

Research on Data Asset Value Appraisal Methods for Internet Enterprises——Taking T Corporation as an Example

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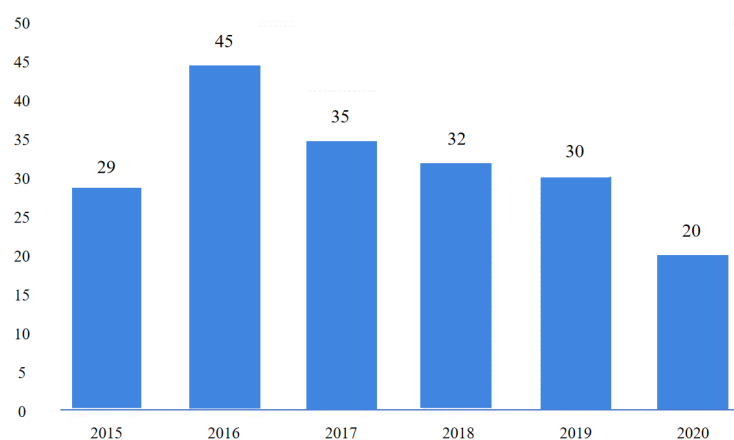
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Abstract: Internet enterprise data asset value assessment features large data scales, high quality requirements, data scarcity and uniqueness, and strong correlation among data, etc. Based on the characteristics of data asset value appraisal in Internet enterprises, in this paper, we analyzed the significance of carrying out data asset value appraisal. Combining with the current situation and problems of current data asset value appraisal of Internet enterprises, we propose a concrete method of conducting data asset value appraisal by taking T Corporation as an example. We also put forward specific methods for carrying out data asset value assessment. It also proposes that the specific situation and the characteristics of data assets in T Corporation would have an impact on the selection and operation of the appraisal method. Therefore, when conducting the assessment, it is necessary to fully understand the business model, data management capability, market competition environment, and other factors of T Corporation. Meanwhile, we should flexibly apply and adjust appraisal approaches in light of the actual situation to ensure the accuracy and credibility of the assessment results.

Keywords: Internet enterprises; data asset appraisal; T Corporation

1. Introduction

Ushering into the new development stage, data and digital technology have become the core driving forces of high-quality economic and social development. China's data factor marketization reform has entered the fast track of comprehensive promotion. As shown in Figure 1, among the top 100 Internet enterprises over the past year, at least 20% of the enterprises are new comers. The annual iteration rate of the top 100 enterprises climbed to its peak in 2016, reaching 45%, after which the iteration rate gradually slowed down.^[1] Now, the enterprise pattern tends to stabilize, and the development of Internet enterprises is facing a lot of opportunities and challenges. As competitions among industries are constantly strengthened, how to maintain the enterprises' competitive advantage, and find a foothold in the complex competitive environment have become a top priority for many Internet companies.



Data source: <https://bg.qianzhan.com/report/detail/c14a68e0cff74771.html?v=title0>

Figure 1: New Internet enterprises

Data is the new "profit source" for Internet enterprises to realize added value. Data plays a crucial

role in the future of Internet enterprises to realize sustainable and steady operation, so it is of great practical significance to study the method of data asset value appraisal for Internet enterprises. At the same time, it should be noted that when assessing the value of data assets of Internet enterprises, suitable methods should be selected according to specific situations, and the influence of data quality, privacy and security should be considered.[2]

2. Basic features of data asset value appraisal of Internet enterprises

2.1 Large data size and high quality requirements

Internet enterprises usually own massive amounts of data, including user information, transaction data, behavioral data, etc. The size of the data scale and the quality of the data, including the authenticity, accuracy and completeness of the data, should be considered during the appraisal process. At the same time, when assessing the value of data assets of Internet enterprises, attention should also be paid to the privacy and security of the data. The data asset value appraisal may be affected by data privacy leakage and data security risks. During the appraisal process, we should ensure the security of the data and compliance with relevant laws and regulations.[3]

2.2 Close correlation among data

The data of Internet enterprises usually feature relevance and diversity. On the one hand, the richness of data makes the data asset value appraisal carried out by Internet enterprises cover different types of information, such as text, images, videos and so on. In addition, since there may be correlations among data, patterns and laws hidden behind the data could be discovered through correlation analysis of the data. Thus, the diversity and correlation of data need to be taken into account when assessing the data so as to determine the overall value of the data (e.g., Figure 2)^[4]

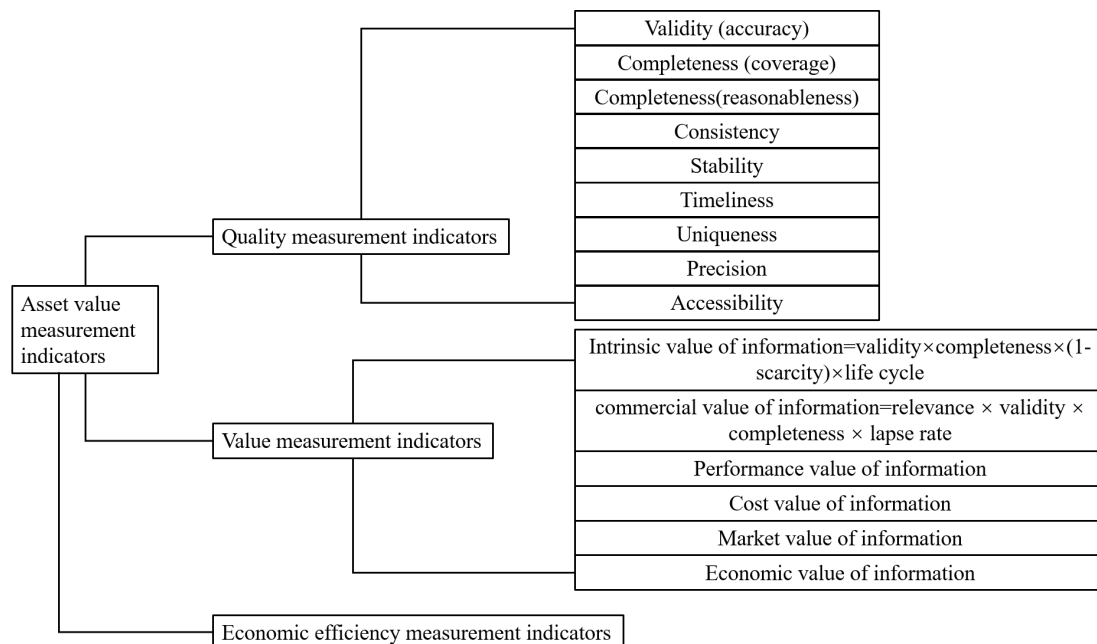


Figure 2: High correlation of data asset value

2.3 High data value and huge potential

The data in Internet enterprises often feature scarcity and uniqueness, and these data may be the source of the core competitiveness of the enterprises. During the appraisal, we should consider the scarcity of data, i.e., whether the same or similar data could be easily accessed, and the uniqueness of data, i.e., the extent to which the data contributes to the value of the enterprise. Therefore, when conducting the data value appraisal of an Internet enterprise, we also need to consider the sustainability and future potential of the data. Sustainability refers to whether the enterprise could continuously acquire, update and utilize the data to support its business development. Future potential refers to the expected

value of the data in the future development, such as the growth trend of the data and the potential business applications.

3. The significance of conducting data asset value appraisal for Internet enterprises

3.1 Providing a decision-making basis

Through the data asset value appraisal for Internet enterprises, a basis for decision-making could be provided. The assessment results could help enterprises understand the value of their own data assets, so that they could better allocate resources, formulate strategic planning and adjust decision-making. In addition, the decision-making basis provided by the data asset value appraisal could play the role of value transfer, i.e., data asset value appraisal for Internet enterprises could also provide shareholders, investors and partners with a strong proof of value.^[5] Meanwhile, the assessment results could be used as an important basis for disclosure of information so as to enhance the recognition of partners and investors on the value of the enterprise, which would further support the financing, cooperation and development of the enterprise.

3.2 Improving management efficiency

It is of great significance to carry out data asset value appraisal in the management of Internet enterprises. On the one hand, conducting data asset value appraisal could help asset management. Data assets of Internet enterprises are an important form of assets, and their value is increasingly important compared with traditional assets. By assessing the value of data assets, the enterprise could carry out asset management more effectively, including the collection, storage, analysis and utilization of data, so as to maximize the value of data assets. On the other hand, assessing the value of data assets of Internet enterprises could also help in risk management. An enterprise's data assets may face problems such as data leakage, security risks and compliance risks, etc. Through assessment, these risks could be identified and evaluated, and corresponding preventive and control measures could be taken to protect the value of the enterprise's data assets.

3.3 Enabling enterprise to discover its business value

The data of Internet enterprises often contains great commercial value. Through the assessment of data assets, it is possible to discover the business opportunities, user needs and potential market trends hidden in the data. The evaluation results could help enterprises discover new business models, and optimize products and services, thus enhancing their competitive advantages and promoting their sustainable development.

4. Problems in data asset value appraisal for Internet enterprises

4.1 Difficulties in ensuring the quality of assessment data

The data assets of Internet enterprises are usually huge and complex, containing drawbacks such as inaccurate, duplicated, missing or outdated data. During the assessment process, if the data quality problem is not effectively solved, the assessment results may deviate from the true value and affect the accuracy of decision-making. In addition, there is also the problem of value metrics in data asset value appraisal. The data assets of Internet enterprises are often immaterial, and their value is difficult to be quantified and measured directly. Assessors need to choose appropriate value measurement indicators and methods. However, there is a lack of unified standard and methodology, resulting in assessment results that may be subjective and uncertain. Finally, the protection of data privacy and security must be taken into account when conducting data asset value appraisal. Since Internet enterprises involve a large amount of users' data, users' trust and the corporation reputation would suffer serious impact if those data are leaked or improperly used during the evaluation process.

4.2 Rapid market changes

Since the Internet industry is developing rapidly and the market competition is fierce, user needs and technological innovation are constantly changing. Therefore, it is necessary to consider the changing factors of the market environment during the assessment process, otherwise, the assessment results may

not reflect the actual value of data assets in a timely manner. As a result, this poses a greater challenge to Internet enterprises. More specialized personnel are required to carry out data asset assessment, and relevant personnel to carry out data asset value appraisal need to own corresponding professional knowledge and skills. However, at present, there is a relative shortage of professional talents for data asset value appraisal in Internet enterprises, which might lead to improper method selection and inaccurate data analysis during the appraisal process.

5. Approaches of Data Asset Value Appraisal for T Corporation

5.1 Market Approach

The value of the appraisal object is determined by comparing it with the data assets of the same industry or similar enterprises. The basic idea of this approach is to find enterprises similar to the appraised enterprise in terms of scale, number of users, data quality, etc., and refer to their market capitalization, revenue, profit and other indicators to infer the value of the appraised enterprise. For T Corporation, when conducting data asset appraisal, we could find enterprises in the same industry and analyze the value of their data assets in the market. By referring to their market value, revenue, profit and other indicators, and comparing them with T Corporation, the market value of T Corporation's data assets could be initially inferred.^[6]

5.2 Income Approach

The income approach refers to assessing the value of data assets based on the economic benefits they bring to the enterprise. This method mainly considers the impact of data assets on the enterprise's revenue growth, cost savings and market share enhancement.^[7] The value of data assets could be derived by establishing a reasonable financial model, discounting and estimating the expected benefits. In the process of carrying out the data asset value appraisal of T Corporation, the data asset revenue model for T Corporation could be constructed to consider the economic benefits brought by the data assets to the enterprise. Besides, the value of the data assets of T Corporation could be derived by discounting and estimating the future cash flows based on the impact that the data assets could generate.

5.3 Cost Approach

Table 1: Comparison of different appraisal methods^[8]

	Core ideas	Strengths	Weakness	Methodological applicability
Cost approach	The value of the data is obtained by adding a reasonable profit to the cost of remanufacturing the data asset and subtracting the devaluation	Data metrics of the approach are relatively objective. The approach is easy for financial management and could be used to measure the cost of building data assets	The approach does not reflect the revenue that could be generated from data assets, and is not in line with the characteristics of data assets that can increase in value.	It is still reasonable at present, especially for data assets that have not yet formed the value of completed scenarios.
Income approach	Estimating the business benefits generated by data assets in the future by taking into account the time value of money, and summing up the benefits in each period to obtain the value of data	The approach could more accurately reflect the value and the profitability of data assets.	The amount of revenue is difficult to predict accurately and is subject to subjective judgment.	It is partially limited at present, as the excess revenue (or incremental revenue) that data assets could contribute under different scenarios could not be measured in a fully rational manner yet
Market approach	Data value is assessed based on the price at which the data is traded in the market, and corrected by differences among data characteristics.	The approach could reflect the current market situation of the asset and is more objective. It is easier to be accepted by both parties in a data transaction	The assessment of feasibility is affected by the availability of comparable transactions, i.e., there needs to be visible comparable transactions in the market, which is a strict market requirement	It is much limited at present due to restrictions on the activity level of transactions

The value of a data asset is assessed based on the cost required to acquire, process and maintain it. This includes the cost of data acquisition, storage and analysis, as well as the cost of data management and security. The core of the approach is to link the resources and costs invested by the enterprise to the characteristics and potential value of the data asset, and to consider its future development prospects in a comprehensive manner. We evaluated the costs required by T Corporation to acquire, process and maintain data assets, linked these costs to the characteristics and future prospects of T Corporation's data assets, and comprehensively considered their impact on the value of the data assets.(As shown in table

1)

5.4 Integrated Approach

A combination of valuation methods is used to increase the accuracy and credibility of the valuation results. This method could combine various approaches, such as market approach, income approach and cost approach, comprehensively consider the impact of different factors on the value of data assets and draw a comprehensive appraisal result. In the actual process of asset value appraisal, a variety of approaches could be comprehensively applied for assessment. By combining the results of different approaches, the impact of different factors on the data assets of T Corporation was weighed, and a comprehensive assessment result was drawn.

5.5 Conducting data quality assessment

In the process of carrying out data asset value assessment, the data assets of T Corporation are inventoried and reasonably categorized. Based on factors such as data type, source, and value, the data assets are divided into different categories, such as user data, market data, and operational data. Furthermore, quality assessment of the data assets for T Corporation was conducted, including data accuracy, completeness, consistency and other aspects. The quality of data could be assessed by methods such as comparing other trusted data sources or conducting sampling checks. (As shown in figure 3)

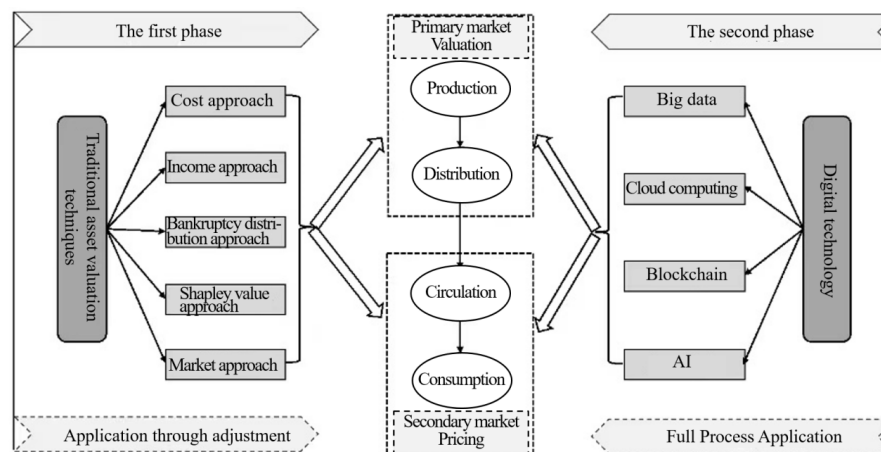


Figure 3: Application process of technical approaches for data asset value appraisal^[9]

6. Conclusion

Carrying out data asset value appraisal of Internet enterprises could be helpful in providing enterprises with a basis for decision-making, optimizing asset management, discovering business value, carrying out risk management, and conveying enterprise value. Although there are problems with data quality, value measurement, privacy and security, market changes, and professional talents in the current assessment of data asset value for Internet enterprises, we would be able to effectively improve the accuracy and credibility of the assessment by establishing unified assessment standards and approaches, strengthening data management and privacy protection, as well as cultivating more professional talents.

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