New Financial Digital Information Application System Project Plan

Ming Tang

Sichuan Agricultural University, Chengdu, Sichuan 611134, China

Abstract: With the rapid development of the digital economy and the deepening transformation of corporate finance, traditional financial information systems can no longer meet the demands of refined management and strategic decision-making. This paper addresses the pain points in the current digital transformation of corporate finance and proposes a project planning framework for a new financial digital information application system. The study first analyzes the development trends of financial digitization and the necessity of system construction. It then establishes a comprehensive planning framework from dimensions such as system architecture, functional modules, technology selection, and implementation pathways, while designing risk control mechanisms and benefit evaluation systems. Research indicates that by integrating emerging technologies such as big data, artificial intelligence, and cloud computing, this system can achieve automated processing of financial operations, real-time data analysis and control, as well as intelligent decision support, significantly enhancing financial operational efficiency and value creation capabilities. This study provides enterprises with systematic implementation pathways and theoretical references for advancing financial digital transformation in complex environments.

Keywords: Financial digitization; Information systems; Project planning; Intelligent finance; Big data.

1. Introduction

In the era of digital economy, corporate financial management is undergoing a profound transformation from accounting-oriented to value creation-oriented. According to the "Accounting Reform and Development 14th Five-Year Plan Outline" issued by the Ministry of Finance of China, by 2025, China aims to establish a "National Accounting Digital Standard System" and an "Intelligent Auditing System," promoting the shift of accounting functions from traditional bookkeeping and reporting to value creation and decision support. However, the financial systems of most enterprises in China still face issues such as data silos, limited functionality, and delayed responsiveness, making it difficult to meet the management demands of business-finance integration and real-time control [1]. In this context, the construction of a new financial digital information application system has become a key measure for enterprises to enhance their core competitiveness. This project plan aims to create a modern financial platform integrating business processing, data analysis, and risk prevention through systematic design and implementation, providing robust support for corporate digital transformation.

2. Project Background and Necessity

2.1 Policy Drivers and Industry Trends

In recent years, the government has introduced a series of policies to drive financial digital transformation. In 2023, the Ministry of Finance issued the "Interim Provisions on Accounting Treatment for Enterprise Data Resources," which explicitly requires enterprises to standardize accounting practices for data resources, providing institutional safeguards for the value realization of financial data. Meanwhile, with the advancement of projects like the Golden Tax Phase IV and Digital Yuan, corporate financial management is facing both challenges and opportunities brought by the digital upgrade of regulatory environments[2]. At the industry level, international accounting firms such as Deloitte and PwC have launched digital solutions including Financial Robot Process

Automation (RPA) and intelligent risk control. Practices of leading enterprises demonstrate that financial digitalization can enhance operational efficiency by 30%-50% while reducing error rates by over 80%[3].

2.2 Existing Pain Points in Corporate

Through the financial research of 50 enterprises in different industries, it is found that there are the following three main problems in the current financial information system: First, outdated system architectures—most companies still use traditional client/server-based financial software that struggles to support remote work and multi-device access; Second, low data integration—financial systems lack interoperability with ERP, CRM, and other business systems, creating "data silos"; Third, rigid functional modules—unable to meet personalized management needs; Fourth, insufficient automation—relying heavily on manual operations for accounting and reporting. These issues result in financial departments spending 80% of their time on repetitive tasks, failing to fulfill strategic support roles [4].

2.3 Building a New Financial Digital Information Application System

Constructing a new financial digital information application system serves as the core vehicle for achieving financial transformation. Through systematic planning and implementation, it addresses the functional shortcomings of traditional financial systems and facilitates three fundamental shifts: from "post-event accounting" to "end-to-end control", from "single-source data" to "multi-dimensional integration", and from "experience-driven" to "data-driven". This not only enhances financial operational efficiency but also provides enterprises with real-time, accurate decision-making support, enabling them to gain competitive advantages in market competition.

3. Project Objectives and Master Plan

3.1 Overall Project Objective

The primary goal of this project is to develop a new financial digital information application system featuring "one platform and three core capabilities". The platform refers to a financial digital middleware, while the three core capabilities include: automated business processing, intelligent data analysis, and comprehensive risk control. Upon implementation, the system must meet the following specific criteria: 1)Achieve over 85% automation rate in financial operations; 2) Reduce financial report generation time by 80%; 3) Ensure real-time data analysis response within 5 seconds; 4) Maintain risk warning accuracy above 90%.

3.2 Project Scope Definition

The project scope covers the digital transformation of the entire financial and operational process, including but not limited to the following modules: 1) Intelligent Accounting Management: Core accounting functions including general ledger, accounts receivable/payable, and cost accounting; 2) Capital Management: Includes capital planning, cash flow management, and financing management; 3) Tax Management: Enables tax declaration, tax planning, and risk warning functions; 4) Financial Analysis: Provides multi-dimensional business analysis, budget management, and performance evaluation tools; 5) System Management: Includes user permission management, data security management, and system integration management modules.

3.3 Project Implementation Principles

The project implementation follows these principles: 1) Holistic Planning, Phased Implementation: Adopting a "top-level design, iterative development" model, first establishing a unified middleware platform before modular deployment; 2) Business-Driven, Technology-Powered: Guided by financial and operational needs while fully integrating new technologies like AI and big data; 3) Open Compatibility, Flexible Expansion: Utilizing microservices architecture to ensure

seamless integration with existing systems and support future functional upgrades; 4) Security-Compliant, Efficient Compliance: Strictly adhering to data security regulations and establishing multi-layered security protection systems.

4. System Architecture and Functional Design

4.1 Overall System Architecture

The new financial digital information application system adopts a "three-tier architecture + middleware support" design model. 1) Infrastructure Layer: Built on a cloud computing platform, it includes computing, storage, and network resources, supporting private, public, or hybrid cloud deployments; 2) Platform Service Layer: Constructs a financial middle platform comprising data, business, and technical middle platforms to achieve data standardization, modularized services, and shared capabilities; 3) Application Layer: Designed for end-users, it contains modules such as financial accounting, fund management, tax administration, and decision support. Additionally, the system integrates with ERP, OA, HR, and other business systems through API gateways to build an enterprise-level data ecosystem [5].

4.2 Core Functional Module Design

Intelligent Accounting Management Module: Implements automated voucher generation and intelligent invoice recognition using RPA technology. Utilizes AI algorithms for accounting anomaly detection and supports multi-criteria accounting standard switching, providing visual voucher query and traceability functions.

Fund Management Module: Creates a centralized enterprise-wide fund management system with dynamic monitoring capabilities. Integrates cash flow prediction models for intelligent fund allocation, offering financing cost analysis and optimal financing recommendation features.

Tax Management Module: Connects with Golden Tax System interfaces for automated tax filing. Establishes a tax policy database and provides smart tax planning tools. Through big data analytics, it identifies tax risk points and generates risk warning reports.

Financial Analysis and Decision Support Module: Develops a knowledge graph containing over 500 analytical metrics, supporting customizable multi-dimensional reports. Utilizes machine learning algorithms for budget variance alerts and business trend forecasting. Provides simulation capabilities to enable "what-if" scenario analysis for management decisions.

4.3 Data Architecture Design

The system adopts a "three-tier + dual-stream" architecture. 1) Data Source Layer: Includes financial/business data, business system data, and external data (e.g., market/policy data). 2) Data Storage Layer: Establishes data lakes and warehouses for structured/unstructured data storage, employing columnar storage technology to enhance analytical efficiency. 3) Data Service Layer: Provides services including data standardization, governance, and sharing. Dual-stream integration combines real-time data flows with batch processing through technologies like Kafka and Flink, ensuring data timeliness and consistency [6].

5. Technical Solution Selection

5.1 Core Technology Stack Selection

Cloud Platform: Utilizes hybrid cloud architecture with private clouds for mission-critical systems (ensuring data security) and public clouds for non-critical applications and elastic computing resources. Recommended enterprise-level solutions include Alibaba Cloud or Tencent Cloud.

Big Data Technologies: Data collection employs tools like Sqoop and DataX; storage uses Hadoop/

HDFS/HBase/Elasticsearch; computation leverages Spark+MapReduce; governance utilizes Apache Atlas.

Artificial Intelligence Technology: OCR recognition utilizes Baidu PaddleOCR or Tencent Cloud OCR; natural language processing employs iFlytek Open Platform APIs; RPA process automation adopts UiBot or Hongji; predictive analytics utilizes Python´s Scikit-learn and TensorFlow frameworks.

Development Technology: The front-end adopts Vue.js+Element UI to build responsive interfaces; the back-end implements a microservices architecture using Spring Cloud Alibaba; the database adopts a MySQL+PostgreSQL hybrid configuration to meet OLTP and OLAP requirements; middleware selects RabbitMQ and Redis [7].

5.2 System Integration Plan

The system integrates with external systems through ESB (Enterprise Service Bus) and API gateways, with key integration points including: 1) Integration with ERP systems for real-time business data synchronization; 2) Integration with OA systems for automated approval processes; 3) Connection with the bank-enterprise direct payment system for automatic fund transfers; 4) Integration with tax authorities for automated tax declaration. Standardized interfaces ensure accurate and secure data exchange between systems.

6. Project Implementation Plan

6.1 Phase Division

The project is scheduled to span 18 months across four phases: 1) Planning Phase (1-3 months): Conducting requirement research, design planning, and team formation; 2) Development Phase (4-9 months): Completing system architecture design, middleware construction, and core module development; 3) Testing Phase (10-12 months): Implementing unit testing, integration testing, and user acceptance testing; 4) Launch Phase (13-18 months): Performing data migration, user training, system deployment, and continuous optimization.

6.2 Key Milestones

The project establishes the following critical milestones: Requirements specification review completed by Month 3; System architecture design finalized by Month 6; Core functionality development achieved by Month 9; System integration testing completed by Month 12; User acceptance testing concluded by Month 15; Official system launch scheduled for Month 18.

6.3 Resource Allocation and Team Structure

The project team consists of 36 members divided into five specialized groups: 1) Project Management Team (3 members): Responsible for overall project coordination and management; 2) Requirements Analysis Group (5 members): Conducts market research and requirement analysis; 3) Development Team (15 members): Handles system design and development; 4) Testing Team (8 members): Manages system testing and quality assurance; 5) Operations Team (5 members): Manages system deployment and maintenance.

The project budget is controlled within RMB 8 million, primarily allocated for hardware/software procurement, labor costs, and third-party service fees.

7. Risk Analysis and Response Strategies

7.1 Key Risk Identification

Technical Risk: New technology implementation may compromise system stability and increase integration complexity;

Data Risk: Potential data loss or format incompatibility during migration;

Management Risk: Changing business requirements could delay project timelines;

Organizational Risk: Employee resistance to change may undermine system effectiveness.

7.2 Response Strategies

To address these risks, implement the following measures: 1) Technical Risk: Conduct prototype testing to validate feasibility, engage technical experts, and establish monitoring and emergency response protocols; 2) Data Risk: Develop detailed migration plans, perform data cleansing and validation, and implement backup/recovery mechanisms; 3) Management Risk: Implement change control processes, enhance requirement coordination, and adopt agile development methodologies to improve responsiveness; 4) Organizational Risk: Conduct company-wide digital transformation training, create incentive programs, pilot system implementation, and disseminate successful practices.

8. Expected Benefits and Value Analysis

8.1 Economic Benefits

Upon project completion, anticipated economic benefits include: 1) Operational Cost Reduction: Automated processes will eliminate manual operations, saving approximately 3 million yuan annually in labor costs; 2) Capital Efficiency Improvement: Intelligent fund management will reduce capital occupation by 20%, cutting financial costs by 1.5 million yuan per year; 3) Tax Compliance Enhancement: Through tax planning and risk alerts, annual tax penalties and late fees will decrease by approximately 500,000 yuan.

8.2 Management Efficiency

Enhanced Decision-Making: Real-time data and intelligent analytics have reduced decision response time from three days to one hour; Strengthened Risk Control: A comprehensive risk early-warning system has been established, achieving 95% coverage in risk identification; Integration of Business and Finance: Real-time synchronization between business and financial data enables refined management and multi-dimensional analysis.

8.3 Strategic Value

The implementation of this project will establish a solid foundation for corporate financial digital transformation, transforming finance departments from "cost centers" to "value centers" to enhance core competitiveness in the digital economy. Meanwhile, accumulated data assets will become vital strategic resources for future development.

9. Conclusion

The construction of new financial digital information systems is essential for modernizing corporate financial management. Through systematic architecture design, advanced technology selection, and scientific implementation strategies, this project has established an integrated financial management platform combining automation, intelligence, and integration. Post-implementation, it will significantly improve operational efficiency and data value while providing robust support for strategic decision-making. Future projects should prioritize soft elements like data governance, organizational transformation, and talent development to ensure system alignment with enterprise management reforms, ultimately achieving the evolution of financial digitalization from "tool transformation" to "value reconstruction".

References

[1]Ministry of Finance. Accounting Reform and Development "14th Five-Year Plan" Outline [Z]. 2021.

[2] China Accounting Association. Intelligent Finance Development Report 2022 [R]. Beijing: China Financial & Economic Publishing House, 2022:45-48.

[3] Deloitte. Global Financial Shared Services Survey Report [R]. 2023:23-25.

[4] Wang Huacheng, Liu Junyong. Intelligent Finance: Theory, Application and Prospects [J]. Accounting Research, 2022(5):3-11.

[5] Zhang Jide, Liu Qin. Research on Pathways for Enterprise Financial Digital Transformation [J]. Finance & Accounting, 2023(8):15-19.

[6] LIAN C et al. A Big Data Platform for Enterprise Financial Management [J]. IEEE Access, 2023,11:45263-45275.

[7] Li Kouqing, Zhang Xinmin. Financial Transformation and Innovation in the Digital Economy Era [M]. Beijing: China Renmin University Press, 2022:78-85.

Author Profile: Tang Ming (1994-), male, born in Nanchong, Sichuan province, bachelor degree, senior engineer. Research interests: information system engineering, software development and operation and maintenance.