follow legal regulations for government procurement, contract signing, authorization approval, payment processes, asset recording, and accounting procedures, ensuring comprehensive financial oversight. Fifthly, implement an evaluation mechanism for projects before and after construction. In the process of assessing project effectiveness, gather feedback from various sources, summarize successful experiences and lessons learned from the project, providing references and insights for future project decision-making and implementation.

3.4 Strengthen Data Management and Analysis in Whole-Process Project Management

Firstly, create information tools and software tailored to the actual project management needs to support data collection, analysis, reporting, and feedback processes, enhancing the efficiency and accuracy of project management. Secondly, establish a "one project, one file" system, tightly integrating data storage and utilization, enabling in-depth analysis and data mining throughout the project, providing a scientific basis for decision-making. Thirdly, establish a data-sharing platform for projects to facilitate data exchange and sharing among stakeholders. Fourthly, prioritize data protection and privacy to ensure data security.

3.5 Enhance Continuous Improvement and Learning

Firstly, explicitly incorporate principles and mechanisms for continuous improvement into the project management system, making improvement a standard practice. Secondly, conduct regular reviews and lessons learned at critical project milestones or stage completions, identifying opportunities for improvement. Thirdly, provide ongoing learning and training for project team members to enhance their project

management and leadership capabilities, encouraging continuous learning and growth. Fourthly, encourage project team members to share best practices and successful experiences, promoting mutual learning and cross-pollination within the team.

4. Conclusion

The research on whole-process management of university construction projects has revealed the significance of project management in the field of education. By considering various stages and factors comprehensively, and by planning and executing projects effectively, it is possible to enhance efficiency while ensuring quality, ultimately achieving the desired project objectives. Future research can further explore applications in areas such as digitization, sustainability, and agile management to better meet the evolving needs of universities. Therefore, the research on whole-process management of university construction projects provides crucial theoretical and practical guidance for the ongoing development and progress of universities.

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