

Original Research Article

Study on the Cost Control and Performance Evaluation Method of Mechanical Manufacturing Project

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Abstract: This study aims to explore the research methods and practice of cost control and performance evaluation system in machinery manufacturing enterprises. First, it analyzes the impact of weak cost control consciousness, single cost control method and imperfect performance evaluation system. Second, it puts forward some suggestions to solve the above problems by improving the awareness of cost control, introducing advanced management tools and improving the performance evaluation system. Third, the practical significance and prospect of these methods are summarized.

Abstract: Machinery manufacturing enterprises; Cost control; Performance evaluation; Awareness enhancement

1. Introduction

In today's fiercely competitive market environment, mechanical manufacturing enterprises face increasingly severe challenges. Effectively controlling costs and improving performance have become crucial for the sustainable development of these companies. However, many enterprises suffer from weak cost control awareness, single cost control methods, and imperfect performance evaluation systems, which severely restrict their development. Therefore, this study aims to explore how to address these issues by enhancing cost control awareness, introducing advanced management tools, and improving performance evaluation systems, thereby promoting higher levels of cost control and performance improvement in mechanical manufacturing enterprises.

2. The Importance of Cost Control and Performance Evaluation Method of Machinery Manufacturing Project

2.1. Enhancing Corporate Competitiveness

In the current fiercely competitive market environment, mechanical manufacturing enterprises must enhance their competitiveness to stand firm in the wave of globalization. Cost control is a crucial means of enhancing competitiveness, with irreplaceable significance. Through scientific and reasonable cost control, enterprises can enhance their competitiveness in multiple ways. Firstly, cost control directly influences the company's product pricing strategy. Effective cost management can reduce production costs, giving products a price advantage in the market, thereby attracting more customers, expanding market share, and enhancing market position. Secondly, cost control can improve resource utilization efficiency. Through meticulous management and optimized production processes, enterprises can reduce resource waste and lower production costs. At the same time, it reduces environmental impact and enhances sustainable development capabilities^[1].

2.2. Increasing Corporate Profitability

Improving the profitability of machinery manufacturing enterprises is the core objective for their survival and development in a highly competitive market. Cost control is one of the key means to achieve this objective.

Scientific cost management can significantly enhance resource utilization efficiency, reduce production costs, and thereby increase overall profitability. Firstly, cost control can directly reduce production costs and increase product profit margins. For example, optimizing supply chain management to lower raw material procurement costs, improving production processes and workflows to enhance production efficiency, and implementing reasonable equipment maintenance plans to extend equipment lifespan can significantly reduce the production cost per unit, directly increasing product profit margins. Secondly, cost control helps optimize resource allocation and enhance operational efficiency. Through cost control, enterprises can scientifically allocate resources, avoid resource wastage, improve the operational efficiency of production lines, reduce production bottlenecks, and enhance overall production effectiveness. Additionally, cost control can enhance the market competitiveness of enterprises. In the current market environment, where price competition is intense, cost control allows enterprises to enter the market with more competitive prices while ensuring quality, thereby attracting more customers and expanding market share. At the same time, reducing costs provides enterprises with more funds for research and development and technological innovation, increasing the technical content and added value of products, further enhancing the market competitiveness of enterprises^[2].

2.3. Ensuring Smooth Project Implementation

In mechanical manufacturing projects, cost control is one of the key factors to ensure smooth implementation. Scientific cost management not only prevents budget overruns but also improves the efficiency and quality of project management, ensuring that projects are completed on time, within budget, and to the required quality standards. Firstly, reasonable cost control ensures that projects remain within budget. Through detailed cost budgeting and real-time monitoring, enterprises can strictly control expenditures, reduce financial waste, and ensure the effective utilization of project funds. Secondly, cost control improves project management efficiency. Establishing a comprehensive cost control system allows for the timely identification and resolution of project issues and changes, preventing delays caused by cost overruns. Regular cost analysis and evaluations enable adjustments to project plans and resource allocations, ensuring the smooth progression of each project phase. For example, real-time monitoring of material usage can prevent shortages or surpluses, while optimizing human resource management ensures proper staffing and work efficiency. These measures enhance project management efficiency and provide assurance for the successful implementation of projects^[3].

3. Issues in Cost Control and Performance Evaluation Methods for Mechanical Manufacturing Projects

3.1. Weak Cost Control Awareness

In managing mechanical manufacturing projects, weak cost control awareness is a common problem. This lack of awareness directly affects the project's economic benefits and can lead to resource waste, budget overruns, and other negative consequences, hindering smooth project implementation and long-term enterprise development. Firstly, some enterprises lack systematic planning and management in cost control, resulting in weak cost control awareness. Many companies do not conduct detailed cost budgeting and planning at the project's outset, relying instead on experience and subjective judgment for decision-making. This randomness and lack of systematic approach make it difficult for enterprises to effectively monitor and manage costs during the project, leading to unnecessary financial expenditure and inefficient resource utilization. Secondly,

insufficient emphasis on cost control by internal management and employees also contributes to weak cost control awareness. In some companies, management focuses excessively on project progress and outcomes, neglecting the importance of cost control, believing that as long as the project is completed on time, cost overruns are acceptable. This misconception marginalizes cost control, making it a dispensable aspect. Moreover, employees often lack training and education on cost control, having limited knowledge and skills on saving costs and improving resource utilization efficiency in their daily work, which further exacerbates the difficulty of cost control. Additionally, the lag in information technology adoption for cost control in enterprises affects the cultivation and reinforcement of cost control awareness. In modern enterprise management, information technology is a crucial tool for efficient cost control. However, some mechanical manufacturing enterprises underinvest in IT infrastructure, lacking advanced cost control software and systems. This leads to untimely and inaccurate cost data collection, analysis, and feedback, making effective cost control and decision-making challenging. This technological lag directly restricts the improvement of the enterprise's cost control capabilities and the cultivation of cost control awareness.

3.2. Single Cost Control Methods

In managing mechanical manufacturing projects, the reliance on single cost control methods is a significant issue that directly affects the effectiveness of cost control and the economic benefits of enterprises. Traditional cost control methods are often inadequate in modern, complex production environments and cannot keep up with rapidly changing market demands and technological advancements. Firstly, many enterprises still rely on traditional cost accounting methods, such as the standard cost method and the actual cost method. While these methods can provide some cost information, their limitations are evident. The standard cost method depends on fixed standards and assumptions, making it difficult to reflect the dynamic changes in the production process. Although the actual cost method can provide more accurate cost data, its lagging nature makes it challenging for management to make timely adjustments and decisions. Both methods lack flexibility and real-time capabilities, unable to meet the precise and dynamic cost control needs of modern mechanical manufacturing projects. Secondly, some enterprises lack systematic and scientific management tools in their cost control processes. Traditional cost control methods often rely on manual operations and experiential judgments, prone to errors and deviations. For example, in material procurement, decisions are often based on the experience and market judgment of purchasing personnel, lacking scientific procurement decision support systems, leading to ineffective control of procurement costs. Similarly, in the production process, manually recorded and tallied cost data are prone to omissions and errors, affecting the accuracy and effectiveness of cost control. Additionally, enterprises often lack comprehensive management of the entire process in cost control. Many focus solely on controlling costs during the production phase, neglecting cost management across all stages of the project lifecycle. For example, during the project design phase, there is often a lack of effective control over design costs, resulting in uneconomical design schemes. In the project implementation phase, cost monitoring of construction and installation phases is often overlooked, leading to cost overruns. In the project completion phase, failure to promptly summarize and analyze costs prevents the accumulation and transfer of cost control experience. This fragmented approach to cost control makes it difficult to achieve comprehensive and effective management of project costs^[4].

3.3. Inadequate Performance Evaluation System

Mechanical manufacturing enterprises commonly face the issue of an inadequate performance evaluation system in project management. This problem severely constrains the efficiency of management and overall performance improvement in enterprises. The inadequacy of the performance evaluation system mainly manifests in unclear evaluation criteria, single evaluation methods, lack of feedback mechanisms, and insufficient incentive mechanisms. Firstly, unclear evaluation criteria are a major manifestation of the inadequacy of the performance evaluation system. In many enterprises, performance evaluation criteria often lack scientific and systematic standards, resulting in evaluation results lacking fairness and credibility. For example, in some enterprises, performance evaluation solely focuses on the quantity of completed tasks, neglecting other critical factors such as quality, efficiency, and innovation. This single evaluation criterion fails to comprehensively reflect employees' actual performance, leading to biased and distorted evaluation results that affect employees' motivation and enthusiasm. Secondly, the reliance on single evaluation methods is another significant reason for the inadequacy of the performance evaluation system. Many enterprises primarily depend on unilateral evaluations by superiors, lacking multidimensional and multi-perspective evaluation methods. For example, the lack of peer evaluations, subordinate evaluations of superiors, and external evaluations by clients results in subjective and one-sided evaluation outcomes that fail to comprehensively and objectively reflect employees' actual performance. Additionally, there is a widespread lack of effective feedback mechanisms in performance evaluation systems. In some enterprises, performance evaluation often remains a formality without forming a complete feedback and improvement mechanism. After the evaluation results are announced, there is a lack of specific feedback and guidance for employees. As a result, employees are unable to understand the strengths and weaknesses of their work or receive effective improvement suggestions. This feedback-deficient evaluation system not only fails to promote employee growth and progress but also leads to employee resistance and dissatisfaction with performance evaluation^[5].

4. Strategies for Cost Control and Performance Evaluation Methods in Mechanical Manufacturing Projects

4.1. Enhancing Cost Control Awareness

Enhancing cost control awareness is crucial for mechanical manufacturing enterprises to achieve efficient management and sustainable development. By increasing the emphasis on cost control among all employees, enterprises can significantly improve resource utilization efficiency, reduce production costs, and enhance market competitiveness. Firstly, strengthening the management's emphasis on cost control is the primary step in enhancing cost control awareness. The leadership serves as decision-makers and drivers of cost control, and their level of emphasis directly influences the awareness of cost control among all employees. The leadership should lead by example, setting cost control benchmarks and using clear cost control objectives and strict assessment mechanisms to encourage managers and employees at all levels to integrate cost control into their daily work. For example, regular cost management meetings can be convened to report on cost control status, analyze existing issues, and propose improvement measures, ensuring that all employees understand the importance and urgency of cost control.

Secondly, enhancing employee training and education to improve the cost management skills and awareness

of all employees is essential. Enterprises should conduct regular training on cost control to help employees understand the basic concepts, methods, and tools of cost control. For example, through training, employees can learn how to identify and eliminate waste in their work, optimize workflows to improve efficiency, and conduct cost accounting and analysis. Through systematic training and education, employees can not only acquire practical cost control skills but also develop a strong cost consciousness, integrating cost control into their specific tasks. Additionally, establishing and improving internal incentive mechanisms for cost control is also an important means of enhancing cost control awareness. By setting up cost control reward and penalty mechanisms, enterprises can motivate employees to actively participate in cost management. For instance, departments and individuals that excel in cost control can be recognized and rewarded by the company. On the other hand, departments and individuals that fail to achieve cost control goals can be subject to corresponding penalties. This clear system of rewards and penalties effectively stimulates employees' enthusiasm for cost control, prompting them to consciously manage costs in their work and reduce waste and unnecessary expenses.

4.2. Introducing Advanced Management Tools

Introducing advanced management tools is one of the key measures to enhance cost control and management efficiency in mechanical manufacturing enterprises. These tools not only help companies better monitor and manage costs but also improve production efficiency, optimize resource allocation, reduce risks, and promote sustainable development. Firstly, introducing advanced cost management software is an important step in improving cost control efficiency. These software solutions facilitate real-time data collection, analysis, and reporting, providing comprehensive cost information and analysis tools to help companies better understand cost structures and cost drivers. Through cost management software, companies can quickly identify cost issues, optimize resource allocation, and make timely adjustments to production plans and cost budgets, enhancing the scientific accuracy of management decisions.

Secondly, introducing advanced production management systems enhances production efficiency and reduces production costs. These systems enable comprehensive monitoring and optimization of the production process, achieving automated production and intelligent management. For example, through advanced production scheduling systems, companies can automatically adjust production plans based on order demands and equipment conditions, maximizing equipment utilization and production efficiency. With intelligent quality management systems, companies achieve real-time monitoring and feedback, reducing defect rates and rework rates, thus lowering production costs. Additionally, introducing advanced supply chain management tools optimizes supply chain configuration, reducing procurement costs and inventory costs. These tools facilitate comprehensive visualization and intelligent management of the supply chain, optimizing supplier selection and cooperation relationships, reducing procurement costs, and supply chain risks. Simultaneously, through advanced inventory management systems, companies achieve precise control over inventory levels, reducing inventory backlog and capital occupation, thus reducing inventory costs and capital costs. Lastly, introducing advanced data analysis tools and business intelligence systems help companies achieve data-driven cost management and decision-making. These tools facilitate rapid analysis and mining of massive data, discovering potential opportunities for cost optimization and efficiency improvement. Through data analysis, companies gain a better understanding of market demands and competitive landscapes, optimize product structures and pricing strategies, and enhance market competitiveness and profitability.

4.3. Improving Performance Evaluation System

Improving the performance evaluation system is crucial for mechanical manufacturing enterprises. It not only helps companies more accurately assess employees' job performance but also inspires their motivation and creativity, driving continuous development. To achieve this, companies should focus on the following aspects to enhance the performance evaluation system. Firstly, clarifying evaluation standards and indicators is key to improving the performance evaluation system. Companies need to develop performance evaluation standards and indicator systems that align with their strategic goals and business characteristics. These indicators should cover various aspects of employees' performance, behavior, and competency, being both quantifiable and comprehensive to reflect employees' performance levels comprehensively.

Secondly, diversifying evaluation methods is essential for enhancing the performance evaluation system. Companies should adopt multiple evaluation methods such as 360-degree feedback, Key Performance Indicator (KPI) assessments, goal management, and project reviews to comprehensively evaluate employees' performance from different perspectives and levels. This approach helps avoid subjective biases from single evaluation methods, providing a more objective and comprehensive understanding of employees' actual performance. Moreover, establishing effective feedback mechanisms is a crucial part of improving the performance evaluation system. Companies should promptly provide feedback to employees on performance evaluations, recognizing excellent performance, identifying areas for improvement, and offering suggestions for development and training support. This helps employees recognize their strengths and weaknesses, adjust their work direction timely, and enhance work efficiency and performance levels. Lastly, designing reasonable incentive mechanisms is essential for improving the performance evaluation system. Companies should formulate corresponding incentive policies such as salary incentives, promotion opportunities, and training opportunities based on employees' performance levels. Incentive mechanisms should be fair, reasonable, and clearly defined to effectively stimulate employees' enthusiasm and creativity, driving them to continuously improve their performance levels.

4. Conclusions

This study conducts an in-depth analysis of the challenges faced by mechanical manufacturing enterprises in cost control and performance evaluation. In response to these challenges, a series of feasible solutions are proposed. Firstly, it is deemed crucial to enhance cost control awareness, which can be achieved by reinforcing the emphasis of the management on cost control. Secondly, the introduction of advanced management tools is indispensable, as these tools can optimize production management and resource allocation, thereby enhancing the management efficiency and economic benefits of the enterprise. Additionally, the improvement of performance evaluation systems is emphasized. By establishing a scientifically rational performance evaluation mechanism, employee enthusiasm and creativity can be stimulated, thereby enhancing the overall performance level of the enterprise. The practical significance and prospects of these solutions are extensive. By implementing these measures, mechanical manufacturing enterprises can effectively reduce costs, improve production efficiency, and thus maintain a competitive advantage in fiercely competitive markets. Furthermore, these solutions also contribute to the sustainable development of mechanical manufacturing enterprises by assisting them in better coping with market changes, enhancing resource utilization efficiency, and reducing environmental impact.

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