

Application and Optimization of Informationized Surveying and Mapping in Project Document Management

Lijun Wei¹, Shanshan Lu^{1*}

Mail: 715745273@qq.com

*Corresponding author: Shanshan Lu (E-mail: 771521304@qq.com)

¹College of Engineering, Yunnan University of Business Management, Kunming, 650000, Yunnan, China

ABSTRACT: With the integration of economic integration, the diversification of market demand and the continuous improvement of global business competitiveness, various industries must continuously improve their competitiveness in the fierce market competition, consolidate their dominant position, and in the constantly changing market environment Seek space for survival and development. Based on the analysis of the application level model of informatization surveying and mapping in project document management, this paper analyzes the application technology of informatization surveying and mapping in project document management, and then constructs the corresponding data model, aiming to provide some useful references.

Keywords: Information surveying and mapping; project document management; application; optimization

1 INTRODUCTION

Apply information-based surveying and mapping technology to enterprise project document management to ensure that all projects can be stored within the service period, record historical operation statistics of documents, and fully consider the uniqueness of documents [1-2]. Management personnel at all levels within the enterprise can obtain documents at the first time and view the progress of the entire project. The information-based surveying and mapping system can monitor the status of project documents in real time, improve the security of project document management, and realize the orderly organization of corporate resources [3-4]. Safe storage, utilization and sharing. Therefore, the application technology and optimization of informatization surveying and mapping in project document management is an important content of this paper [5-6].

2 CONSTRUCTION OF APPLICATION LEVEL MODEL OF INFORMATIONIZED SURVEYING AND MAPPING IN PROJECT DOCUMENT MANAGEMENT

2.1 Classification of Informationized Surveying and Mapping in Project Document Management Model

Based on my country's surveying and mapping project management mechanism and the specific situation of project document management, combined with the project document management knowledge system, a five-level project document management model is constructed. The levels are divided into initial level, basic level, specification level, benchmark level and optimization level. As shown in Figure 1, the project document management is based on a 10-point scale for each level: [0, 2] is the initial level, [2, 4] is the basic level, [4, 6] is the standard level, [6, 8] It is the benchmark level, and [8, 10] is the optimized level.

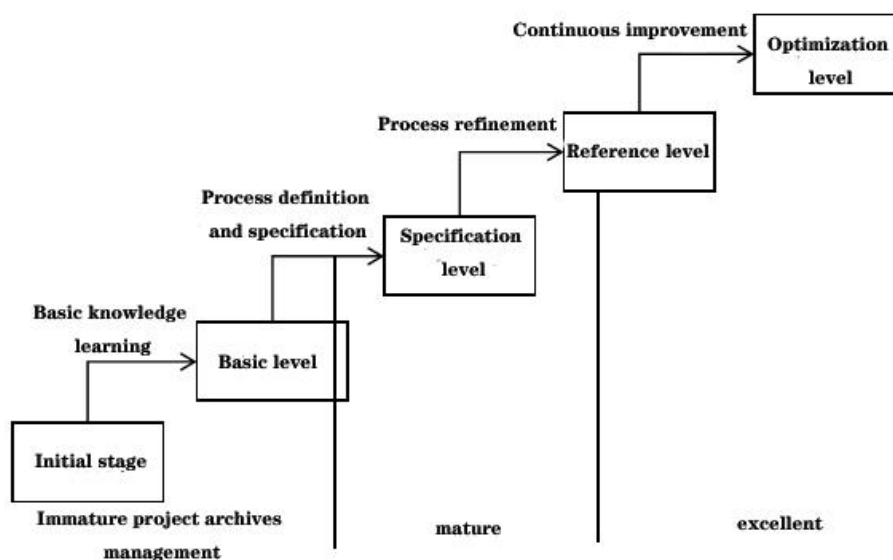


Figure 1 Model structure of information-based surveying and mapping in the project document management model hierarchy

2.2 Informatization Surveying and Mapping in Project Document Management Model Level Connotation Standard

Initial level: Enterprise project archives management at this level is in a state of chaos, project implementation is constantly adjusted and changed, and the internal personnel of the organization do not realize the concept, basic knowledge and methods of project document management, and the success rate of the project The completion depends entirely on the personal

ability of the person in charge of the project, and the discipline of the success of the project is also very low.

Basic level: The personnel in the project team have the most basic understanding of the project archive management knowledge. Although the project team is initially formed, they can use the simplest method to plan and manage the project documents, and even have formed the project document management. Certain experience.

Specification level: The enterprise project document management is relatively mature and has already met the standardized management standards. It can be better supported during the implementation of the project. The enterprise project document management system has been basically established, and more emphasis will be placed on communication during the project implementation. , Collaborative management.

reference level: Enterprises at this level will be more refined in project document management, and establish a corresponding project document management information system. Large amounts of data are stored in various databases of the enterprise, which can record projects more clearly And measurement, establish a project document management department, pay attention to the continuous improvement and optimization of project document management.

Optimized level: The strategic planning institute of the enterprise is consistent with the project document management objectives. The various activities of the enterprise are carried out based on the project document management method. The enterprise project document management level is still in a virtuous cycle of continuous optimization and improvement. Its organizational structure And the management mechanism can be adjusted continuously as the external environment changes.

3 APPLICATION TECHNOLOGY AND MODEL CONSTRUCTION OF INFORMATION SURVEYING AND MAPPING IN PROJECT DOCUMENT MANAGEMENT

This paper selects Case A, which belongs to a land and house surveying institute in Nanchang City, which is mainly responsible for topographic surveying and mapping and land planning management. With the continuous expansion of the scale of enterprises, the business forms of enterprises have gradually begun to diversify, and enterprises continue to improve their project document management capabilities and standardized management levels to meet the needs of contemporary market competition [7-8].

3.1 Construction of Evaluation Index System for Application of Informational Surveying and Mapping in Project Document Management

The technical level of information-based surveying and mapping in project document management is affected by the internal and external environment of the enterprise and the interaction. Therefore, the selection of indicators needs to be systematic and integrated, and select independent indicators with less overlap and less relevance. . In addition, the selection of these indicators needs to be representative, but also modifiable and expandable. According to the application level model of A company informatization surveying and mapping in project document management and the principle of index selection, build A company's project

document management application level target layer (A), criterion layer (B)-enterprise project document management mechanism, management level and Corporate culture and strategy, as well as the plan level (C), used delphi method to give feedback many times, and finally selected 17 key indicators.

3.2 Analytic hierarchy process to determine the index weight

The Delphi method was used in the evaluation of the application indicators of informatization surveying and mapping in project document management, and 10 experts were invited to perform multiple rounds of scoring on the degree of influence of the indicators. After multiple feedbacks, they were collected and organized. Taking the second-level indicators as an example, the judgment matrix is constructed as follows:

(1) Construct a judgment matrix as follows:

$$A = \begin{pmatrix} 1 & 1/5 & 4 \\ 5 & 1 & 8 \\ 1/4 & 1/8 & 1 \end{pmatrix} \quad (1)$$

(2) Calculate the eigenvector of the judgment matrix, as follows:

$$M_i = \prod_{j=1}^n a_{ij} = (0.8000, 40.0000, 0.0312) \quad (2)$$

Calculate nth root of $\tilde{w}_i = \sqrt[n]{M_i}$ finally

$$W_i = (0.9283, 3.4200, 0.3148)$$

Standardize W_i then the feature vector is:

$$W_i = (0.1990, 0.7334, 0.0675)$$

(3) Calculate the eigenvalues of the judgment matrix λ_{\max} , as follows:

$$\lambda_{\max} = \sum_{i=1}^n \frac{(AW)_i}{3W_i} = 3.0931 \quad (3)$$

(4) Calculate the consistency index CR

$$CR = \frac{\lambda_{\max} - n}{n - 1} \cdot \frac{3.0931 - 3}{3 - 1} \times \frac{1}{0.58} = 0.0801 < 0.1 \quad (4)$$

It shows that the judgment matrix is consistent.

In the same way, the weights of the third-level indicators can be obtained, as shown in Table 1.

TABLE 1 INFORMATIZATION SURVEYING AND MAPPING IN THE PROJECT DOCUMENT MANAGEMENT LEVEL EACH EVALUATION INDEX WEIGHT

| | Dimension | key indicator | \ddot{W} | w | |
|--|---|--|--|--------|--------|
| Informatized surveying and mapping at the level of project document management | Management mechanism (0.1990) | Horizontal coordination mechanism | 0.1620 | 0.0324 | |
| | | Resource allocation mechanism | 0.1578 | 0.0315 | |
| | | Organizational learning mechanism | 0.1856 | 0.0369 | |
| | | Authorization decision mechanism | 0.1745 | 0.0347 | |
| | | Performance evaluation mechanism | 0.1425 | 0.0282 | |
| | | Supervision and management mechanism | 0.1776 | 0.0353 | |
| | Project management level (0.7334) | Project management process capability (0.6887) | Ability to undertake bidding tasks | | 0.0836 |
| | | | Surveying and mapping plan preparation ability | | 0.0952 |
| | | | Internal and external industry implementation capabilities | | 0.1542 |
| | | | Project document management supervision | | 0.1023 |
| | | | Project document storage and acceptance | | 0.0699 |
| | | Sustainability of project document management process (0.3113) | Project document management process | | 0.0875 |
| | | | Project document management method | | 0.0746 |
| | | | Project documentation establishment | | 0.0662 |
| | | Corporate culture and strategy (0.0675) | Organizational strategic understanding | | 0.4235 |
| | Training system establishment | | | 0.3410 | 0.0231 |
| | The degree of formation of a new collaborative culture | | | 0.2355 | 0.0158 |
| | Note: \ddot{W} is the weight of the indicator in this dimension, w is the weight in the total ranking of levels | | | | |

3.3 Evaluation of Informationized Surveying and Mapping in Project Document Management Level

The project document management level can be calculated by using the fuzzy comprehensive evaluation method for the evaluation index weights of the information surveying and mapping in the project document management level and the expert survey method to evaluate the enterprise project document management level. In order to make the evaluation results more comprehensive and scientific, Use $M(\bullet, \oplus)$ to calculate the comprehensive score. The total scores of the enterprise questionnaire survey are shown in Table 2.

TABLE 2 ENTERPRISE QUESTIONNAIRE SURVEY SCORE STATISTICS

| 指标 | C1 1 | C1 2 | C1 3 | C1 4 | C1 5 | C1 6 | D1 1 | D1 2 | D1 3 | D1 4 | D1 5 | D2 1 | D2 2 | D2 3 | C3 1 | C3 2 | C3 3 |
|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 均分 | 3.2 | 3.5 | 3.0 | 2.8 | 4.6 | 4.5 | 5.6 | 6.5 | 5.4 | 4.3 | 4.2 | 5.0 | 3.8 | 3.7 | 4.6 | 4.5 | 4.2 |

The calculation formula is:

$$p = \sum_{i=1}^n w_i \bar{x}_i \quad (5)$$

$$p = M(\bullet, \oplus) = 4.6 \quad (6)$$

From this, we can also understand the standard level of enterprise project file management. The company's business implementation capabilities are strong, and the project management process capabilities such as project file management and supervision level are strong, and the company's performance evaluation mechanism still needs to be strengthened. A collaborative corporate culture has not yet been formed. It is still necessary to strengthen the horizontal collaboration of the company's cross-functional departments. At the same time, it is possible to establish a targeted training system based on the actual situation of each department, thereby strengthening the supervision and control of training effects and strengthening the new knowledge of employees Learn to increase the accumulation of employees' work experience.

4 THE APPLICATION AND OPTIMIZATION STRATEGY OF INFORMATIONIZED SURVEYING AND MAPPING IN PROJECT DOCUMENT MANAGEMENT

4.1 Clarify the permission settings of each role in the enterprise

The department establishes a directory structure in the system after undertaking the project. The administrator needs to set the permissions of all directories and subdirectories. For example, the project inspection directory is set so that only the inspector has the right to modify, and the project team leader And other team members can only view. When the project is submitted to the department manager for approval, the inspector loses the right to modify the project, and

can only modify the document after the department manager returns the project. Clarify the role and authority of each person in the project team to avoid unwarranted modification of project documents.

4.2 Improve the creation and inspection of enterprise project documents

Project creation is generally completed by the project team leader of each department, and can only create a new directory in the directory that he undertakes. When creating a new directory, select the right-click menu of secondary development to create a new directory, and rank the number of the task in the task registration system. That's it. If the task exists, the name of the task will automatically pop up, and the project team leader only needs to drag the completed project document files into the directory. The project document management personnel will check the submitted items one by one to check the completeness of the data. Once problems are found or there are places that need to be modified, they can click the item return function to return the item to the project team leader for modification, and then the modification will be completed. Resubmit, and finally submit the qualified items to the inspector to the department manager for review.

4.3 Strengthen the review of project document management

The project document management reviewer needs to conduct spot checks on the project, review the results and the project work. Once a problem or need to be modified is found, it can be returned for re-inspection until the project is qualified, and the project will be submitted and finally archived and put into the library by the archiver. The project data after the library becomes the final data and cannot be modified except for the project document manager. For operations such as deletion, these documents can only be used for query and reference.

5 CONCLUDING REMARKS

This article analyzes the application level of the company's existing informatization surveying and mapping in project document management, and understands the enterprise project by constructing the application level model of informatization surveying and mapping in project document management and the application evaluation index system of informatization surveying and mapping in project document management. Document management influencing factors, specific analysis of project document management strategy from the project document management process. The article is limited by space, and the research on project document management technology of enterprise information surveying and mapping is not perfect enough. In the future stage, we will continue to pay attention to the relevant research trends of information surveying and mapping in project document management technology, and enrich our own research experience to make up for the technical research of this article. Existing shortcomings.

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