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Research on the Construction of a Curriculum System of Asset Appraisal Major under the Background of Artificial Intelligence

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Abstract: The integration of artificial intelligence technology is reshaping the future of the asset valuation industry, and the efficiency and accuracy of asset valuation can be significantly improved through online data collection, intelligent conversion, and automated valuation of AI asset valuation systems. Due to the late start of asset appraisal majors in universities in China, the problem of the imperfect curriculum system of asset appraisal majors is gradually exposed. Colleges and universities must reform the current curriculum system, add more courses related to AI automatic valuation technology, add more practical content to help students master more evaluation methods, and cultivate new compound asset evaluation talents.

Keywords: Asset Valuation; AI Technology; Curriculum System.

1. Background

With the relentless advancement of artificial intelligence technology, the asset valuation industry is grappling with the challenges of technological transformation. The trend of AI-driven automatic valuation is compelling the sector to reassess its value assessment methodologies and business models. Traditionally, the asset valuation ecosystem has been linear, encompassing stages such as economic activities, project entrustment, project implementation, and project archiving. However, with the emergence of automatic valuation platforms, the asset valuation industry has embarked on a new phase of enhancing work efficiency. AI-based automatic valuation has already been capable of completing the assessment of certain projects and automatically generating valuation reports. Even with this, current academic curricula in asset valuation face issues such as disconnection from practical affairs, a dearth of practical courses, and imperfect related supporting courses. Therefore, this paper aims to provide a detailed exposition of the issues within the current asset valuation curriculum system and to propose reform initiatives.

2. Application of AI in the Industry

In 2021, the China Asset Appraisal Association released the "14th Five-Year Plan" Asset Appraisal Industry Development Plan, which pointed out that the following development goals should be achieved: the professional theoretical system of the asset appraisal industry should be improved and reflect the Chinese characteristics of Xi Jinping's new era; to achieve a rational hierarchy and enhanced quality within the asset appraisal industry's workforce; to solidify and deepen the professional positioning of asset appraisal while innovating and expanding its service domain; and to fundamentally establish an information system for the practice of asset appraisal, thereby improving the efficiency of professional practice. Currently, AI in automatic valuation technology has been widely integrated into the industry. By leveraging cutting-edge technologies such as the internet, big data, and AI, it is possible to conduct online collaborative pricing for various assets of a firm, achieve unified project management, seamless conversion of asset appraisal data, and automatically generate distributed appraisal reports, thus enabling comprehensive online asset evaluation for firms. Additionally, the technology possesses capabilities in big data automatic valuation and in-depth data mining and analysis. To date, over three thousand asset appraisal projects have benefited from this technology. The introduction of a digital platform has also facilitated the automated assignment of tasks within asset appraisal projects, significantly enhancing the efficiency of the appraisal work. Subsequent inspection results indicate that projects valued using AI have seen a marked improvement in accuracy. Furthermore, the incorporation of blockchain technology ensures that once data is uploaded to the platform, it cannot be tampered with or altered, effectively preventing fraud and other potential deceptive practices, thereby enhancing the objectivity and authenticity of asset appraisals.

2.1. AI-Optimized Asset Valuation Process

AI valuation technology has achieved a high degree of networking and intelligence in the asset valuation process. It constructs a financial assessment data conversion platform based on big data, an asset valuation industry database, and online valuation technology supported by multi-source data collection technology, achieving distributed data collection, historical case collation, data cleaning, and storage. This system can handle the valuation projects of various asset types, including real estate, used cars, machinery and equipment, land, etc. Utilizing big data and machine learning technologies, the AI valuation system can analyze market trends, historical transaction records, and related indicators to assess more accurate asset values in real-time.

AI valuation technology is not limited to the application of big data and artificial intelligence in automatic valuation; it is more akin to a complete industrial chain. In the upstream of the industry chain, technologies such as cloud survey, blockchain, facial recognition, GPS positioning, and handwriting recognition assist appraisers in collecting and

uploading data; downstream, AI technology automatically completes valuation and generates reports. The entire process minimizes human intervention to ensure the objectivity of the valuation. Therefore, the development of AI valuation technology poses higher demands on the professional capabilities of asset valuation professionals and also presents a significant challenge to the reform of the asset valuation major education system in current universities.

2.2. Application of AI Automatic Valuation in Data Asset Assessment

Encouraged by the rapid growth of data assets and favorable national digital policies, the asset valuation industry's need for value judgment and assessment of data assets is becoming increasingly urgent. The assessment of data assets has always been a complex task in the field of asset valuation, and the application of AI technology has brought breakthroughs to this area. AI can help automatically identify and classify a large amount of data assets, including structured, unstructured, and semi-structured data. Using machine learning algorithms and natural language processing technologies, AI can automatically identify and annotate data assets, significantly improving the efficiency and accuracy of identification.

When assessing the quality of data assets, AI can automatically identify anomalies and errors in the data through data mining and machine learning algorithms, assess data quality, and perform necessary repairs. For example, AI can use machine learning models to identify duplicates, missing values, and inconsistencies in the data, thereby enhancing data accuracy and reliability. In addition, AI algorithms can predict the future value and potential returns of data assets by analyzing historical data and industry trends, using deep learning models and forecasting algorithms to predict market trends and value growth of data assets,and providing decision support for enterprises.

In terms of risk management, AI technology can identify and manage potential risks in data assets, including data security and compliance risks. Through data mining and pattern recognition, AI can timely detect abnormal behaviors and potential threats in the data, strengthening data security and risk control. The application of AI in data asset assessment can not only improve the efficiency and accuracy of the assessment but also provide enterprises with more comprehensive data management and decision support, promoting the maximization of data asset value and the minimization of risk.

3. The Pain Points of the University Asset Appraisal Curriculum System

As a series of advanced information technologies such as artificial intelligence, big data, cloud computing, and blockchain integrate into asset valuation practices, the asset valuation industry has entered the era of "intelligent valuation," presenting new demands for professionals. Universities, as the primary channels for cultivating asset appraisal talents, must reform the current teaching system of the asset appraisal major to address the following pain points:

The current asset appraisal courses in universities lack focus on the latest valuation tools. In recent years, the development of artificial intelligence has grown exponentially, and AI-based automatic valuation technology has been widely applied in practical projects, completing thousands of valuation cases. Although some data collection still requires manual work, AI has demonstrated its capabilities in integrating financial statements, organizing historical cases, associating data, and drafting reports. AI valuation not only enhances the accuracy of valuations but also reduces human intervention through the application of blockchain technology, thereby strengthening the objectivity and authority of asset valuations. In the face of the industry's mature development, students in asset appraisal majors need to possess more professional knowledge, technical skills, and comprehensive qualities, understand the underlying logic and operational steps of AI automatic valuation, so that they can quickly master the operation methods of AI automatic valuation platforms after graduation.

The current asset appraisal courses in universities lack practical training for students. Undergraduate students often focus on theory during their studies, lacking targeted practical teaching, which makes it difficult to form a concrete valuation mindset. Some schools face issues with insufficient hardware facilities and teaching staff. Although some universities have introduced teaching software, these are often not updated in real-time and struggle to keep pace with industry development. The teaching content is broad but lacks depth, overemphasizing theoretical formulas and methods while neglecting the teaching of practical operations such as data collection and analysis. This results in students needing additional time to learn data collection and parameter understanding in actual work. During the data analysis phase, students often rely on fixed valuation templates, lacking the ability to make personalized judgments and adjustments for different valuation subjects, which affects their ability to quickly adapt to valuation work after graduation.

Furthermore, the theoretical teaching of asset appraisal in universities is mostly concentrated on traditional manufacturing enterprises. However, with economic development, the demand for asset valuation in finance, high-tech information technology, and internet enterprises is increasing. These new types of enterprises tend to operate with light assets, digital transformation, and high-leverage capital structures, making traditional cost-based valuation methods no longer applicable. Students need to master updated valuation methods to adapt to these changes. Especially in the field of real estate, due to rapid market development, the share of investment properties in enterprises is increasing year by year, and economic environment fluctuations lead to significant real estate price changes. Practitioners need to be proficient in market trends to avoid financial risks. Real estate appraisal teaching should include more case studies and industry analysis to help students understand the various factors affecting real estate prices and their interactions.

4. Constructing the Asset Appraisal Curriculum in the Era of Automated Valuation Trends

4.1. Theoretical Curriculum System

From the perspective of the foundational theory courses in asset appraisal, despite the relative maturity of AI valuation technology, students majoring in asset appraisal still need to engage in foundational theory courses such as accounting, auditing, financial management, and finance. Gaining knowledge in these foundational courses not only aids students in understanding the valuation process of asset

appraisal but also in recognizing the operational mechanisms of firms and the underlying logic of asset valuation. In the early stages of asset appraisal process preparation, appraisers must have a general understanding of the company and its industry, while also paying attention to the quality of the firm's accounting information and audit reports. During the enterprise value assessment, much of the data originates from the company's financial statements; if there are issues with the financial statements, the assessed enterprise value will be inaccurate. This demands that asset appraisal students possess a high level of financial literacy and understand related knowledge in auditing, accounting, and management to comprehend the situation of the enterprise and its industry, and to derive the necessary data for assessment.

As AI automated valuation continues to mature, students must acquire the skills to operate the AI valuation system, understand the formation process of the AI valuation system, learn to train the system, expand the internal database, and add different valuation models to address various valuation scenarios. Therefore, learning the foundational courses related to artificial intelligence is also crucial. These foundational courses can be broadly categorized into three types, providing the mathematical, programming, and algorithmic foundations necessary for understanding AI automated valuation. Advanced mathematics, linear algebra, probability theory, and mathematical statistics are the mathematical foundations in the field of AI, supporting the understanding of mathematical principles in machine learning algorithms. Python, widely used in the AI field, requires students to master its basic syntax and common libraries, providing a programming foundation for further learning. Machine learning offers the most fundamental algorithms in the field of AI, such as classification, regression, and clustering, forming the algorithmic basis for understanding and practicing more advanced AI technologies. Additionally, courses in data analysis and mining, and natural language processing also help students better master AI automated valuation technology. By learning data analysis and mining, students can master skills in data preprocessing and feature engineering, thereby providing high-quality data input for valuation models. When the valuation object involves textual data, knowledge of natural language processing becomes necessary.

Artificial Intelligence, as a rapidly evolving interdisciplinary field, requires a curriculum that balances depth (in-depth knowledge in specific areas) and breadth (basic knowledge in multiple AI subfields). The curriculum should not only teach theoretical knowledge but also emphasize the cultivation of practical skills. Students need to apply the knowledge they have learned through projects and experiments to solve real-world problems. In the current educational environment, due to the limited resources and time, universities may face challenges in providing comprehensive AI education. Nevertheless, fostering students' self-learning abilities and stimulating their enthusiasm for exploring AI is crucial for them to become future innovators. Universities can invite industry experts and scholars to share the latest industry trends and technological advancements; such activities can broaden students' horizons and stimulate their interest in in-depth AI learning. At the same time, universities should provide necessary learning resources, such as AI-related books in the library, online course subscriptions, and laboratory access, ensuring that students have sufficient materials and tools during their self-learning process.

In terms of asset appraisal specialized courses, universities typically set up multiple asset appraisal courses, including the basics of asset appraisal, real estate appraisal, intangible asset appraisal, and enterprise value appraisal. Considering the wide range of subjects, universities need to weigh the details in the selection of specialized courses, for example, by reducing courses on the valuation of machinery and equipment and increasing courses on enterprise value evaluation and intangible asset value evaluation. As an interdisciplinary and comprehensive course, asset appraisal covers a broad range of fields, and it is challenging for universities to set up specialized courses for each type of asset. Therefore, lectures can guide students to independently understand relevant knowledge. For instance, in China, there is a qualification examination for registered jewelry asset appraisers. Universities can hire teachers from art colleges or those with relevant qualifications to hold relevant lectures, attracting students interested in this examination to participate. With the gradual maturity of AI automated valuation, big data can easily match similar fixed assets, and due to the small functional differences between fixed assets of the same type, the value of similar data in the database is more accurate after using the comparative method. However, the future income brought by intangible assets is difficult to determine, requiring asset appraisers to make a professional judgment on the market environment and risk coefficient. Therefore, AI-automated valuation cannot be used in the evaluation of intangible assets, and professionals with relevant experience are still needed to participate in the valuation. Similarly, in fields such as jewelry, jade, antiques, calligraphy, and painting, although the database can match the valuation of similar items, AI cannot identify and quantify the authenticity, appearance, historical status, and artistic value of the items, so these industries still require professionals with relevant qualifications to complete the assessment.

4.2. AI-Automated Valuation Courses and Practical Training

Following the completion of theoretical courses, students are required to gain an in-depth understanding of AI-automated valuation technology and its operational methods. A blended teaching approach can be adopted, which involves learning theoretical knowledge and operational methods for half a semester, followed by practical training conducted in the school's digital education center or computer lab. In theoretical instruction, the principles, technical frameworks, application prospects, and usage methods of AI-automated valuation should be thoroughly introduced, supplemented by foundational courses in artificial intelligence. Institutions with the capacity may offer elective courses related to programming and artificial intelligence algorithms, such as Python and machine learning, to assist students in autonomously collecting and processing data, thereby laying a theoretical foundation for learning AI-automated valuation.

In practical teaching, universities should specifically offer a course titled "Asset Valuation Case Analysis" and engage professional asset valuation practitioners to elucidate the asset valuation process and key practical considerations. This course should place greater emphasis on learning practical content, with textbooks that include asset valuation reports from firms and related preparatory materials. Additionally, a variety of asset valuation cases should be introduced to help students comprehend the significance and objectives of asset

valuation. Given the relative maturity of current AI valuation technology, instructors should demonstrate the usage and process of the AI-automated valuation platform, guiding students to progressively complete each step of the asset valuation process. Finally, instructors can assign students to work in groups to use the asset valuation tools they have learned to complete a case valuation as the final exam, thereby reinforcing students' understanding of the asset valuation process. In practical teaching, students can analyze and judge the outcomes of AI evaluations, and compare the application of traditional asset valuation tools with AI-automated valuation within the same case, understanding the strengths and weaknesses of both methods by contrasting the differences in the final results.

5. Conclusion

At present, asset valuation courses in higher education are facing issues such as disconnection from practical work, lack of practical teaching, insufficient attention to technological updates, and an incomplete curriculum system. With the rapid development of artificial intelligence technology, especially its application in the field of asset valuation, systems based on AI for online data collection, processing, and automated valuation have been developed, significantly enhancing the efficiency and accuracy of asset valuation work. Therefore, asset valuation education must pay more attention to the development of the latest technologies, ensuring that students are proficient in AI-automated valuation technology upon graduation. To meet this challenge, higher education institutions need to reform their curricula, update existing course settings, integrate knowledge of artificial intelligence into theoretical teaching, and add elective courses such as programming, machine learning, and gemstone appraisal. In the practical teaching phase, educators should guide students to deeply understand the industry standards and operational processes of asset valuation and to proficiently use AI-automated valuation systems, including steps such as data collection, parameter configuration, automated valuation, and report writing. By integrating new technology into teaching and practice, students can smoothly transition from academic settings to professional workplaces. Additionally, universities should add relevant theoretical courses such as investment science and management for asset valuation students, cultivating them into comprehensive asset valuation professionals with a wide range of skills.

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