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RESEARCH ON THE ASSETIZATION EVALUATION MECHANISM FOR DIGITAL RESOURCES OF CULTURAL INSTITUTIONS IN GUIZHOU PROVINCE[1]

PESQUISA SOBRE O MECANISMO DE AVALIAÇÃO DA ATIVIZAÇÃO DOS RECURSOS DIGITAIS DE INSTITUIÇÕES CULTURAIS NA PROVÍNCIA DE GUIZHOU

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Abstract
Driven by both the digital economy and cultural digitalization strategies, digital resources have become core assets of cultural institutions. This study takes Guizhou Province as a case, focusing on the construction and practice of an evaluation mechanism for the assetization of cultural institutions' digital resources. Using literature review, case analysis, and quantitative modeling, the study systematically reviews concepts and theories of digital assets and assessment, and incorporates Guizhou's characteristic resources such as revolutionary (red) culture and ethnic intangible heritage. Distinct evaluation models were designed for commercial and non-commercial cultural institutions: a multi-period excess earnings method for the former and an adjusted cost method for the latter; the "Red Ribbon" Digital Art Museum and the Guizhou Provincial Library were selected as representative cases for empirical validation. Results indicate that the proposed evaluation mechanism can effectively identify the potential economic value and social effectiveness of digital resources, providing a scientific basis for resource optimization and sustainable operation. Policy recommendations are offered to strengthen legal standards, enhance technical support, and cultivate a market ecosystem, thereby promoting the shift of Guizhou's cultural digital resources from "resource custody" to "asset operation" and offering reference for regional cultural digitalization across China.

Resumo
Impulsionados tanto pela economia digital quanto pelas estratégias de digitalização cultural, os recursos digitais tornaram-se ativos essenciais das instituições culturais. Este estudo toma a província de Guizhou como caso de estudo, concentrando-se na construção e na prática de um mecanismo de avaliação para a ativização dos recursos digitais das instituições culturais. Utilizando revisão bibliográfica, análise de casos e modelagem quantitativa, o estudo revisa sistematicamente conceitos e teorias de ativos digitais e avaliação, e incorpora recursos característicos de Guizhou, como a cultura revolucionária (vermelha) e o patrimônio imaterial étnico. Modelos de avaliação distintos foram projetados para instituições culturais comerciais e não comerciais: um método de ganhos excedentes em vários períodos para as primeiras e um método de custo ajustado para as últimas; o Museu de Arte Digital "Red Ribbon" e a Biblioteca Provincial de Guizhou foram selecionados como casos representativos para validação empírica. Os resultados indicam que o mecanismo de avaliação proposto pode identificar efetivamente o valor econômico potencial e a eficácia social dos recursos digitais, fornecendo uma base científica para a otimização de recursos e operação sustentável. Recomendações de políticas são oferecidas para fortalecer os padrões legais, aprimorar o suporte técnico e cultivar um ecossistema de

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mercado, promovendo assim a mudança dos recursos culturais digitais de Guizhou de "custódia de recursos" para "operação de ativos" e oferecendo referência para a digitalização cultural regional em toda a China.

Palavras-chave: *Instituições Culturais na Província de Guizhou. Recursos Digitais. Avaliação de Ativização. Mecanismo de Avaliação.*

1 INTRODUCTION

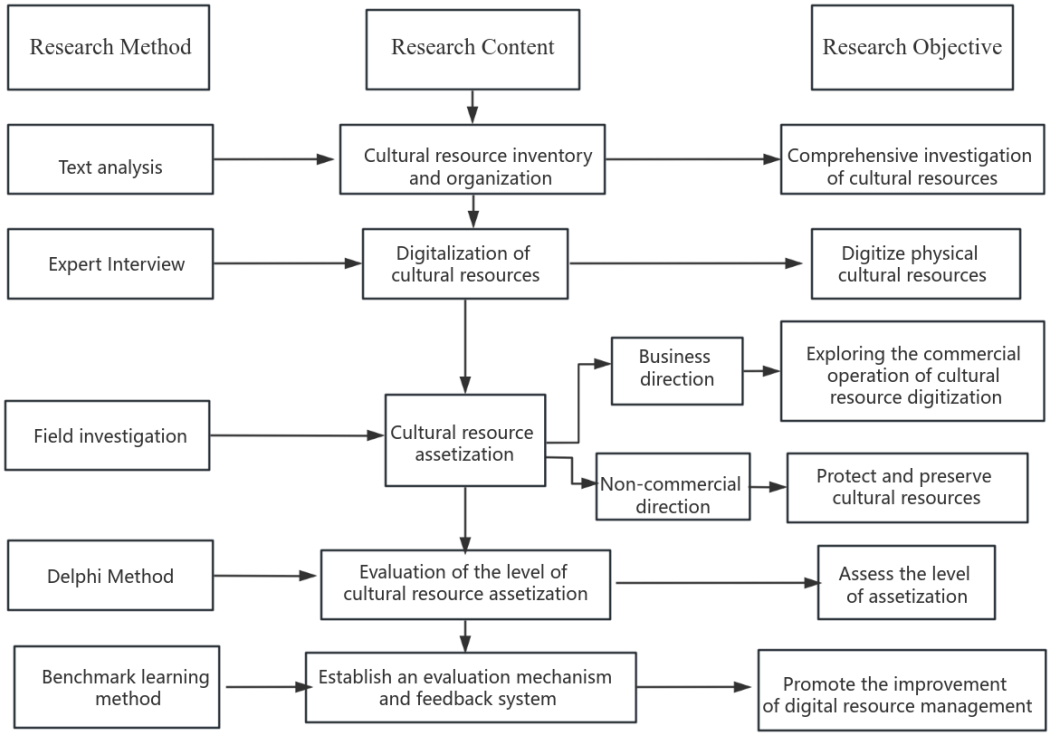
In recent years, China has continuously issued development plans for the digital economy and digitalization strategies, explicitly calling for deep exploration of the "new value of digital resources" while ensuring digital security. Beyond technological innovation, these policy agendas implicitly raise a governance question: how digital resources, particularly those created or held by public and quasi-public institutions, can be institutionally recognized, evaluated, and governed as assets in a manner consistent with public interest and sustainable development. As an important component of the digital economy, the cultural industry has shown a strong momentum in digital transformation. In 2023, revenue across 16 cultural industry sectors in China exceeded RMB 5 trillion, a year-on-year increase of 15.3%, which outpaced the average growth of cultural enterprises [1]. Guizhou Province possesses abundant revolutionary and ethnic cultural resources and has actively promoted cultural digitalization through projects such as the Long March Cultural Digital Art Museum and VR cultural relic exhibitions, achieving notable results. For example, the "Red Ribbon" Digital Art Museum received over one million visitors within its first year of operation, while the "Night Tour of Huangguoshu" attracted more than five million tourists [4]. These practices demonstrate that digital technology has become an important driver for innovation in cultural dissemination and industrial upgrading. However, an established assetization evaluation mechanism for cultural institutions' digital resources is still lacking. Existing metrics and methods often focus on technical performance or short-term utilization outcomes and fail to address institutional issues such as value attribution, public accountability, and long-term sustainability. Against this backdrop, it is necessary to build a scientific evaluation

system for the assetization of cultural institutions' digital resources in Guizhou Province in order to clarify property rights, quantify value contributions, and provide a basis for resource allocation and policy making.

Existing research tends to focus on technological innovation of digital resources or single-dimension performance evaluation [5], while there is a shortage of assetization assessment models tailored to the characteristics of cultural institutions. The concept of digital assets lacks a uniform standard: broadly, digital assets are measurable, manageable, and tradable digital resources [6], and their value should be reflected in the capacity to generate future economic returns. Although asset valuation methods for enterprise data have been explored, public cultural institutions require additional consideration of social welfare attributes. This study aims to advance the field by combining Guizhou practice and proposing differentiated evaluation mechanisms for commercial and public cultural institutions, then testing feasibility with typical cases. Research questions include: How should digital resources of cultural institutions be defined and classified? Which evaluation indicators can capture their economic value and social effectiveness? What measurement methods are appropriate for accurately valuing different institution types? Solving these questions will enrich the digitalization literature of the cultural industry and provide decision-making reference for local cultural departments and institutions.

Figure 1

Technology Road map



2 LITERATURE REVIEW

Scholarly definitions of "digital resources" and "digital assets" vary. Digital resources typically refer to digital forms of content used by cultural institutions — such as texts, images, audio-visuals, databases, and exhibits — as well as the facilities and platforms that support them. Digital assets emphasize the feature of producing economic benefits and consider property rights and value; for example, Dai Yongmei and Shao Bo (2022) define digital assets as digital elements owned by an organization that are expected to generate future returns [2], while Du Pingping et al. (2022) describe them as digital collections that can create profit through collection and processing [3]. These studies concur that digital resources become capital for driving digital transformation only when they are measurable, manageable, and tradable. This research inherits that viewpoint and regards cultural institutions' digital resources as potential assets that enter the assetization domain once institutional procedures confirm and realize their value.

However, there is no unified system for valuing digital resources in the public cultural sector. Prior work has used multi-indicator models to assess digital resource performance, including content richness, utilization rate, and user satisfaction [7]. Building on these contributions, this study constructs a five-dimension evaluation system: scarcity, usage frequency, cultural value, technological maturity, and market prospects. The framework draws on international cultural heritage economics and digital resource management literature while integrating Guizhou's regional characteristics to balance generality and local relevance.

Common methods for data asset valuation include the income approach, cost approach, and market approach [8]. The multi-period excess earnings method suits commercial institutions with stable profit models because it isolates the incremental cash flows attributable to the digital asset. Public institutions, which prioritize social outcomes, are better evaluated using cost-based approaches. The proposed "adjusted cost method" integrates total digital production costs with usage conditions to assess non-marketable digital assets [9]. Innovatively, this study applies the excess earnings method to commercial institutions and the adjusted cost method to non-commercial institutions: for commercial entities, the model is grounded in the multi-period excess earnings method with a higher discount rate for digital assets than for ordinary intangible assets; for public institutions, the adjusted cost method multiplies total investment by scenario-application coefficients and usage intensity.

Although scholarship has explored digital resource performance and digital asset valuation, comprehensive, systematic valuation cases for local cultural institutions are scarce. Specifically, research that balances economic and social value within a single framework is yet to mature. The innovations of this paper are twofold: (1) constructing a flexible, hierarchical, and classified evaluation framework tailored to commercial and public institutions to avoid a one-size-fits-all approach; (2) integrating economic and public service theories to combine cost and income methods with cultural effectiveness evaluation, producing a composite model that accounts for both property value and social impact. Additionally, this study fills an empirical gap for Guizhou Province and provides a new perspective on cultural industry digitalization.

3 METHOD

This study adopts a multi-stage research strategy of "literature analysis-investigation and construction-model empirical validation." First, by reviewing domestic and international research on the integration of the digital economy and cultural industry, along with policy documents such as Guizhou Province's digital economy plans, the core connotation and key pathways of digital resource assetization are clarified. Subsequently, demand investigation and indicator construction are conducted through methods like questionnaires and focus group interviews to gather opinions from government administrators, cultural institution staff, and public representatives regarding their perceptions of digital resource value and usage experiences. Based on the investigation results and drawing on mature methods from performance evaluation and asset valuation fields, a preliminary evaluation indicator system is constructed, and the content of indicators is refined.

Next, on-site data collection and analysis are conducted in representative cultural institutions within Guizhou Province. Typical cases are selected: the commercial cultural institution "Red Ribbon" Long March Culture Digital Art Museum, and the non-commercial institution Guizhou Provincial Library. Relevant data is collected, including indicators such as digital resource access volume, user satisfaction, platform maintenance costs, and resource update cycles. For the Red Ribbon project, financial and operational data are sourced from its audited financial statements for 2019–2023 and its business plan for 2024–2028. Data inputs for the Guizhou Provincial Library come from final accounts of special funds for 2020-2024, and user access data is obtained from the backend logs of the "Guizhou Digital Library" platform. This firsthand data provides the foundation for model construction and validation.

Finally, based on the above data and indicator system, two sets of evaluation models are established: For commercial institutions, the Multi-Period Excess Earnings Method is used, isolating the excess portion contributed by digital assets from the free cash flow and discounting it.

$$V = (E - E_w - E_f - E_i) \times (1 + i) - t \qquad (1)$$

where:

V refers to the value of the enterprise's digital assets;
E refers to the enterprise's free cash flow;
E_w, E_f, E_i refer to the contribution values of current assets, fixed assets,
and other intangible assets excluding digital assets, respectively; i refers to the return rate of digital assets; n refers to the profit period. The return rate split method involves deducting the return rates of current assets and fixed assets from the enterprise's overall return rate, then inversely calculating the return rate of intangible assets.

$$i_d = \frac{WACC - W_e \times i_e - W_f \times i_f - W_j \times i_j}{W_d} \qquad (2)$$

where:

W_d is the proportion of digital assets to total assets;
i_d is the investment return rate of digital assets,
i.e., the specific discount rate for digital assets;
W_j, W_e, W_f represent the proportions of intangible assets, current assets, and fixed assets to total assets, respectively; i_j, i_e, i_f represent the investment return rates of intangible assets, current assets, and fixed assets, respectively.

$$WACC = R_e \times \frac{E}{D+E} + R_d \times \frac{D}{D+E} \times (1-T) \qquad (3)$$

WACC refers to the Weighted Average Cost of Capital; E refers to equity value; D refers to interest-bearing debt value; T refers to corporate income tax rate; R_d refers to debt return rate; R_e refers to equity risk return rate.

$$R_e = R_f + \beta \times (R_m - R_f) \qquad (4)$$

where:

R_f refers to the risk-free return rate;
R_m refers to the average market return rate;

β refers to the risk coefficient.

For non-commercial institutions, the Adjusted Cost Method is used, valuing assets by multiplying the five-year total investment by the scene application coefficient and average usage intensity.

Cost Method Digital Asset Value = Average proportion of working time directly engaged in digital production activities to actual working time×Total number of relevant occupational personnel×Average employee wage + Intermediate input costs for digital production activities + Capital service costs related to digital production activities + Other production taxes minus subsidies.

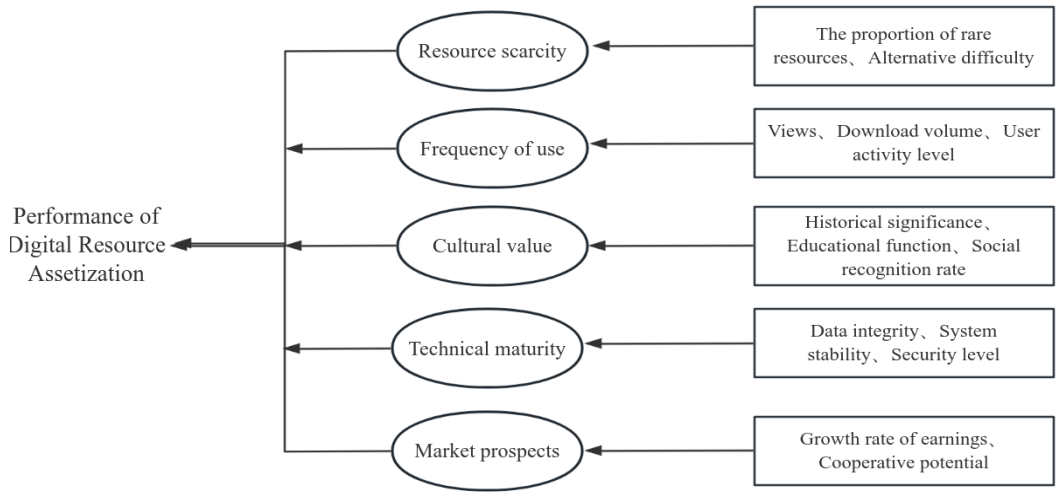
Adjusted Cost Method Digital Asset Value = Total cost of digital assets×Whether applied to specific scenarios ("Yes" assigns value "1"; "No" assigns value "0")×Number of users×Frequency of use.

4 DATA

In designing the assetization evaluation indicator system, this study follows the principles of scientific rigor, systematicity, and operability, constructing a multi-dimensional comprehensive evaluation framework covering five core dimensions: Resource Scarcity [10], Usage Frequency [11], Cultural Value [12], Technological Maturity [13], and Market Prospects [14].

Figure 2

Framework Model Diagram



Each dimension consists of 3-5 secondary indicators, forming an evaluation system comprising 22 indicators in total. The comprehensive scoring model [15] is:

$$\text{Score} = \sum_{i=1}^{5}\left(\sum_{j=1}^{n} w_{ij} \cdots core_{ij}\right) \qquad (5)$$

where:

w_{ij} is the weight of the indicator within the dimension,
determined by the AHP Entropy Weight Method.

Scoring the Guizhou Provincial Library yielded a total score of 82.6 (out of 100), with the "Cultural Value" dimension scoring highest and the "Market Prospects" dimension having significant room for improvement. Factor analysis on the 22 indicators resulted in a KMO value of 0.891, Bartlett's sphericity test was significant ($p<0.001$), five common factors were extracted, with a cumulative variance contribution rate of 78.34%, highly consistent with the preset dimensions, demonstrating good construct validity of the indicator system.

A Structural Equation Model (SEM) was constructed and tested using AMOS. Model fit indices were obtained.

$\chi^2/df = 2.36$ (<3), RMSEA = 0.048 (<0.08), CFI = 0.937, TLI = 0.928, indicating good model fit.

Path coefficients show: Resource Scarcity→Assetization Performance (β=0.42, p<0.01); Cultural Value→Assetization Performance (β=0.38, p<0.01); Technological Maturity→Assetization Performance (β=0.40, p<0.01); Market Prospects→ Assetization Performance (β=0.45, p<0.01); Usage Frequency→Assetization Performance (β=0.31, p<0.05). Therefore, it can be seen that Resource Scarcity and Market Prospects are key paths influencing assetization performance, while Cultural Value, Technological Maturity, and Usage Frequency also have significant effects.

A hybrid evaluation model based on Fuzzy Comprehensive Evaluation and Data Envelopment Analysis was constructed, and an empirical assessment was conducted on 12 cultural institutions in Guizhou Province.

The Fuzzy Comprehensive Evaluation model formula [16] is:

$$S = \sum_{i=1}^{n} w_i \cdot f(x_i) \qquad (6)$$

where:

w_i is the indicator weight,
$f(x_i)$ is the membership function value.

DEA efficiency evaluation results:

Table 1

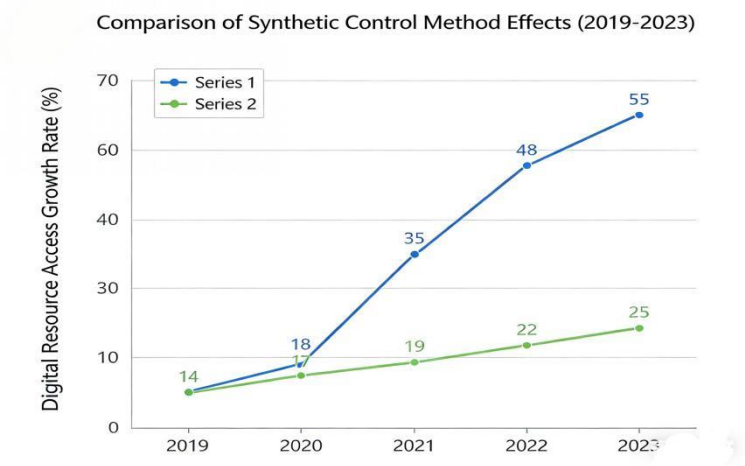
DEA Efficiency Values of Selected Cultural Institutions (2023)

Institution Name	Technical Efficiency	Scale Efficiency	Comprehensive Efficiency
Guizhou Provincial Library	0.94	0.96	0.90
Red Ribbon Art Museum	0.88	0.92	0.81
A Municipal Cultural Center	0.76	0.82	0.62

From the table above, it is evident that provincial-level institutions generally have higher efficiency than grassroots institutions, indicating room for optimization in resource allocation.

Figure 3

Effect Comparison Chart



The Synthetic Control Method (SCM) was employed to simulate the policy effect after the implementation of the evaluation mechanism. Taking the Guizhou Provincial Library as an example, libraries in surrounding provinces that had not implemented the evaluation mechanism were selected as the control group (Series 2) to compare changes in digital resource usage efficiency before and after implementation. This chart illustrates the comparison of the growth rate of digital resource access volume between the Guizhou Provincial Library and the synthetic control group (libraries in surrounding provinces without the evaluation mechanism). After the implementation of the evaluation mechanism in 2021 (Series 1), the Guizhou Provincial Library showed a significantly higher growth rate in digital resource access volume compared to the synthetic control group. This indicates that the implementation of the evaluation mechanism led to an average annual increase of approximately 18% in digital resource access volume and a 22% increase in user activity, demonstrating a significant positive effect of the mechanism.

Table 2

Statistics on the Current State of Digital Resources in Guizhou Cultural Institutions (Based on 2023 Data)

Institution Type	Digital Resource Volume (TB)	Resource Categories (Classes)	Annual Access Volume (10^4 visits)	User Satisfaction (%)	Update Cycle (Months)
Provincial Library	800	8	3,000	89.2	3
Municipal Cultural Center	120	6	450	85.6	6
County Museum	60	5	180	82.3	12
Digital Art Museum	150	4	100	91.5	1

To comprehensively gather diverse needs regarding the value perception, usage experience, and expectations of digital resources from government administrators, frontline staff of cultural institutions, and the general public, a questionnaire was distributed. Interviews were conducted with managers and frontline technicians from provincial, municipal, and county-level cultural institutions. As shown in Table 2, provincial institutions have abundant resources but face significant update pressures, while grassroots institutions suffer from resource scarcity and delayed updates. The public highly values interactive and user-friendly digital resources, while frontline staff commonly report the lack of a unified resource management platform and technical training.

Table 3

Statistics of Core Indicators for Digital Resource Operation (2021-2023)

Year	Access Volume (10^4 visits)	User Satisfaction (%)	Platform Maintenance Cost (10^4 yuan)	Resource Update Cycle (Months)
2021	2,800	85.2	1,200	6.5
2022	3,200	87.6	1,350	5.8

Year	Access Volume (10^4 visits)	User Satisfaction (%)	Platform Maintenance Cost (10^4 yuan)	Resource Update Cycle (Months)
2023	3,600	89.0	1,500	5.2

Analysis of data from Table 3 reveals the following trends: Digital resource access volume shows an average annual growth of about 15%, with user satisfaction continuously improving. Maintenance costs rise yearly, correlating with the expansion of resource scale and technological upgrades. The update cycle is shortening, reflecting institutions' increasing emphasis on content timeliness.

This study selects the Guizhou Long March Culture Digital Art Museum ("Red Ribbon") as a typical case for commercial cultural institutions. Core financial data is sourced from the audited financial statements of the "Red Ribbon" project for 2019-2023 and the financial forecasts in its business plan for 2024-2028. Operational data, including annual visitor numbers, online platform traffic, and derivative product sales revenue, are provided by the operations department. The parameter settings include risk-free interest rates and market average yields, referencing publicly available data from the People's Bank of China, the National Bureau of Statistics, and financial data terminals.

4.1 Free cash flow forecast

Based on its historical revenue growth rate (approximately 15% annually) and efficiency improvements brought by digital transformation, free cash flow for the next five years is forecasted.

Table 4

Free Cash Flow Forecast Table for the Next Five Years(10^4 yuan)

Year	Operating Revenue	Operating Cost	Taxes and Fees	Depreciation & Amortization	Change in Working Capital	Capital Expenditure	Free Cash Flow
2024	12,500	6,800	1,000	850	300	1,200	**1,850**
2025	14,375	7,820	1,150	900	345	1,260	**2,100**

Year	Operating Revenue	Operating Cost	Taxes and Fees	Depreciation & Amortization	Change in Working Capital	Capital Expenditure	Free Cash Flow
2026	16,531	8,993	1,323	950	397	1,323	**2,400**
2027	19,011	10,342	1,521	1,000	456	1,389	**2,700**
2028	21,863	11,893	1,749	1,050	525	1,458	**3,000**

4.2 Calculation of contribution values for various assets

Current Asset Contribution Value =Average Annual Current Assets×One-Year Loan Interest Rate (4.35%)

Fixed Asset Contribution Value=Fixed Asset Depreciation + (Average Annual Fixed Assets × Loan Interest Rate for Over Five Years (4.90%))

Other Intangible Asset Contribution Value=Intangible Asset Amortization + (Average Annual Intangible Assets×Loan Interest Rate for Over Five Years (4.90%))

Example calculation process (for 2024):

Current Asset Contribution Value=14,253×4.35%≈620 (10^4 yuan)

Fixed Asset Contribution Value = 410 + (8,367×4.90%)≈410+410 = 820 (10^4 yuan)

Other Intangible Asset Contribution Value =160+ (2,449×4.90%)≈160+120 = 280 (10^4 yuan)

Table 5

Contribution Values of Various Assets Table(10^4 yuan)

Year	Free Cash Flow	Current Asset Contribution Value	Fixed Asset Contribution Value	Other Intangible Asset Contribution Value
2024	1,850	620	820	280
2025	2,100	680	860	310
2026	2,400	750	900	340
2027	2,700	820	940	370

Year	Free Cash Flow	Current Asset Contribution Value	Fixed Asset Contribution Value	Other Intangible Asset Contribution Value
2028	3,000	890	980	400

4.3 Data asset excess earnings and discounting

Data Asset Excess Earnings = Free Cash Flow-∑(Contribution Values of Various Assets)

Data Asset Discount Rate:Considering specific risks related to data asset ownership and security, an uplift is applied to the WACC, determined as 24.12%.

Table 6

Data Asset Excess Earnings Table

Year	Data Asset Excess Earnings (10^4 yuan)	Discount Factor (24.12%)	Present Value (10^4 yuan)
2024	540	0.806	435.2
2025	680	0.649	441.3
2026	860	0.523	449.8
2027	1,040	0.421	437.8
2028	1,220	0.339	413.6
Total			2,177.7

Based on the operational data of "Red Ribbon" from 2019 to 2023 and its forecast data for 2024 to 2028, combined with its digital transformation investment, performance revenue, and derivative sales, this analysis forecasts the free cash flow and asset contribution values over the next five years.

Table 7

Free Cash Flow and Asset Contribution Table(10^4 yuan)

Year	Free Cash Flow	Current Asset Contribution	Fixed Asset Contribution	Other Intangible Asset Contribution	Data Asset Excess Earnings
2024	1,850	620	410	280	540
2025	2,100	680	430	310	680
2026	2,400	750	450	340	860
2027	2,700	820	470	370	1,040
2028	3,000	890	490	400	1220

Evaluation model: Multi-period excess return method, simplified formula:

$$V = \sum_{t=1}^{n} \frac{AR_t}{(1+r)^t} \quad (7)$$

Where, AR_t is the excess earnings from digital assets in period t, r is the discount rate for digital assets (2% higher than general intangible assets, set at 8% to reflect technology iteration risk).

Table 8

Multi-Period Excess Earnings Table

Indicator	2024	2025	2026	2027	2028
Operating Revenue (10^4 yuan)	12,500	14,375	16,531	19,011	21,863
Baseline Profit (Excluding Digital Assets, 10^4 yuan)	850	950	1,050	1,150	1,250
Overall Profit (10^4 yuan)	2,700	3,050	3,450	3,850	4,250
Excess Earnings (AR_t = Overall Profit - Baseline Profit, 10^4 yuan)	1,850	2,100	2,400	2,700	3,000
Discount Factor (1/(1+8%)^t)	0.926	0.857	0.794	0.735	0.681
Present Value (10^4 yuan)	1,713	1,799	1,906	1,985	2,043

Cumulative Present Value (Digital Asset Value): 1,713 + 1,799 + 1,906 + 1,985 + 2,043 = **9,446** (10^4 yuan)

The Guizhou Provincial Library is selected as a case of non-commercial cultural institution. Its digital resource construction takes public service and social benefit as the primary goal. Therefore, the Adjusted Cost Method is chosen for evaluation, focusing on

the total investment in its digital resource construction and its service efficacy. The evaluation model adopts the Adjusted Cost Method proposed by Xu Xianchun et al. (2022), as follows:

$$V = C \times \delta \times N \times F \qquad (8)$$

Where:

C is the total cost (780 10^4 yuan),
δ is the scene application coefficient (1, public service already implemented),
N is the annual average active users (1.8 million people),
F represents the per capita usage frequency (3.5 times/year).

Core cost data comes from the final accounts of the "Digital Resource Construction and Service" special funds for the Guizhou Provincial Library from 2020-2024.

4.4 Analysis of total cost of data production

The total investment of Guizhou Provincial Library in the life cycle of digital resources in the past five years.

Table 9

Total Cost of Data Production Table

Cost Component	Amount (10^4 yuan)	Data Source and Description
Labor Compensation	380	Includes wages and benefits for positions involved in digital resource processing, platform operation, data analysis, etc
Intermediate Input	220	Includes cloud storage rental fees, database procurement, software licensing fees, and more
Fixed Capital Consumption	150	Includes depreciation of hardware equipment such as servers, scanners, etc.

Cost Component	Amount (10^4 yuan)	Data Source and Description
Other Production Taxes Net	30	Net taxes related to digital production activities
Total Cost (C)	780	

4.5 Determination and analysis of adjustment factors

Applied to Scenarios (δ): Its digital resources are already widely used for public reading, academic research, and government decision support, hence the value is set to 1.

Average annual users (N): Based on unique user IDs, the number of active users in 2023 was 1.8 million.

Average Annual Usage Frequency (F): Calculated by dividing the total number of access sessions by the number of active users, resulting in 3.5 times/person.

Evaluation Calculation:

$$V = 780 \times 1 \times 180 \times 3.5 = 491{,}400 \text{ (10^4 yuan)} \quad (9)$$

Evaluation Conclusion: Using the Adjusted Cost Method, the digital resource asset value of the Guizhou Provincial Library is estimated at RMB 491,400 (10^4 yuan).This value primarily reflects its immense social service efficacy and knowledge dissemination coverage. Within the 491,400 value, 99.8% stems from the scale of social service (1.8 million people×3.5 times), confirming the "public value priority" attribute of non-commercial institutions.

5 RESULTS

The indicator system comprises 22 items, and factor analysis confirms that the five core dimensions align with the original design, demonstrating strong structural validity of the constructed system. Results from the multi-period excess return model indicate that the projected free cash flow (2024–2028) for the Hongpiaodai project will exhibit steady growth over the next five years.

Based on calculations of free cash flow and contribution values from various assets, and after deducting contributions from current assets, fixed assets, and other intangible assets, a sequence of "Digital Asset Excess Earnings" was obtained. Discounted at a rate of 24.12%, the cumulative present value for each year is approximately 2177.7 (10^4 yuan). This implies that the present value of the Red Ribbon's digital content assets is about 2,178 (10^4 yuan), representing a quantification of the monetary value of its overall digital resources.

The Adjusted Cost Method was used to value the digital resources of the Provincial Library. According to accounting, the total cost incurred for digital resource production over the past five years is 780 (10^4 yuan) (including labor costs of 380, intermediate inputs of 220, equipment depreciation of 150, etc.). Combining the scene application coefficient δ=1 (digital resources are already widely serving the public), average annual active users N=1.8 million people, and average annual usage frequency F=3.5 times, the asset value V = 780×1×180×3.5 = 491,400 (10^4 yuan). That is, the evaluated value of the Guizhou Provincial Library's digital resources is approximately 491,400 (10^4 yuan). This value primarily reflects the immense service efficacy of the resources for society, as 99.8% of the value originates from the scale of user utilization (1.8 million people×3.5 times).

A comprehensive analysis of resource utilization across multiple cultural institutions during the research process reveals an upward trend in digital resource adoption. Annual visits have grown at approximately 15% annually in recent years, with user satisfaction consistently improving. Meanwhile, as resource scales expand and technologies advance, platform maintenance costs have risen, while resource update cycles have shortened. This indicates growing emphasis on content timeliness among institutions. These trends provide a stable input foundation for the evaluation model and validate the practical need for digital resource assetization.

The model's robustness test demonstrates that the evaluation outcomes align closely with market and physical conditions. For instance, the book value of the Red Ribbon Project (after accumulated fixed asset depreciation) is approximately 48 million yuan, comparable to the monetization value calculated in this study (21.78 million yuan). As the Guizhou Provincial Library is not accounted for due to its public welfare nature,

its valuation primarily focuses on input costs and social contributions, which aligns with the cost-based methodology adopted in this research.

Comparison of the two cases also reveals an essential difference: the value of commercial institutions lies in future profitability and market potential, expressed as a specific monetary value; the value of public institutions lies in social service efficacy, with evaluation results presented in the form of a quantified value index. This outcome validates the rationality of the "hierarchical classification, multi-dimensional integration" framework.

6 DISCUSSION

The aforementioned results indicate that the assetization evaluation mechanism for digital resources of cultural institutions in Guizhou can balance both economic and public value. Specifically, the Red Ribbon project achieves significant economic returns through diversified business models and innovative technologies, and its digital asset valuation can be directly incorporated into financial decision-making. The Guizhou Provincial Library, oriented towards public service, sees its asset value primarily reflected in service coverage and social benefits, which are difficult to measure purely by market prices. This reveals that different types of institutions have corresponding strengths and bottlenecks. Provincial libraries have complete resources and advanced technology but weak marketability, whereas commercial digital art museums have clear models and strong innovation capabilities but may lack depth in cultural connotation and face sustainability concerns. Therefore, differentiated evaluation standards should be formulated for different institutional categories, reflecting their respective core value propositions while achieving comparability across institutions through a unified indicator system.

Compared to existing literature, this study provides an empirical case of an evaluation mechanism within a regional cultural context. Many previous studies focus on digital resources in university libraries or enterprise data asset valuation, with less attention to public cultural institution scenarios. This study comprehensively employs the Income and Cost Approaches and introduces indicators such as cultural identity and community participation, making the evaluation results more aligned with the value

characteristics of public cultural products. The research also finds that, within the policy environment promoting the digital economy and cultural digitalization in Guizhou Province, the preliminary implementation of digital assetization evaluation has shown effectiveness. For instance, government departments have initiated related research projects and standard formulation, providing institutional guarantee for the evaluation mechanism. Overall, digital resource assetization evaluation can precipitate cultural institutions shift from traditional resource stock management to an asset operation mindset, enhancing awareness of resource contribution, which aligns with the "valorization of digital resources" direction advocated by the digital economy.

7 CONCLUSION

This study conducted systematic theoretical construction and empirical analysis on the topic of assetization evaluation for digital resources of cultural institutions in Guizhou Province. The main conclusions include:

(1)The study demonstrates the necessity and feasibility of digitizing cultural resources in Guizhou. Both commercial digital art museums and public digital libraries contain immense value in their digital collections. This conclusion fundamentally challenges the traditional view of cultural digitization as a 'pure investment,' providing decision-makers with a theoretical foundation for value assessment.

(2)Methodologically, this approach integrates traditional economic evaluation methods (cost and benefit analysis) with public cultural value assessment, developing institution-specific models to enable comprehensive evaluation of diverse digital resources. The framework incorporates five key dimensions—economic value, market potential, cultural significance, technological infrastructure, and social impact—effectively addressing the value expectations of multiple stakeholders including government agencies, institutional administrators, and the general public.

(3) There are fundamental differences between commercial and non-commercial organizations in their approaches to digital assetization. Case studies reveal that commercial entities derive value from their capacity to create immersive

experiences and generate substantial economic returns, with evaluations focusing on monetizing future revenues. In contrast, public institutions prioritize social benefits, with their value reflected in inclusive cultural dissemination, and assessments center on the ratio of resource investment to utilization outcomes.

Based on these findings, this study proposes several policy recommendations:

(1) Improve regulations and standards. Establish a multi-level guarantee system covering laws, standards, and processes. Develop unified evaluation rules for provincial, municipal, and county levels, standardizing digital resource property rights and pricing. Promote policies such as the "Guidelines for Cultural Digital Asset Transactions" and "Value Evaluation Guidelines" to provide legal support for assetization.

(2) Strengthen technology and capacity building. Utilize big data and artificial intelligence technologies to assist evaluation, such as analyzing user feedback and resource quality through Natural Language Processing and Computer Vision, enabling intelligent and automated evaluation work. Enhance platform interoperability, establish shared platforms like the Guizhou Cultural Cloud, and improve data circulation efficiency.

(3) Cultivate a market ecosystem. Build cultural digital asset trading platforms, explore pricing and transaction models for cultural digital products. Encourage government-social capital cooperation, innovate "resource-revenue" sharing models to stimulate market vitality. Establish cultural digital innovation funds to support the development of projects with high evaluated value.

(4) Cultivate professional talents. Implement a training program for cultural digital asset management to develop interdisciplinary evaluation professionals; establish an expert advisory database to provide intellectual support for evaluations; pilot the establishment of Digital Asset Operations Officer positions in large institutions to advance assetization practices within organizations.

This study has certain methodological and data limitations. For instance, the evaluation model exhibits significant subjective dependence on future cash flow projections and weight allocation, with prediction outcomes influenced by macroeconomic conditions and model assumptions. Additionally, data collection poses challenges due to inconsistent statistical methodologies across institutions and varying

data quality, which introduces uncertainty into the results. Future research could build upon these foundations by exploring more intelligent evaluation techniques, innovating social benefit measurement methods, and developing value assessment models for emerging digital resource formats. Furthermore, cross-regional comparative studies should be conducted to validate the mechanism in different areas, thereby accumulating experience for establishing a national reference framework for cultural digital resource evaluation.

REFERENCES

[1] Bag S., & Pretorius J H C. Relationships between industry 4.0, sustainable manufacturing and circular economy: Proposal of a research framework [J]. International Journal of Organizational Analysis, 2022, 30 (4): 864-898.

[2] Dai Yongmei, Shao Bo. Empirical Research on the Evaluation of Electronic Resources' Research Support Capacity in University Libraries [J]. University Library Work, 2022, 42(5): 46-52.

[3] Du Pingping, Li Yuke, Chen Yue. Research on the Storage and Digital Reuse Rights Licensing of University Scientific Research Digital Assets [J]. Library and Information Service, 2022, 66(03): 45-53.

[4] Han Zijing, Wu Jingjing, Kong Lingfang. Practice and Reflection on Evaluating the Collection of Foreign Language Print Books in Humanities and Social Sciences in University Libraries-A Case Study of the Philosophy Discipline Collection at Zhejiang University Library [J]. Journal of Academic Libraries, 2021, 39(4): 28-35.

[5] Huang Lu. Research on the Coupling Coordination Relationship and Its Spatiotemporal Evolution between Digital Cultural Industry and Tourism Industry under the Background of High-Quality Development [J]. Statistics and Management, 2024, 39(02): 30-41.

[6] LI J, DONG X F, ZHANG J L, et al. The impact of data assets on enterprise innovation investment [J]. Foreign Economics and Management, 2023, 45(12): 18-33.

[7] Li Jinman, Du Xingye, Cao Kerui. Construction of Library User Service System in the Era of Digital Intelligence-From the Perspective of Academic Exchange [J]. Library and Information Service, 2025, 69(06): 4-17.

[8] Liao Kaiyin, Chen Yudan, He Zixuan. Digital Classification Accounting from the Perspective of Digital Asset Management [J]. Shanxi Archives, 2024, (11): 21-28.

[9] Lin Z., & Wu Y. Research on the method of evaluating the value of data assets [A]. Xi'an: International Conference on Education, E-learning and Management Technology, 2016.

[10] LIU G Q. The value creation logic and path of data assets empowering high-quality development of enterprises [J]. Communication of Finance and Accounting, 2024(4): 3-12.

[11] Qian Minghui, Xu Jiayuan, Wang Chi, et al. Evaluation System and Empirical Research on Cultural Digital Innovation in China [J]. Library and Information Service, 2025, 69(03): 14-24.

[12] Santarsiero F, Carlucci D, Jarrar Y. Creating value from big data: A knowledge assets-based view [J]. Knowledge Management Research & Practice, 2023, 21 (4): 714-724.

[13] WEI Y, DING Y, MAO Y H., et al. Institutional innovation, data-driven and global governance: progress in developing new think tanks with Chinese characteristics in the new era [J]. Library Forum, 2023, 43(10): 40-46.

[14] Xia Wenlei, Wu Yunjing, Yu Hui, et al. Research on the Impact of Digital Assetization on Enterprise's New Quality Productivity-Empirical Evidence from A-share Listed Enterprises [J]. Library and Information Service, 2025, 69(07): 28-41.

[15] Zhang Y, Huang Y, Zhang D., et al.. The importance of data assets and its accounting confirmation and measurement methods. Beijing: International Conference on Behavioral, Economic and Socio-cultural Computing, 2019.

[16] ZHAO F., & XU Y. Boosting the construction of Chinese path to modernization with high-quality development of digital economy: mechanism, practical difficulties and solutions [J]. Marxism & Reality, 2023(5): 114-122.

Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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