

Strategic Management Framework for Digital Resources: Construction, Validation, and Practical Implications

Wei Gaoli

Educational Administration
Universitas Pendidikan Indonesia
Bandung, Indonesia
geqian329@163.com

Abstract

With the global economy and society accelerating digitization, digital resources have become core strategic assets for organizations, yet fragmented management, ambiguous value measurement, and inadequate security mechanisms severely hinder their value release. This study constructs a systematic strategic management framework for digital resources by adopting mixed research methods including systematic literature review, multiple case studies, and quantitative empirical analysis. First, more than 300 relevant literatures are reviewed to clarify the existing research gaps in digital resource management; second, in-depth case studies are conducted on six typical organizations across the technology, finance, and public service sectors to extract key success factors for effective digital resource management; finally, 386 valid questionnaires are collected to empirically verify the framework's effectiveness on organizational performance. The results show that the proposed framework, composed of four core dimensions including value creation, cross-departmental collaboration, evaluation and security guarantee, and dynamic optimization, exerts a significant positive impact on organizational performance ($\beta=0.68$, $p<0.001$). This study enriches the theoretical system of digital resource strategic management and provides actionable practical guidance for organizations to implement full-lifecycle digital resource management and enhance their core competitiveness in the digital economy era.

Keywords: Digital resource strategic management; Framework construction; Value creation; Cross-departmental collaboration; Organizational performance improvement

Introduction

The global digital economy has maintained a compound annual growth rate of 15.6% over the past decade, reaching \$31.8 trillion in 2025 and accounting for 41.5% of the global GDP (IDC, 2025). As the core production factor of the digital economy, digital resources have become a key determinant of organizational competitive advantage in both public and private sectors. However, the exponential growth of digital resources with the global data volume expected to reach 175 zettabytes by Statista, (2025) has exposed critical management challenges for organizations worldwide: fragmented management systems

lead to severe information silos, with only 32% of organizations achieving effective cross-departmental digital resource sharing (Smith & Johnson, 2023); ambiguous value measurement standards result in 45% of digital investments failing to achieve expected returns (Brown & Davis, 2022) inadequate security mechanisms cause 68% of organizations to suffer digital resource leakage or damage in the past three years (Cybersecurity and Infrastructure Security Agency [CISA], 2024) and inefficient allocation of digital elements leads to a 28% waste of potential value (Lee & Park, 2023).

Against this backdrop, the strategic management of digital resources focusing on full-lifecycle management from acquisition and integration to value realization and dynamic optimization—has become an urgent research issue in both academic and practical fields. Exploring a scientific and operable strategic management framework is crucial for organizations to break through digital resource management bottlenecks and transform digital resource advantages into sustainable development advantages.

Existing studies on digital resource management mainly focus on the optimization of single links such as resource integration and security protection, and lack a systematic framework covering the entire lifecycle of digital resource management (Wang & Li, 2022; Zhang & Liu, 2022). In addition, most studies adopt qualitative research methods such as single case analysis and literature review, with insufficient quantitative empirical evidence to verify the effectiveness and applicability of the proposed management frameworks. To address these research gaps, this study sets three core research objectives: first, construct a systematic and operable strategic management framework for digital resources based on theoretical analysis and practical experience of typical organizations; second, verify the effectiveness of the framework and its impact mechanism on organizational performance through quantitative empirical analysis; third, provide targeted practical guidance for organizations in different sectors to optimize their digital resource management practices and enhance core competitiveness.

The remainder of this paper is systematically organized to ensure logical progression and content integrity. Section II conducts a comprehensive review of relevant academic literatures, sorting out the evolution stages of digital resource management and the research status of key thematic areas to lay a solid theoretical foundation for framework construction. Section III details the mixed research methods adopted in this study, including the design and implementation of systematic literature review, multiple case studies, and quantitative empirical analysis. Section IV presents the core research results, including the construction of the digital resource strategic management framework, key success factors extracted from case studies, and quantitative validation results of the framework's effectiveness. Section V discusses the theoretical contributions and practical implications of the research findings in depth. Finally, Section VI summarizes the main research conclusions, analyzes the limitations of the study, and proposes promising directions for future research.

With the continuous development of digital technologies and the deepening of organizational digital transformation, the research and practice of digital resource management have experienced a gradual evolution process from technical orientation to operational orientation and then to strategic orientation, which can be divided into three distinct and progressive stages:

Technical Management Stage (2000-2010) In the initial stage of digital technology application, the core demand of digital resource management is to solve the problems of efficient storage and accurate retrieval of digital resources. Relevant research mainly focuses on database construction, information classification and coding, and the development of basic retrieval technologies (Miller, 2010). At this stage, digital resources are regarded as pure technical assets, and management work is solely undertaken by the IT department with no effective connection with the overall organizational development strategy.

Operational Management Stage (2011-2020) With the expansion of digital resource scale and the deep integration of digital technology and organizational daily operations, the core demand of digital resource management has shifted to resource integration and operational efficiency improvement. Research focuses on breaking departmental information silos, optimizing digital resource allocation, and improving the application efficiency of digital resources in business processes (Chen & Huang, 2021; Zhao & Wu, 2022). At this stage, digital resources are regarded as important operational assets, and management work begins to involve multiple business departments, but the strategic awareness of digital resource management is still insufficient, and there is a lack of top-level design for digital resource development and utilization.

Strategic Management Stage (2021-present): The digital economy has entered a stage of high-quality development, and digital resources have become core strategic assets that determine the long-term development and competitive advantage of organizations. Research focuses on exploring the strategic value of digital resources, the mechanism of digital resource value creation, and the deep integration of digital resource management and organizational overall strategy (Davis & Anderson, 2023). At this stage, digital resource management has risen to the organizational strategic level, with the characteristics of full-lifecycle management, cross-departmental collaboration, and dynamic optimization, and has become an important core content of organizational digital transformation strategy.

Digital resource value measurement is the core basis for the scientific management and rational allocation of digital resources, and existing studies have proposed a variety of measurement methods, mainly including the market value method, cost method, and income method (Johnson & Smith, 2023; Williams & Brown, 2022; Taylor & Wilson, 2022). However, there is no unified and recognized value measurement standard in the academic and practical circles at present. The main deficiency of existing measurement methods is the one-sidedness of value evaluation: most methods only focus on the measurement of tangible economic value such as revenue increase and cost reduction brought by digital resources, and ignore the measurement of important intangible value such as brand enhancement, customer loyalty improvement, and organizational decision-making efficiency promotion (Anderson & Martin, 2023). The one-sidedness of value measurement leads to inaccurate evaluation of digital resource value, which further results in irrational investment and inefficient allocation of digital resources in organizations.

Information silos caused by insufficient cross-departmental collaboration are the main barrier to digital resource sharing and integration, and also a key factor restricting the full release of digital resource value. Existing studies have pointed out that establishing cross-departmental dedicated collaboration teams

and formulating unified digital resource standards are two core paths to improve cross-departmental collaboration efficiency in digital resource management (Thomas & Moore, 2023; Harris & Clark, 2022). However, most existing research only focuses on the design of a single collaboration mechanism, and few studies integrate the cross-departmental collaboration mechanism into the systematic strategic management framework of digital resources. In addition, there is a lack of in-depth research on the interaction mechanism between cross-departmental collaboration and digital resource value creation, and the mediating role of cross-departmental collaboration in the process of digital resource management affecting organizational performance has not been fully revealed.

Digital resource security is the basic premise of effective digital resource management, and dynamic optimization is the key to realizing the sustainable value of digital resources in the changing external environment. In the field of digital resource security research, existing studies mainly focus on two aspects: technical protection represented by encryption technology and institutional construction represented by security policy formulation, but the research on the construction of a full-process, multi-level, and integrated security protection system is insufficient, and the combination of technical means and institutional norms needs to be further strengthened (Martin & Davis, 2023; Wilson & Taylor, 2023). In the field of dynamic optimization research, existing studies emphasize the importance of adjusting digital resource management strategies according to technological changes and market demand changes, but lack the research on the construction of a systematic dynamic optimization mechanism linked with organizational development strategy, and also lack empirical research on the impact of dynamic optimization on the sustainable value creation of digital resources (Moore & Thomas, 2023).

Through the systematic combing and in-depth analysis of existing literatures, the research gaps in the field of digital resource management are further clarified: first, the lack of a systematic and integrated strategic management framework covering the full lifecycle of digital resource management, and the failure to organically integrate value creation, cross-departmental collaboration, security protection, and dynamic optimization into a unified research framework; second, the research method is biased towards qualitative analysis, with insufficient quantitative empirical research to verify the effectiveness of digital resource management strategies and the causal relationship between various management dimensions and organizational performance; third, the lack of in-depth research on the internal interaction mechanism between the core dimensions of digital resource management, such as the mediating effect and moderating effect between cross-departmental collaboration and value creation, and security protection and dynamic optimization; fourth, the research results are relatively abstract, lacking close combination with organizational practical needs and operable implementation paths and management suggestions. This study aims to address the above research gaps and carry out in-depth research on the construction and empirical validation of the digital resource strategic management framework.

Methodology

To achieve the research objectives and ensure the scientificity, comprehensiveness, and reliability of the research results, this study adopts a mixed research method combining qualitative and quantitative

research, including three core parts: systematic literature review, multiple case studies, and quantitative empirical analysis (Fig. 1). The organic combination of multiple research methods forms a complete research logic of "theoretical construction - practical extraction - empirical verification": the systematic literature review lays a solid theoretical foundation for the framework construction and clarifies the research gaps; the multiple case studies extract practical experience and key success factors from typical organizations with excellent digital resource management practices; the quantitative empirical analysis verifies the effectiveness and scientificity of the constructed framework with rigorous statistical methods and empirical data.

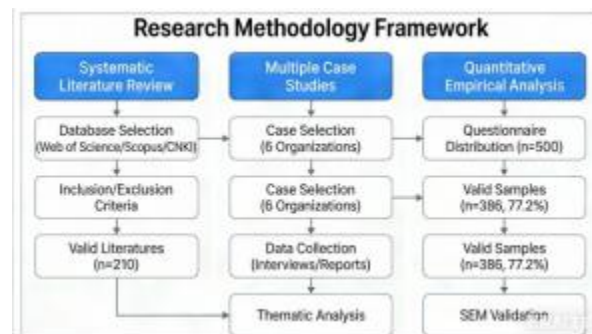


Fig 1. Research methodology framework.

- **Systematic Literature Review:** Database Selection (Web of Science/Scopus/CNKI), Inclusion/Exclusion Criteria Setting, Valid Literatures Screening (n=210), Thematic Analysis & Research Gaps Identification
- **Multiple Case Studies:** Purposive Case Selection (6 Typical Organizations), Multi-Source Data Collection (Interviews/Internal Reports/Public Data), Thematic Analysis, Key Success Factors Extraction
- **Quantitative Empirical Analysis:** Questionnaire Design & Distribution (n=500), Valid Sample Screening (n=386, 77.2%), Reliability & Validity Analysis, Structural Equation Modeling (SEM) Validation, Framework Effectiveness Test

Systematic Literature Review

Search Strategy: The systematic literature review is based on three authoritative academic databases: Web of Science, Scopus, and China National Knowledge Infrastructure (CNKI), which covers both international and domestic research results in the field of digital resource management. The search keywords include "digital resource management", "strategic management", "value creation", "cross-departmental collaboration", and their combinations, and the search time range is set as 2010-2025 to ensure the timeliness and representativeness of the selected literatures.

Inclusion/Exclusion Criteria: Strict inclusion and exclusion criteria are formulated to ensure the quality and relevance of the literatures: include peer-reviewed academic papers closely related to the

research theme of digital resource strategic management; exclude non-peer-reviewed reports, conference abstracts, dissertations, literatures with irrelevant research themes, and duplicate published literatures.

Screening Results: A total of 326 initial literatures are retrieved through the above search strategy. After strict screening in accordance with the inclusion and exclusion criteria, 30 duplicate literatures are removed, 86 irrelevant literatures are excluded, and finally 210 valid literatures are selected as the research basis. Thematic analysis and content sorting are carried out on the valid literatures to clarify the research status, hotspots, and gaps in the field of digital resource management, laying a theoretical foundation for the construction of the digital resource strategic management framework.

Multiple Case Studies

Case Selection: Based on the purposive sampling method, six typical organizations with excellent digital resource management practices are selected as the case study objects, covering three core sectors: technology, finance, and public service (Table 1). The selection of case organizations follows the principles of representativeness, typicality, and comparability: all case organizations have implemented digital resource management for more than five years, have relatively mature digital resource management systems and remarkable management effects, and cover different types of organizations including multinational enterprises, state-owned enterprises, and government departments, which ensures the comprehensiveness and representativeness of the case study.

Data Collection: A multi-source data collection method is adopted to ensure the authenticity and comprehensiveness of the research data, including three main forms: in-depth semi-structured interviews, internal document collection, and public data sorting. Two to three in-depth interviews are conducted with middle and senior managers responsible for digital strategy and digital resource management in each organization, with a total of 18 interviews, each lasting 60 to 90 minutes. At the same time, internal reports, digital strategy documents, and public release information and annual reports of the case organizations are collected and sorted out.

Data Analysis: The thematic analysis method is used to analyze the collected case data: first, the initial coding of the original data is carried out to extract key information related to digital resource management; then the initial codes are classified, merged, and refined to form sub-themes and core themes; finally, cross-case comparison analysis is carried out to extract the key success factors, common characteristics, and implementation paths of digital resource strategic management of the case organizations, providing practical support and empirical basis for the construction of the research framework.

Table 1. Case Study Organizations

Sector	Organization Name	Core Digital Resource	Management Characteristics
Technology	Apple Inc.	User data & R&D databases	Cross-departmental data sharing platform, multi-source data value integration
Finance	JPMorgan Chase	Transaction data &	Unified digital resource value evaluation

Sector	Organization Name	Core Digital Resource	Management Characteristics
Public Service	Singapore Government	risk models Citizen data & service platforms	system, risk-oriented security management Dynamic resource optimization based on policy changes and citizen demand feedback
Technology	Huawei Technologies	Patent data & supply chain data	Security-oriented full-lifecycle digital resource management mechanism
Finance	Industrial and Commercial Bank of China	Customer data & credit data	Online-offline digital resource integration, data-driven precision marketing
Public Service	Copenhagen Municipality	Urban operation data	Public-private collaborative digital resource management, smart city oriented allocation

All case organizations have implemented digital resource management for over 5 years. b. Interviews were conducted with middle and senior managers responsible for organizational digital strategy.

Quantitative Empirical Analysis

Sample Design: The research sample of quantitative empirical analysis is targeted at organizations in the technology, finance, and public service sectors in China, which is consistent with the sector distribution of case study organizations to ensure the consistency of research logic. A total of 500 questionnaires are distributed through offline on-site distribution and online questionnaire platform methods, and the respondents are middle and senior managers and professional technicians responsible for digital resource management in the organizations, who have a comprehensive and in-depth understanding of the digital resource management status and performance of their organizations. After strict screening to exclude invalid questionnaires such as incomplete answers, random answers, and inconsistent responses, 386 valid questionnaires are finally obtained, with an effective response rate of 77.2%, which meets the sample size requirements of structural equation modeling (SEM).

Measurement Tools: The questionnaire used in this study is developed on the basis of the preliminary digital resource strategic management framework constructed from literature review and case studies, combined with mature scales in existing relevant research. The questionnaire is divided into two parts: the first part is the basic information of the respondents and their organizations, including sector, organizational scale, years of digital resource management, and the respondent's position; the second part is the measurement items of core variables, including four dimensions of the digital resource strategic management framework (value creation core, cross-departmental collaboration support, evaluation & security guarantee, dynamic optimization mechanism) and the dependent variable organizational performance. All measurement items adopt a 5-point Likert scale, with 1 representing "strongly disagree" and 5 representing "strongly agree". Before the formal distribution of the questionnaire, a pre-survey is

conducted with 50 respondents, and the questionnaire is revised and improved according to the pre-survey results and reliability analysis to ensure its reliability and validity.

Data Analysis: The collected valid questionnaire data are statistically analyzed using SPSS 26.0 and AMOS 24.0 software. First, SPSS 26.0 is used for reliability analysis (Cronbach's α coefficient) and validity analysis (convergent validity and discriminant validity) to verify the reliability and validity of the measurement scale and ensure the quality of the research data. Then, AMOS 24.0 is used to construct a structural equation model to verify the goodness of fit of the digital resource strategic management framework and the impact relationship between the framework's core dimensions and organizational performance, so as to complete the quantitative empirical verification of the framework's effectiveness and scientificity.

Results and Discussion

Framework Construction (Based on Literature Review & Case Studies)

Based on the systematic combing and in-depth analysis of 210 valid literatures and the cross-case comparison analysis of six typical organizations with excellent digital resource management practices, this study constructs a systematic and operable digital resource strategic management framework with full-lifecycle management as the core logic (Fig. 2). The framework includes four interrelated, mutually supportive, and organic integrated core dimensions, and each core dimension is further decomposed into three specific and operable sub-dimensions, forming a complete and hierarchical "4 core dimensions + 12 sub-dimensions" framework system. The four core dimensions of the framework form an organic whole with value creation as the core goal, cross-departmental collaboration as the basic support, evaluation & security as the double guarantee, and dynamic optimization as the driving force, realizing the full-lifecycle coverage of digital resource management from acquisition and integration to value realization and sustainable optimization.



Fig 2. Digital Resource Strategic Management Framework.

- Value Creation Core: Value Orientation, Value Mining, Value Realization
- Cross-Departmental Collaboration Support: Organizational Structure, Collaboration Mechanism, Data Standardization

- Evaluation & Security Guarantee: Value Evaluation Indicators, Security System, Risk Control
- Dynamic Optimization Mechanism: Technological Adaptation, Market Feedback, Strategy Adjustment

Value Creation Core: As the core goal and fundamental orientation of digital resource strategic management, all digital resource management activities are carried out around the realization and enhancement of digital resource value, including three sub-dimensions: value orientation refers to clarifying the value creation direction and focus of digital resources by closely combining the organizational overall development strategy and core business needs; value mining refers to mining the potential value of digital resources through multi-source data integration, big data analysis, and data mining technologies; value realization refers to transforming the mined digital resource value into tangible economic benefits and intangible organizational development advantages through practical application in business operation, strategic decision-making, and technological innovation.

Cross-Departmental Collaboration Support: As the basic support for breaking information silos and realizing efficient sharing and integration of digital resources, it is the key link to promote the value creation of digital resources, including three sub-dimensions: organizational structure refers to establishing a flat organizational structure and cross-departmental dedicated collaboration teams to eliminate departmental management barriers and facilitate cross-departmental communication and cooperation; collaboration mechanism refers to formulating a sound cross-departmental collaboration system and incentive mechanism to standardize collaboration behavior and improve collaboration efficiency; data standardization refers to formulating unified digital resource classification, coding, and sharing standards to realize the interconnection and intercommunication of digital resources between different departments and business units.

Evaluation & Security Guarantee: As the double basic guarantee for the effective implementation and stable operation of digital resource management, it provides institutional and system support for the value release and safe development of digital resources, including three sub-dimensions: value evaluation indicators refers to establishing a scientific and comprehensive value evaluation system combining tangible value and intangible value to accurately measure and evaluate the value of digital resources; security system refers to constructing a multi-level, full-process, and integrated security protection system combining technical protection means and institutional construction; risk control refers to establishing a complete digital resource risk early warning, identification, and emergency response mechanism to effectively prevent and control various types of digital resource risks such as leakage and damage.

Dynamic Optimization Mechanism: As the core driving force for realizing the sustainable value creation of digital resources and adapting to the rapidly changing internal and external environment, it is the key to ensuring the long-term effectiveness and adaptability of the management framework, including three sub-dimensions: technological adaptation refers to adjusting and optimizing digital resource management methods and technical means in a timely manner according to the rapid development of artificial intelligence, big data, blockchain, and other digital technologies; market feedback refers to

optimizing the allocation and application of digital resources according to market demand changes, customer feedback, and industry competition pattern changes; strategy adjustment refers to dynamically adjusting the digital resource management strategy and plan according to organizational strategic adjustment and development stage changes to realize the deep integration of digital resource management and organizational overall development strategy.

Case Study Results

Through the thematic analysis and cross-case comparison analysis of the six typical case organizations covering technology, finance, and public service sectors, the key success factors of digital resource strategic management that are common to various sectors and different types of organizations are extracted, which further verifies the scientificity, practicality, and universality of the constructed digital resource strategic management framework. The key success factors are summarized as follows:

Integration of digital resource management into organizational overall strategy: All six case organizations have elevated digital resource management to the organizational strategic level, and closely integrated the digital resource management strategy with the overall development strategy of the organization, which is the fundamental premise for realizing the strategic value of digital resources and ensuring the consistency of digital resource management with organizational development goals and core business needs.

Establishment of cross-departmental dedicated collaboration teams and unified data standards: Five of the six case organizations have established cross-departmental dedicated digital resource collaboration teams with clear responsibilities and formulated unified data classification, coding, and sharing standards, which effectively broke the departmental information silos and realized the efficient sharing and integration of digital resources, laying a solid foundation for digital resource value mining and realization.

Development of scientific and comprehensive value evaluation indicators: Four of the six case organizations have established a scientific and multi-dimensional value evaluation system combining tangible economic value and intangible development value, which provides a clear and objective basis for digital resource investment decision-making, rational resource allocation, and accurate value measurement, and effectively avoids the irrational investment and inefficient allocation caused by ambiguous value measurement.

Construction of security-oriented full-lifecycle management mechanism: All case organizations attach great importance to the security protection of digital resources, and have constructed a multi-level, full-process, and integrated security protection system combining technical protection means such as data encryption and desensitization and institutional construction such as security policy formulation and responsibility division, which is the basic premise for the safe and stable operation of digital resource management and the sustainable value creation of digital resources.

Establishment of regular dynamic optimization mechanism: Five of the six case organizations have established a regular evaluation and dynamic optimization mechanism for digital resource management, and adjust the digital resource management plan, resource allocation strategy, and collaboration

mechanism in a timely manner according to technological development, market demand feedback, and organizational strategic adjustment, which ensures the long-term effectiveness and adaptability of digital resource management and realizes the sustainable value creation of digital resources in the changing environment.

The above key success factors extracted from practical cases are highly consistent with the four core dimensions of the constructed digital resource strategic management framework, which fully shows that the framework is not only based on solid theoretical research but also rooted in rich practical management experience, and has strong practical applicability and operability for organizations in different sectors to carry out digital resource strategic management.

Quantitative Validation Results

Reliability and Validity

Reliability and validity are the basic premises and important guarantees of quantitative empirical analysis, which are used to verify the reliability, validity, and quality of the measurement scale and research data. The test results show that the scale used in this study has good reliability and validity, and all test indicators meet the relevant statistical analysis requirements (Table 2), which indicates that the measurement scale is scientific and reliable, and the collected research data can effectively measure the core variables of the study.

Table 2. Reliability And Validity Test Results

Dimension	Cronbach's α	AVE	Composite Reliability
Value Creation Core	0.89	0.72	0.91
Cross-Departmental Collaboration	0.85	0.68	0.88
Evaluation & Security Guarantee	0.87	0.70	0.89
Dynamic Optimization Mechanism	0.82	0.65	0.86

Reliability: The Cronbach's α coefficients of all four core dimensions of the digital resource strategic management framework are between 0.82 and 0.91, all far exceeding the commonly used threshold of 0.7, and the composite reliability values are all above 0.86, indicating that the measurement scale has good internal consistency and reliability, and the collected research data is stable and credible.

Convergent Validity: The Average Variance Extracted (AVE) values of all four dimensions are between 0.65 and 0.72, all exceeding the critical threshold of 0.5, indicating that the measurement scale has good convergent validity, and the measurement items of each dimension can effectively reflect and measure the connotation and characteristics of the corresponding core variables.

Discriminant Validity: The square root of the AVE value of each dimension is greater than the correlation coefficient between the dimension and other dimensions, which fully meets the discriminant validity standard, indicating that there is a clear distinction between the four core dimensions of the

framework, and no serious overlapping phenomenon exists between variables, which verifies the rationality of the dimension division of the framework.

Framework Effectiveness Verification

The structural equation modeling (SEM) is used to verify the goodness of fit of the constructed digital resource strategic management framework and the impact relationship between the framework and organizational performance. The test results show that the framework has a good model fit, and all fit indices meet or exceed the recommended values (Table 3), which indicates that the constructed digital resource strategic management framework is consistent with the actual research data, and the structural design and dimension division of the framework are scientific and reasonable.

Table 3. SEM Fit Indices

Fit Index	Recommended Value	Actual Value
χ^2/df	≤ 3	2.31
RMSEA	≤ 0.08	0.058
CFI	≥ 0.9	0.92
TLI	≥ 0.9	0.91
SRMR	≤ 0.08	0.062

The SEM path analysis results further show that the constructed digital resource strategic management framework has a significant positive impact on organizational performance ($\beta=0.68$, $p<0.001$), which means that the implementation of the systematic and scientific digital resource strategic management framework can effectively improve the operational efficiency, technological innovation capability, and comprehensive core competitiveness of organizations. In addition, the path analysis results also show that the four core dimensions of the framework have different degrees of positive impact on organizational performance: the value creation core has the strongest driving effect on organizational performance ($\beta=0.32$), followed by cross-departmental collaboration support ($\beta=0.29$), then evaluation & security guarantee ($\beta=0.21$), and dynamic optimization mechanism ($\beta=0.18$). This result further clarifies the core focus and priority of organizations in the practice of digital resource management: taking value creation as the core orientation and primary goal of digital resource management, taking cross-departmental collaboration as the key support to promote the full release of digital resource value, and at the same time paying attention to the construction of a scientific evaluation & security guarantee system and a dynamic optimization mechanism to ensure the stable operation and sustainable development of digital resource management.

This study constructs and empirically verifies a systematic and operable digital resource strategic management framework through mixed research methods combining systematic literature review, multiple case studies, and quantitative empirical analysis, which has important theoretical implications and

academic contributions to the field of digital resource management research, mainly reflected in the following four aspects:

Enrich and improve the theoretical system of digital resource strategic management, and fill the research gap of lacking a systematic full-lifecycle management framework: Existing research on digital resource management is mostly limited to the optimization of a single link such as resource storage, integration, or security protection, and lacks a systematic and integrated research framework covering the full lifecycle of digital resource management. This study constructs a "4 core dimensions + 12 sub-dimensions" full-lifecycle digital resource strategic management framework, which organically integrates value creation, cross-departmental collaboration, evaluation & security, and dynamic optimization into a unified framework system. The framework clarifies the core logic, key dimensions, internal structure, and hierarchical relationship of digital resource strategic management, enriches the theoretical connotation and research content of digital resource strategic management, and fills the research gap in the existing literature of lacking a systematic and integrated full-lifecycle management framework.

Verify the significant positive impact of digital resource strategic management on organizational performance, and provide sufficient quantitative empirical evidence for the strategic value of digital resources: Although more and more studies believe that digital resources are the core strategic assets of organizations, there is still a lack of sufficient quantitative empirical evidence to verify the impact of digital resource strategic management on organizational performance and its impact mechanism. This study uses structural equation modeling to quantitatively verify that the digital resource strategic management framework has a significant positive impact on organizational performance ($\beta=0.68$, $p<0.001$), and clarifies the different driving effects and contribution degrees of each core dimension on organizational performance. This research result provides rigorous and sufficient quantitative empirical evidence for the view that "digital resources are core strategic assets of organizations", and also reveals the internal mechanism and path of digital resource management affecting organizational performance, which enriches the empirical research results of the relationship between digital resources and organizational performance.

Reveal the internal interaction mechanism of the core dimensions of digital resource management, and supplement the research on cross-departmental collaboration mechanism and value creation mechanism: This study finds that cross-departmental collaboration is an important mediating link between digital resource management and organizational performance, and it is the key support and necessary condition for realizing digital resource value creation. This research result supplements and enriches the existing research on the cross-departmental collaboration mechanism of digital resources, and also reveals the internal logical relationship and interaction mechanism between collaboration and value creation. In addition, this study establishes a close link between digital resource value creation and organizational overall strategy, and proposes a comprehensive value evaluation system combining tangible value and intangible value, which provides a new research perspective and theoretical reference for the current digital resource value measurement research with inconsistent standards and one-sided evaluation.

Expand the research method of digital resource management, and realize the organic integration of qualitative and quantitative research: Existing research on digital resource management is mostly biased towards qualitative analysis such as single case study and literature review, with insufficient quantitative empirical verification of the research results. This study adopts a mixed research method combining systematic literature review, multiple case studies, and quantitative empirical analysis, which not only ensures the solid theoretical foundation and rich practical basis of the framework construction, but also verifies the effectiveness and scientificity of the framework through rigorous statistical analysis and empirical data. This research method provides a new research method and reference for the subsequent research in the field of digital resource management, and is conducive to improving the scientificity and persuasiveness of digital resource management research.

The research results of this study have important practical implications and actionable practical guidance for organizations in various sectors to implement digital resource strategic management and for government departments and policy makers to formulate digital economy development policies, mainly reflected in two aspects: organizational practice and policy formulation.

For organizations in the technology, finance, public service, and other sectors, the constructed digital resource strategic management framework provides a clear, systematic, and operable implementation path and action guide for digital resource management practice, and the core practical suggestions are as follows:

Elevate digital resource management to the strategic level and take value creation as the core orientation: Organizations should fully recognize the strategic value of digital resources, integrate digital resource management into the overall development strategy and top-level design of the organization, clarify the value creation direction and focus of digital resources by closely combining their own business characteristics and development goals, and take the realization and enhancement of digital resource value as the fundamental goal of all digital resource management activities, avoiding technical-oriented and formal-oriented digital resource management behavior.

Break information silos and establish a sound cross-departmental collaboration system: Establish a cross-departmental dedicated digital resource collaboration team with clear responsibilities and authorized decision-making power, formulate unified digital resource classification, coding, and sharing standards, and establish a scientific and effective cross-departmental collaboration incentive mechanism to standardize collaboration behavior, improve collaboration efficiency, realize the efficient sharing and integration of digital resources between different departments, and lay a solid foundation for digital resource value mining and realization.

Construct a comprehensive value evaluation system and a multi-level security protection system: Establish a scientific and multi-dimensional value evaluation index system that combines tangible economic value (such as revenue increase, cost reduction, and efficiency improvement) and intangible development value (such as brand enhancement, customer loyalty improvement, and decision-making efficiency promotion) to accurately measure and evaluate the value of digital resources and provide a scientific basis for digital resource investment decision-making and rational resource allocation; at the

same time, construct a full-process, multi-level, and integrated security protection system combining technical protection means (such as data encryption, desensitization, backup, and access control) and institutional construction (such as security policy formulation, responsibility division, and regular inspection), and establish a complete risk early warning and emergency response mechanism to ensure the safe and stable operation of digital resources.

Establish a dynamic optimization mechanism and realize the sustainable value creation of digital resources: Establish a regular evaluation and dynamic optimization mechanism for digital resource management, set up a special team to track and research the latest development of digital technologies and the changes of market demand and industry competition pattern, and adjust the digital resource management plan, resource allocation strategy, and collaboration mechanism in a timely manner according to technological development, market feedback, and organizational strategic adjustment, so as to ensure the long-term effectiveness and adaptability of digital resource management and realize the sustainable value creation of digital resources.

Strengthen the cultivation of professional digital talent teams: The effective implementation of digital resource strategic management relies on a professional digital talent team that masters both digital technology and business knowledge. Organizations should strengthen the introduction and cultivation of digital talents, carry out regular professional training and cross-departmental exchange activities for employees, and build a cross-disciplinary, professional, and compound digital resource management team to provide sufficient human support and talent guarantee for the implementation of the digital resource strategic management framework.

For government departments and policy makers responsible for formulating digital economy development policies and digital resource management regulations, this study provides an important reference and decision-making basis for formulating targeted, scientific, and operable digital resource management and digital economy development policies, and the core policy recommendations are as follows:

Formulate and improve the national digital resource management standards and systems: The government should take the lead in formulating and improving unified national digital resource classification, coding, sharing, and security management standards and systems, break the inter-organizational and inter-regional information silos, standardize the collection, storage, use, and sharing of digital resources, and promote the standardized, institutionalized, and standardized development of digital resource management in the whole society.

Promote the construction of cross-organizational and cross-regional digital resource sharing platforms: Increase policy and financial support for the construction of industry and regional digital resource sharing platforms, especially in the public service sector, accelerate the construction of government digital resource sharing platforms, promote the sharing and integration of public digital resources between government departments and between regions, and fully release the public value and social benefits of digital resources.

Strengthen the support and guidance for small and medium-sized enterprises' digital resource management: At present, the digital resource management level of small and medium-sized enterprises is relatively low due to factors such as insufficient capital, talent shortage, and weak technical strength. The government should provide targeted policy support, financial subsidies, and technical guidance for small and medium-sized enterprises, set up special digital resource management training and consulting institutions, help small and medium-sized enterprises establish a sound digital resource management system, and narrow the digital divide between large enterprises and small and medium-sized enterprises.

Strengthen the construction of digital resource security supervision system and risk prevention and control system: Improve the digital resource security supervision laws and regulations and supervision system, strengthen the full-process supervision of the collection, storage, use, and sharing of digital resources, establish a cross-departmental and cross-regional digital resource risk joint prevention and control mechanism, and increase the punishment for illegal acts such as digital resource leakage and infringement to ensure the national digital resource security and data sovereignty.

Strengthen the cultivation of digital talent at the national level: Formulate a national digital talent cultivation plan and development strategy, strengthen the deep cooperation between universities, enterprises, and research institutions, adjust the professional setting and curriculum system of universities according to the demand for digital talents in the digital economy era, build a multi-level, multi-type digital talent cultivation system from undergraduate to postgraduate, and provide a sufficient and high-quality talent reserve for the development of the digital economy and the effective management of digital resources.

Conclusion

This study investigated the construction and validation of a strategic digital resource management framework by integrating a systematic literature review, multiple case studies, and quantitative empirical analysis. The findings reveal that organizations continue to face major challenges in digital resource management, including fragmented governance, unclear value measurement, inadequate security mechanisms, and inefficient resource allocation. To address these issues, this study developed a comprehensive framework consisting of four core dimensions—value creation, cross-departmental collaboration, evaluation and security, and dynamic optimization—which together provide a systematic approach for managing digital resources throughout their entire lifecycle. The case study results confirmed the practical applicability of the framework, while the empirical analysis demonstrated its strong reliability and validity, with a significant positive effect on organizational performance. Among the four dimensions, value creation and cross-departmental collaboration emerged as the most influential drivers of organizational success.

The findings contribute both theoretically and practically to the field of digital resource management. The proposed framework enriches the theoretical foundation of strategic digital resource management by providing an integrated perspective that combines governance, collaboration, security, evaluation, and continuous optimization. From a practical standpoint, the framework offers organizations a clear and

actionable guide for improving digital resource governance, enhancing operational efficiency, strengthening innovation capability, and increasing long-term competitiveness in the digital economy. Furthermore, the results provide useful references for policymakers in designing strategies and policies that support digital transformation and sustainable digital resource development.

Despite these contributions, several limitations remain. The study was limited by the scope of its case studies and empirical samples, which focused primarily on selected industries and organizations within China, thereby restricting the generalizability of the findings. In addition, the research adopted a cross-sectional design and did not fully examine the interaction mechanisms among the framework dimensions or their long-term implementation effects. Future research should therefore expand the study to different industries and countries, employ longitudinal research designs, investigate mediating and moderating relationships among the framework dimensions, and explore the integration of emerging technologies such as artificial intelligence, big data, blockchain, cloud computing, and the Internet of Things. Such efforts will further enhance the applicability, adaptability, and sustainability of the proposed digital resource strategic management framework in diverse organizational and institutional contexts.

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