Original Research Article

Research on the application status and path of big data technology in asset evaluation

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Abstract: Under the wave of digital economy, the market-oriented allocation of data elements continues to advance, and asset evaluation, as an important support for the operation of the market economy, is facing a critical node in digital transformation. The traditional asset valuation model relies on limited samples and manual analysis, and has shortcomings such as prominent data barriers, long evaluation cycles, and subjective intervention risks. It is difficult to meet the current diversified, refined, and dynamic valuation needs, and the industry urgently needs to improve quality and efficiency. Big data technology, with its advantages of massive data processing and deep mining analysis, provides a new path for solving industry pain points and reconstructing evaluation systems. At present, although big data has made initial progress in the field of asset valuation, it still faces practical problems such as data compliance, technological adaptation, and talent shortage, and the systematic application path is not yet perfect. Based on this, this article is based on the actual situation of the industry, analyzes the current application status of big data technology, delves into existing bottlenecks, and explores scientifically feasible implementation paths, aiming to promote the digital upgrading of the asset appraisal industry, enhance the credibility and service efficiency of appraisal.

Keywords: big data technology; asset valuation; application status

1. Introduction

The current digital economy deeply penetrates various industries, with data elements becoming the core production factors. Asset evaluation, as a key link in market economy pricing, property rights trading, and state-owned asset supervision, faces many bottlenecks in traditional evaluation models. On the one hand, traditional evaluation relies on local samples and manual accounting, which leads to problems such as single data sources, lagging timeliness, and significant subjective bias. It is difficult to adapt to the market environment of massive transactions and dynamic fluctuations, and the accuracy and efficiency of evaluation urgently need to be improved; On the other hand, the complexity of evaluation scenarios such as real estate, enterprise value, and intangible assets has made the demand for comprehensive data support and quantitative analysis increasingly urgent.

2. Analysis of the current application status of big data technology in asset valuation

2.1. Overall progress of industry applications

With the deep integration of the digital economy and asset valuation industry, big data technology has moved from theoretical exploration to local practical operation, becoming the core lever for the digital transformation of the industry. From the perspective of industry layout, top domestic asset appraisal institutions have taken the lead in establishing big data appraisal systems, relying on cloud computing and data mining technologies to build exclusive appraisal databases, integrating multidimensional information such as market transactions, financial public opinion, and industry indicators, and significantly optimizing traditional appraisal processes; Although small and medium-sized institutions are limited by funding and technology and have not yet achieved full process digitization, they are gradually introducing basic data processing tools to replace some manual accounting processes, and the overall digitalization penetration rate of the industry is steadily increasing.

At the policy level, regulatory authorities have successively issued digital guidance documents for the intermediary service industry, encouraging evaluation agencies to rely on big data to improve evaluation fairness and promote industry standards to move towards intelligence and dataization. At the same time, data sharing platforms are gradually being established within the industry, breaking the data silo dilemma of a single institution, and the application scenarios of big data evaluation are constantly expanding. However, overall, industry applications are still in an unbalanced state, with a significant technological gap between top institutions and small and medium-sized institutions. A unified big data evaluation standard for the entire industry has not yet been formed, and technology implementation is still mainly based on pilot applications. Large scale promotion still needs to be promoted, which has become the core feature of current industry applications.

2.2. Implementation status of segmented scenario applications

Big data technology has achieved differentiated implementation in asset evaluation segmentation scenarios, with increasingly mature application models for different asset types, accurately solving evaluation pain points in various scenarios. In the field of real estate appraisal, big data applications are the most popular. Institutions integrate regional real estate transaction data, location supporting data, market supply and demand data, macroeconomic regulation data, and construct batch appraisal models to achieve rapid valuation of assets such as residential and commercial real estate, effectively solving the problems of insufficient sample size and lagging valuation in traditional appraisals. Some cities have already applied the results of big data real estate appraisal to scenarios such as tax valuation and property rights transactions.

In the context of enterprise value evaluation, evaluation agencies rely on big data to integrate multidimensional data such as financial data, industry prosperity, upstream and downstream supply chain information, market public opinion, etc., and combine machine learning algorithms to optimize income based and market based models to improve the accuracy of enterprise valuation. Especially for light asset enterprises and science and technology innovation enterprises, they can explore the implicit value overlooked by traditional evaluations. In terms of intangible asset evaluation, for non-standard assets such as patents, trademarks, and data assets, big data mining technology is used to analyze asset application scenarios, market revenue potential, and competitor comparisons, achieving quantitative valuation of intangible assets and compensating for the subjective and difficult quantification of traditional evaluations. In addition, in scenarios such as machine equipment and financial asset evaluation, big data is gradually being applied to asset traceability, value dynamic monitoring, and other aspects. However, the overall application depth is still not as deep as real estate and enterprise value evaluation, and further optimization is needed for scenario adaptation.

3. Optimization implementation path of big data technology in asset evaluation

3.1. Data system construction path: Creating a compliant and efficient data supply chain

Build a full process data governance system to address data silos and quality shortcomings. Firstly, establish a multi-source data collection channel, integrate government open data, market transaction data, and third-party public opinion data, establish an industry shared database, and break down data barriers through authorization mechanisms. Secondly, establish standardized data processing procedures, carry out data cleaning, verification, and desensitization work, strictly control the authenticity and timeliness of data, and eliminate redundant and distorted information. Finally, we will strictly adhere to the bottom line of data compliance, improve the full process control of data storage, use, and destruction, implement privacy protection requirements, balance data circulation efficiency and security risks, create a traceable and compliant data supply chain, and lay a solid data foundation for evaluation work.

3.2. Implementation path of technical applications: Building a framework for adaptability evaluation technology

Based on the characteristics of the asset appraisal industry, promote the deep adaptation of technology and business. Optimize the big data evaluation model, integrate machine learning and data mining algorithms with traditional cost, market, and revenue methods, design exclusive algorithms in accordance with industry standards, solve algorithm black box problems, and improve the interpretability of evaluation results. Build a hierarchical

technology platform, with top institutions building intelligent evaluation systems, and small and medium-sized institutions relying on cloud services to reduce costs and enhance computing power support. At the same time, establish a technology iteration mechanism, keep up with the pace of big data technology innovation, regularly optimize evaluation models, achieve dynamic upgrades, and ensure the practicality and stability of technology implementation.

3.3. Scene deep fusion path: Refining application solutions by domain

Customize differentiated application solutions for different asset types to enhance scenario adaptability. Real estate appraisal relies on massive transaction and location data to build batch valuation models, achieving dynamic and accurate pricing; Integrating financial, supply chain, and public opinion data for enterprise value assessment, optimizing the valuation logic of science and technology innovation enterprises and light asset enterprises; Intangible asset evaluation focuses on patents and data assets, explores market applications and revenue potential, and improves the quantitative valuation system. Establish a value dynamic monitoring mechanism for scenarios such as machinery and equipment, financial assets, etc., use big data to achieve asset traceability and risk warning, refine operational standards for each link, and promote the transformation of technology from shallow applications to deep empowerment.

3.4. Talent cultivation path: Building a composite professional team

Build a comprehensive talent cultivation system to fill the gaps in industry talent. Optimize course offerings at the university level, add interdisciplinary fields such as big data analysis and asset evaluation, and target the cultivation of versatile reserve talents. At the industry level, on-the-job training will be conducted to enhance the digital operational capabilities of existing evaluators through practical training in data skills and algorithm applications. Introduce high-end technical talents at the institutional level, establish evaluation and technical special teams, establish internal rotation and mentorship mechanisms, and strengthen cross disciplinary integration. At the same time, we will improve the talent incentive mechanism, encourage technological innovation and practical implementation, and build a professional team that understands evaluation and fine technology.

4. Conclusion

This article focuses on the application of big data technology in asset valuation and finds that the current industry's digital transformation has achieved initial results. The pilot application of top institutions has been implemented, and the advantages of empowering scenarios such as real estate and enterprise value have become prominent. However, there are still bottlenecks in the four levels of data, technology, talent, and system. Research has shown that building a compliant data supply chain, an adaptive technology framework, scenario specific application solutions, and a composite talent system are the core paths to promote technology implementation. With the triple guarantee of systems, risk control, and resources, they can effectively solve industry pain points.

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References

[1] Wu Yao. Tan Dongli. Valuation of Data Assets Based on Big Data Collaborative Asset Theory [J]. Business Observation, 2025, 11 (26): 37-43+47.

[2] Lv Ruyi. Research on Data Asset Evaluation and Disclosure: Opportunities and Response Strategies in the Digital Economy Era [J]. Business Observer, 2025, 11 (20): 70-73+77.

[3] Li Zhaoxiang, Mou Sirong, Wang Haozhong. Exploration of Enterprise Data Asset Evaluation and Value realization Path [J]. International Public Relations, 2025, (11): 157-159.

[4] Li Penghui, Wang Kai. Research on Risk Control of Data Asset Evaluation in Commercial Banks [J]. Henan Journal of Finance and Economics, 2025, 39 (03): 16-19.