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# Research and Analysis on Digital Project Management in Enterprises

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***Abstract:*** In the article, based on digital construction and using “informatization, networking, and intelligence” as the means to carry out digital construction, the current situation of project management is comprehensively, digitally, and explicitly presented. Data insight and perception based on the project management capability evaluation system are utilized, and combined with digital thematic applications. Empower project comprehensive management, internal control management, and personnel management, and ultimately establish and execute a project management system based on digital architecture to improve the level of project management.

***Keywords:*** Project management; Digitization; Promotion of information technology; Integrated management

## Introduction

In the context of a new round of global scientific and technological revolution and industrial transformation, military enterprises are showing a trend of Digital transformation. In the process of digital transformation in military industry, due to its particularity and complexity, it has high capital investment, high technical threshold, and long cycle; The characteristics of multiple varieties and small batches make it difficult to learn from advanced foreign business models. In this context, due to reasons such as system segmentation and interest solidification, the traditional operation and management reform lacks motivation, resulting in a "chimney like" structure, coexistence of research and development and data loss, creating various "digital divide", greatly restricting the development of China's scientific and technological innovation, and the high-quality, efficient and systematic development of China's scientific and technological innovation. So, there is an urgent need to establish a digital project management system as a breakthrough on the basis of the new generation of information technology, and transform the way military companies rely on manpower into relying on digital and intellectual means. Digitize the various systems and enterprises of the company to achieve synergy and intelligence in business operations, improve the level of business management, and quickly respond to market opportunities and changes; Accelerate the digital transformation of national defense technology industry.

## 1. Concept connotation and overall architecture

By sorting out the current situation of oneself, analyzing the management demands, and taking "financial success, cost reduction and efficiency increase, and enhancing core competitiveness" as the management objectives, we have conducted in-depth discussions on the construction methods and continuous improvement mechanisms of the digital project management system for military enterprises, promoting the construction process of the digital project management system, and using "informatization, networking, and intelligence" methods to carry out digital construction, A comprehensive digital explicit display of the current status of project management has been carried out, establishing an effective digital project management collaboration platform. Based on the project management capability evaluation system, data insight and perception have been achieved. Combined with digital thematic application, it enables comprehensive project management, internal control management and human resource management. Finally, the construction and implementation of project management system based on digital construction enable the Digital transformation of project management to be realized.

## 2. Management System Construction Objectives

This article aims to achieve the strategic goal of “digital engineering” with “finance as the core, cost as the center, and core competitiveness as the core, guided by the concept of” numbers “, with” 1 major database “as the core, “ 10 major mechanisms “as the core, and” 5 major capabilities “as the core. One goal “: A digital based engineering management system that achieves financial success, reduces costs, and

enhances core competitiveness. The “5 major capabilities” include planning and controlling risks, optimizing designs, and controlling costs; Quality management ability, HR ability The “Top 10 Mechanisms” include project establishment planning mechanisms, project risk identification and control mechanisms, and project configuration management mechanisms; Secondly, a unified type mechanism for components, a cost warning mechanism, and a quality control mechanism have been established; We have established a comprehensive project management system, established a team of project management talents, and evaluated our project management capabilities; A system of continuously improving engineering management systems based on digital foundations. 1 major database “: 20 project management knowledge bases, including project creation and planning knowledge base, project division knowledge base, project monthly/weekly report knowledge base, and risk tracking knowledge base. These knowledge bases connect project information to form a network based database.

## 3. Construction of a digital integrated management system

### 3.1 Management capability data modeling and system evaluation

On this basis, based on the needs of the enterprise, research was conducted on its "project planning and risk control capabilities, design optimization capabilities, and cost control capabilities"; The improvement goal of "quality management ability and human resource competency" is to establish a project management ability data model and project management ability evaluation system based on digital construction, and map and associate project management ability, process data, and evaluation indicators. After organizing this information, it can guide the digitization of the project management system, conduct in-depth research on process monitoring and early warning, and provide strong support for the project management construction of the management team. On this basis, in-depth research has also been conducted on the problems existing in engineering construction.

### 3.2 Data "Three Modernizations" Management Methods

By creating a "digital project management collaboration and intelligent control platform", the development vision and management strategic goals are taken as the goals and principles of data management, and the digital construction organization is constructed as a human resource guarantee. The digital construction system and process are used as the basis for construction. From the perspective of informatization, networking, and intelligence, effective management of the processes and results generated by engineering projects has been achieved. In the early stage of data application, it is possible to timely identify the difficulties and pain points of the project, and combine them with "planning, regulation, and integration"; Implement the requirements of relevant systems and process control through specialized business work, promote the comprehensive implementation of various management mechanisms, improve project management efficiency, and provide support for continuous optimization and improvement.

#### 3.2.1 Collection and control of information process data

When building a data backend, it is necessary to build a data synchronization mechanism based on the information platform, and unify and standardize the process data dispersed in multiple information systems. Analyze the process data required to improve the "5 major capabilities", establish corresponding collection standards for data that cannot be collected, and collect them on the "Digital Project Management Collaboration and Intelligent Control Platform". Establish corresponding collection functions, and establish 20 knowledge bases corresponding to collaboration and intelligent control to provide data support for collaboration and intelligent control. Utilize the "Digital Project Management Collaboration and Intelligent Control Platform" to achieve information-based control of the entire process and all elements of comprehensive project management, internal control management, and human resource management related systems, processes, and responsibilities, especially through the use of information technology to effectively control key links in the process and the collection and collection of information.

#### 3.2.2 Establish a knowledge base for network engineering management

When building an information management platform, the strong correlation between projects and databases, as well as between databases, is utilized to construct a networked large database of background sampling data. By analyzing the project attributes and organizational structure attributes of the business domain, data can be statistically analyzed according to different dimensions of the project and domain, providing a basis for the visualization of the project management platform.

#### 3.2.3 Application of Intelligent Engineering Management and Assisted Decision Making

With the "Digital Project Management Collaboration and Intelligent Control Platform" as the core, real business as the service object, relying on real business scenarios in scientific research and production, and massive network data as the central platform, visualizing and displaying massive network data.

This system provides support for querying, evaluating, and warning enterprise customers; Data applications such as helping with decision-making drive management teams closer to the enterprise. On this basis, this study will also provide enterprises with a new and more

effective method, utilizing big data analysis technology to help them identify "bottlenecks" in enterprise management from a large amount of data, provide early warning and auxiliary decision-making, and thereby improve the management efficiency of enterprises. For example, with the continuous advancement of financial work such as project calculation, budgeting, and settlement, the internal coordination management knowledge base, price management knowledge base, and material management knowledge base are continuously improved and expanded, ultimately forming networked data for economic operation.

## 4. Continuous optimization mechanism of project management system

Through the application of the “Digital Project Management Collaboration and Intelligent Control Platform”, we compare industry benchmark units and benchmark business management needs to identify weaknesses and gaps in the project management system. In the process of data insight and perception based on evaluation, we analyze and evaluate comprehensive project management, internal control management, and human resource management in project management, achieving improvement in management capabilities.

## 5. Establish a knowledge base for network engineering management

When building an information management platform, the strong correlation between projects and databases, as well as between databases, is utilized to construct a networked large database of background sampling data. By analyzing the project attributes and organizational structure attributes of the business domain, data can be statistically analyzed according to different dimensions of the project and domain, providing a basis for the visualization of the project management platform.

## 6. Conclusion

Continuously optimize outsourcing contracts, payments, and negotiations through the efficient use of the "Digital Engineering Cooperation and Intelligent Control Platform" and the early warning system for financial expenses; Internal agency fees, material costs, and business expenses; Summarize the labor costs and management fees, and ultimately form the cost composition of the project. Compared with project financial planning, a project cost warning dashboard has been formed on a digital project management collaboration and intelligent control platform, which can provide strong support for financial decision-making. Build a digital quality tracking knowledge base and build a debugging and testing bug library, share it with a quality knowledge base, and visualize it to achieve the goal of accumulating and settling solutions to internal and external error phenomena. This can greatly shorten the time spent in the troubleshooting process. Through this method, similar design errors can be effectively prevented, thereby improving the design quality and development efficiency of the product.

## References

[1] Albert.C, Rubio.F, and Valero.F. Impact of digital transformation on the automotive industry, Technological Forecasting and Social Change, Volume 162, 2021, 120343.

[2] Bican.M.P and Brem.A. Digital Business Model, Digital Transformation, Digital Entrepreneurship: Is There A Sustainable “Digital”?[J]. Sustainability, 2020, 12(13).

[3] Du.D, Li.A, and Zhang.L. Survey on the Applications of Big Data in Chinese Real Estate Enterprise, Procedia Computer Science, Volume 30, 2014, Pages 24-33, ISSN 1877-0509.

[4] Franziska Blatz.Dr.RebeccaBulande:Maturity model of digitization for SMEs[J]2018 IEEE International Conference on Engineering, Technology and Innovation.