

# Research on procurement management of engineering projects in state-owned machinery manufacturing enterprises

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**Abstract.** The aim of this study is to explore the key issues and best practices of procurement management for engineering projects in state-owned machinery manufacturing enterprises. Through a comprehensive analysis of existing research progress and practical experiences, we found that procurement strategy, supplier selection, negotiation skills and risk management are the key factors affecting the effectiveness of procurement management. Best practices include good cooperative relationships with suppliers, market intelligence collection and analysis, and the application of information technology. However, state-owned machinery manufacturers still face challenges in procurement management such as supply chain disruptions, market competition and changes in regulations and policies. Future research should focus on how to address these challenges and improve the efficiency and quality of procurement management.

**Keywords:** state-owned machinery manufacturing enterprises, engineering projects, procurement management, procurement strategy, supplier selection

## 1. Introduction

With the rapid development of China's economy and the booming growth of engineering projects, procurement management for engineering projects in state-owned machinery manufacturing enterprises is increasingly becoming a key topic. In a highly competitive market environment, it is crucial for the development of state-owned machinery manufacturing enterprises to efficiently manage the procurement process, ensure the smooth implementation of projects and reduce costs. Therefore, it is of great theoretical and practical significance to study and explore the strategies and methods of procurement management for engineering projects in state-owned machinery manufacturing enterprises. However, procurement management for engineering projects in state-owned machinery manufacturing enterprises faces a number of challenges. Factors such as supply chain disruptions, fierce market competition and changes in regulations and policies can all bring uncertainty and complexity to procurement management [1]. This study aims to explore the key issues and best practices of procurement management for engineering projects in state-owned machinery manufacturing enterprises. Through a comprehensive analysis of existing research advances and practical experiences, we will focus on procurement strategies, supplier selection, negotiation skills and risk management. Through the sharing of successful cases and the exploration of improvement methods, we hope to provide valuable reference and guidance for relevant practitioners and improve the level and effectiveness of procurement management for engineering projects in state-owned machinery manufacturing enterprises.

## 2. The importance of procurement management for engineering projects

Supply chain management is one of the core elements of procurement management for engineering projects. State-owned machinery manufacturing enterprises need to acquire a large number of raw materials, equipment and components in engineering projects, and these materials often need to be

obtained through the supply chain. Effective supply chain management can ensure timely supply of materials, controllable quality and reasonable control of inventory, thus improving the effectiveness of project progress and cost control [2].

Procurement management for engineering projects is crucial to cost control. Procurement costs usually take up a large proportion of the total cost of an engineering project. Through reasonable procurement strategies and supplier selection, enterprises can obtain more competitive prices and quality materials, thereby reducing project costs. At the same time, procurement management also involves contract management and negotiation skills. Through good cooperation and negotiation with suppliers, costs can be further reduced and profit margins increased [3].

Procurement management for engineering projects is also vital to the quality assurance of the project. The right materials and equipment play a vital role in the smooth running of engineering projects and the assurance of final quality. Through the selection and evaluation of suppliers, state-owned machinery manufacturing enterprises can obtain materials and equipment that meet their requirements, thereby improving the quality of engineering projects and reducing the occurrence of quality problems.

### **3. The current situation of procurement management of engineering projects in state-owned machinery manufacturing enterprises**

The procurement management of engineering projects in state-owned machinery manufacturing enterprises has weaknesses in certain aspects. For example, in terms of procurement strategy formulation, some enterprises lack a clear strategy and planning, resulting in less scientific and systematic decision-making in the procurement process. In terms of supplier selection, some enterprises pay too much attention to the price factor, while neglecting to consider the quality, reputation and delivery capability of suppliers. In addition, in terms of negotiation skills and contract management, some enterprises' procurement staff lack relevant professional knowledge and skills, resulting in unsatisfactory negotiation results and problems in the contract performance process [4].

Supply chain management is also an important issue in the procurement management of engineering projects in state-owned machinery manufacturing enterprises. Supply chain disruptions have become a common challenge due to the complexity of projects and the instability of the supply chain. Delays in delivery from suppliers and shortages of raw materials and components can lead to delays in project schedules and increased costs. In addition, state-owned machinery manufacturers often involve multiple suppliers and partners, and it is a challenge to coordinate and manage supply chain relationships.

Intense market competition has also put pressure on the procurement management of engineering projects in state-owned machinery manufacturing enterprises. Increased market competition means that enterprises need to procure materials more efficiently and agilely in order to gain a competitive advantage. However, some enterprises have problems with cumbersome approval procedures and lengthy transaction cycles in their procurement processes, resulting in inefficient procurement that fails to meet the changing needs of the market.

Changes in regulations and policies have also had an impact on the management of procurement for engineering projects. Regulations and policies of government departments on the procurement of engineering projects are constantly being adjusted, which brings uncertainty to the procurement activities of enterprises. Enterprises need to keep abreast of and adapt to changes in relevant policies to ensure compliance and the smooth running of procurement activities.

### **4. Importance and influencing factors of sourcing strategy**

Reducing procurement costs: Procurement costs account for a large proportion of engineering projects, so developing a reasonable procurement strategy is key to reducing costs. Companies can

negotiate more competitive prices through long-term cooperation with suppliers; and maximise cost savings and benefits by optimising procurement quantities and lead times.

**Ensuring the quality of materials:** In engineering projects, the quality of materials has a direct impact on the progress and final outcome of the project [5]. The procurement strategy should include the quality assessment and selection of suppliers to ensure that the materials meet the required standards and requirements. In addition, the procurement strategy should consider mechanisms for quality assurance and monitoring, and how to establish good quality management relationships with suppliers.

**Ensure the stability of the supply chain:** Interruptions and instability in the supply chain can have a negative impact on engineering projects, therefore, the procurement strategy should focus on the stability of the supply chain. Enterprises can ensure the timely supply of materials by establishing strong cooperative relationships with suppliers, enhancing communication and information sharing, and warning and responding to supply chain risks in advance.

**Changes in procurement markets and technology:** Procurement strategies need to take into account changes in markets and technology. As the market becomes more competitive and technology continues to advance, procurement strategies need to be constantly adjusted and optimised. Enterprises should pay close attention to market dynamics and technological developments, and adjust their procurement strategies in a timely manner in order to adapt to market changes and enhance their competitiveness.

**Regulatory and policy requirements:** Procurement of engineering projects is governed and regulated by a range of regulations and policies, and procurement strategies should comply with the relevant requirements. Companies need to understand and comply with the relevant regulations and policies to ensure compliance and standardisation of procurement activities.

## **5. Practice and improvement methods**

**Building strategic partnerships:** Establish long-term, stable strategic partnerships with suppliers to develop and share benefits together. By working closely with suppliers, you can improve the efficiency and stability of your supply chain and obtain more competitive prices and services.

**Strengthen supplier management:** Strengthen supplier evaluation and management to improve the overall quality and capability of suppliers in terms of supplier selection, contract management and quality control. Establish a supplier evaluation system and regularly assess the performance of suppliers to ensure the selection of qualified suppliers and continuous cooperation.

**Optimise the procurement process:** streamline the procurement process and reduce cumbersome approval procedures and lengthy transaction cycles. Introduce an information technology system to achieve electronic management of the procurement process and improve the efficiency and transparency of procurement.

**Strengthen the training and professionalism of procurement staff:** enhance the professional knowledge and skills of procurement staff and strengthen training in negotiation, contract management and supply chain management. By improving the quality of procurement staff, they are better able to respond to market changes and handle complex procurement matters.

**Use of data analysis and technological innovation:** Data analysis and advanced technological tools, such as artificial intelligence and big data, are used to monitor and optimise the procurement process. Through data analysis, problems and potential risks in procurement are identified and timely measures are taken to address them.

**Strengthen compliance management:** pay attention to changes in regulations and policies, update procurement strategies and operational procedures in a timely manner, and ensure compliance of procurement activities. Establish a sound internal control system and strengthen compliance training and supervision to prevent and address potential legal risks.

## 6. Conclusion

In the study of procurement management for engineering projects in state-owned machinery manufacturing enterprises, we have discussed in depth the importance of procurement management, the current situation and ways to improve it. Procurement management for engineering projects is crucial for cost control, quality assurance and supply chain optimisation in enterprises. Finally, we would like to emphasise the importance of continuous learning and improvement. Procurement management is a constantly evolving and changing field, and companies need to keep pace with the times, actively adopt new technologies, ideas and methods, and continuously optimise their procurement management methods and processes. Only through continuous learning and practice can state-owned machinery manufacturing enterprises achieve better results in procurement management for engineering projects, enhance their competitiveness and achieve the goal of sustainable development.

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