

Recognition and Measurement of Intangible Assets in the Technology Industry based on IFRS

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Abstract. With the intensification of competition among enterprises, the accuracy of intangible asset accounting has become an important indicator for evaluating the efficiency of enterprise cost management. Unlike traditional manufacturing enterprises, the technology and IT industries have a relatively large proportion of intangible assets, and changes in research and development expenditures can affect the strategic decisions of technology company management. Therefore, the correct accounting treatment of intangible assets is crucial for the sustainable development of technology companies. Currently, IFRS IAS38 specifies the accounting standards for intangible assets. However, due to the complex nature of intangible assets in technology companies and the unclear definition of capitalization in the research and development process, many technology companies need help in accounting for the scope, time, value, and other aspects of intangible assets. This article is based on the preparation of intangible assets under international accounting standards, elaborates on the theoretical basis behind the current practice of technology companies, analyzes the problems in the recognition and measurement of intangible assets in technology companies, and aims to improve the accurate understanding of international financial reporting standards and help enterprises improve the recognition and measurement of intangible assets.

Keywords: Intangible Assets; Technology & IT Industry; International Financial Reporting Standards.

1. Introduction

Major global economies are accelerating the deployment of technology development strategies, and R&D investment and expenditure continue to increase. Entering the digital economy era, intangible assets reflect the technological level and competitiveness of technology enterprises and create continuous profits for enterprises. Therefore, improving the accuracy of intangible asset accounting is immensely important for the evolution of the technology and IT industry.

Technological innovation capability often represents the industry competitiveness of enterprises, so many enterprises increase their research and development investment to achieve industrial upgrading. For example, according to its 2022 annual report, Huawei in China, its research and development investment reached 161.5 billion yuan. Huawei has invested more than 440 billion yuan in research and development funds in the past three years. The ranking of the top 10 intangible assets in the global technology and IT industry in 2022 is shown in Table 1. With the continuous increase in research and development investment and fierce brand competition, technology companies are constantly thinking about using intangible assets to create more wealth for them. How to accurately measure intangible assets is a key and difficult point in accounting for technology and IT firms.

Table 1. Top 10 Technology & IT Companies by Total Intangible Value in 2022.

Name	Total Intangible Value (USD bn)	Year On Year Change	Total Intangible Value/ Enterprise Value (USD bn)	Net Disclosed Intangibles (USD bn)	Disclosed Goodwill (USD bn)
Apple (US)	\$2,297	+22.8%	96%	\$0	\$0
Nvidia (US)	\$322	-9.8%	96%	\$3	\$4
Broadcom (US)	\$223	-0.6%	100%	\$11	\$43
TSMC (China)	\$219	-53.5%	69%	\$1	\$0
ASML (Netherlands)	\$188	-32.5%	97%	\$1	\$5
IBM (US)	\$174	-5.4%	103%	\$13	\$56
Accenture (Ireland)	\$167	+1.7%	94%	\$2	\$11
Honeywell (US)	\$139	-9.7%	95%	\$4	\$18
Texas Instruments (US)	\$138	-18.8%	93%	\$0	\$4
Qualcomm (US)	\$131	-13.9%	93%	\$1	\$7

Intangible assets, as a unique form of assets, are much more complex in accounting than tangible assets. The initial recognition rules for intangible assets under IAS38 are relatively simple, which "Identifiable non-monetary assets without physical form" is how the report users should define intangible assets. Generally speaking, intangible assets generated within a company cannot be capitalized because some companies find it difficult to determine the true beneficial value of the asset and cannot accurately calculate the specific costs attributable to the company's brand. However, this is also the reason for further revision of IAS38. Considering that certain intangible assets can bring future benefits to the enterprise, some costs that cannot be separated from the enterprise should also be certified, such as training costs and brands generated within the enterprise. The economic benefits caused by these parts cannot be ignored.

The intangible assets in the technology and IT industries are primarily generated internally by enterprises. During the research and development stage, enterprises often need help determining whether to classify capitalization or expensed correctly, and most technology development cycles are relatively long or even longer than estimated. In this case, the reliability of intangible asset information disclosed by technology companies has become a concern for many small and medium-sized investors. This article will focus on the problems that need to be solved in the accounting of intangible assets for technology and IT enterprises. Sorting out the confirmation, evaluation, and disclosure matters related to intangible assets it will provide countermeasures for current technology enterprises to solve the difficulties in intangible asset accounting. The aim is to help technology enterprises standardize the accounting of intangible assets and certify the legitimacy, completeness, and accuracy of business financial statements under IFRS regulations.

2. Overview of Intangible Assets in the Technology Industry

2.1. Recognition and Evaluation of Identifiable Intangible Assets

Patent rights, non-patent technologies, trademark rights, copyrights, land use rights, franchise rights, etc., are the most common types of identifiable intangible assets. If an enterprise purchases the intangible assets, they need to be accounted for at cost. If it is an intangible asset generated internally by the enterprise, it needs to be capitalized and expensed, and development expenses can only be included in the current profit and loss. The scope of intangible assets stipulated in the guidelines is slightly narrow for technology and IT enterprises with new economic characteristics. In addition to

the current regulations on intangible assets, it also includes customer lists and developed technologies, computer software, licenses, or franchise rights.

IFRS 3 stipulates the recognition principles for evaluating identifiable assets, where the purchaser recognizes and measures the identifiable assets obtained at their fair value on the purchase date. However, for most companies in the technology and IT industry, the intangible assets they need to handle are mostly the company's technological achievements. Danielsson Andreas and Lindblad Fredrik tested the relationship between intangible assets and company valuation, and research shows that when evaluating the reliability of intangible assets, investors pay more attention to the impact of accounting standards and company uncertainty [1]. In general, after a technology company's research and development process is completed, the R&D department will seek an evaluation agency to identify the results and determine the reasonable evaluation value. Mashdurohatun et al. pointed out that when assessing small and medium-sized businesses' intellectual property rights as credit guarantee items, evaluation agencies need to consider the future application prospects of intangible assets based on the obtained information of intangible assets, predict the future economic benefits of intangible assets, and provide feasible suggestions for enterprises to implement income method valuation [2]. Dancakov et al. constructed regression models between intangible assets of multiple listed companies and company valuation and found that even though intangible assets can reflect the company's operating conditions to a certain extent, the profitability index of the enterprise should still be used as the benchmark. The instability of intangible asset valuation exacerbates the uncertainty of enterprise valuation [3].

2.2. Capitalization Recognition of Research and Development Expenses

Due to the need for long-term technology research and development activities in the technology and IT industry, there are many differences in how technology corporations treat their R&D costs. IFRS stipulates that when considering capitalization of research and development costs, enterprises need to understand and demonstrate all of the following: the technical feasibility of completing the intangible asset to make it available for use or sale; Having the intention to complete the intangible asset and use or sell it; The ability to use or sell the intangible asset; How intangible assets generate potential future economic benefits. Among other things, the entity can prove the output of intangible assets or the existence of a market for intangible assets themselves, or if they are to be used internally, the usefulness of intangible assets can be demonstrated; Having sufficient technical, financial, and other resources to complete the development, use, or sale of the intangible asset; The expenditure attributable to the development stage of the intangible asset can be reliably measured.

IFRS clearly states that research costs in the income statement must be accounted for as expenses, as there is too much uncertainty in future economic benefits. For technology companies, research may include finding alternative products, processes, and systems to provide software or application solutions. Once a decision is made to capitalize development costs as intangible assets, the decision must be consistently applied, and application adjustments must be traced with significant justification and impact. Dennis Oswald et al. found that the choice of accounting methods can affect the amount of R&D investment of enterprises, and those using different accounting standards will recognize more R&D costs when converting to IFRS standards[4].

2.3. Measurement and Disclosure of Intangible Assets

Recognized intangible assets must be valued at replacement cost per IAS 38, and subsequent measures may be based on cost models or replacement cost valuation. Although IAS 38 does not mention which model can better reflect enterprise information in regulations, it points out that the revaluation model can only be used when active market asset transactions exist. Currently, most enterprises use the income method to measure intangible assets. However, this method cannot be used for computation when a particular technology is still in the early stages of development, and its intangible assets may not have economic benefits.

IAS 38 stipulates general guidelines for intangible asset disclosure in the notes to financial statements, requiring entities to differentiate between internally generated intangible assets and other intangible assets in financial statements and to disclose their useful lives (including uncertain useful lives), amortization methods, amortization amounts, etc. for each type of intangible asset. For research and development expenses, IAS 38 only requires entities to disclose the total amount of research and development expenses recognized as expenses in the current period and selectively describes those parts that cannot be determined in the notes. Currently, most companies in the industry record investments in intangible assets in the income statement, which can lead to confusion between other investment income and future income of the intangible asset [5]. The correct disclosure of intangible assets is also one of the "mandatory courses" in accounting for many enterprises. Andrew Lennard et al. evaluated the measurement practices of intangible assets under IFRS and considered the impact of double-entry accounting systems on the expression of intangible asset information. The study pointed out that considering the impact of the income statement is necessary to determine the accounting of intangible assets [6]. In summary, projects without physical form generated during the technology development process require more detailed explanation, like the components of technology companies' ongoing R&D initiatives and the portions that cannot be verified once the R&D is finished [7].

3. Judgment on the Accounting of Intangible Assets in the Technology Industry

Intangible assets are a key technology area, and IT enterprises develop to protect themselves. The research and development of related technologies in the technology and IT industry usually takes a long time, and its future benefits take time to measure accurately. This is also in line with intangible asset measurement's difficulty and intense subjectivity. The current problems technology and IT enterprises face in handling intangible assets are as follows.

3.1. Blindness in the Recognition of Intangible Assets

Technology companies' technology research and development and intellectual property rights are difficult to determine whether they will generate economic benefits in the future. Once the transformation of achievements fails, excessive costs will affect the company's profits, and the company's control over intangible assets will impact accounting recognition. Once recognized as intangible assets, it will inevitably affect the company's future value. The composition of important intangible assets in enterprises, such as human resources and information technology, cannot be quantified and reflected in financial statements. Therefore, it cannot be reasonably classified as intangible assets. In addition, for intangible assets with low comparability in certain industries, non-standard evaluation methods result in a higher valuation of the determined intangible assets. There is no unified standard for the evaluation of intangible assets, and blind assessment can lead to significant changes in the future value of the enterprise. Once the future returns of the achievement are not objective, the current excessively high valuation will bring considerable losses to small and medium-sized investors.

3.2. Unclear Capitalization Boundary of R&D Expenditure

The international financial reporting standards regulate R&D expenditures at a macro level, and some specific situations require companies to control themselves. For example, some technology companies may secretly conduct certain technological research, and the R&D expenditures generated at this stage may not be capitalized, which increases the risk of earnings management for enterprises. Under conditions where companies are not comparable, there is a certain degree of subjectivity in companies' regulation of capitalization conditions [8]. Once confirmed as intangible assets, there will be subsequent amortization issues. As the amortization of intangible assets does not specify the choice of the amortization method, the possibility of management using capitalization conditions for profit

adjustment will significantly increase. Therefore, investors will examine whether the enterprise has reliably expressed research and development expenses in its financial reports [9].

3.3. Disclosure of Intangible Assets

If intangible assets generated internally by technology enterprises do not meet relevant recognition standards, the enterprise will partially disclose the intangible assets [10]. In general, enterprises choose to leave the reasons for the failure of achievement recognition out of their financial reports or notes. When investors investigate the enterprise, they only see changes in investment expenses in the income statement. However, for technology projects that have already been developed, the process of capitalization or expensed changes must be more intuitively detected. In addition, technology companies currently need more detailed descriptions of intangible asset disclosure. Due to the abstract development process of some technologies, it is difficult for companies to prove the economic benefits that this intangible asset will bring in the future. This also indicates that some companies choose to avoid explaining the future profit model of this asset to the public and tend to present identifiable intangible assets in the form of final data in financial reports.

4. Conclusion

Although intangible assets do not have a physical form, they play a crucial role in cost control and decision-making adjustment for enterprises, especially in the technology and IT industry. Technological innovation is an essential area for enterprises to exert competitiveness. Through the accounting and evaluation of intangible assets, can help management adjust research and development strategies in a timely manner, effectively control the costs incurred by enterprises, and support clarifying the development direction of enterprises. The subjectivity of intangible assets is strong. With the continuous innovation of technology, technology, and IT enterprises still have some inherent difficulties in handling intangible assets. In response to this, this article proposes the following countermeasures:

Firstly, due to the inconsistent development status of different technology companies, the comparability of intangible asset treatment among many technology companies could be higher. When accounting for intangible assets, the principle of benefits exceeding costs should still be maintained. Technology companies should consider the true beneficiaries of this intangible asset and decide from different stakeholders' perspectives on how to value this intangible asset to maximize the company's benefits. In practical operation, there is a great deal of uncertainty in the R&D process of technology companies, and the true beneficiaries of this technology or software are the public. Therefore, when accounting for the most intangible assets, enterprises should try to consider the public interest as much as possible and choose accounting methods suitable for developing enterprise technology based on public accounting policies and regulations.

Furthermore, due to the generally high P/E ratio of technology companies, this also means that the net present value representing future growth opportunities for the enterprise is high, but this cannot directly translate into current considerable income. Since intangible assets have become an essential component of the technology industry strategy, the investment portfolio of enterprises will change over time. This also requires investors to consider more appropriate analytical methods for evaluating the future profitability potential of the project.

Secondly, according to financial accuracy requirements, research companies can disclose the expenses incurred during the research and development period in more detail in their financial reports and notes. If necessary, corresponding secondary accounts can be added and explained. For ongoing projects uncertain about whether they will be converted into "achievements" in the future, enterprises must make predictions annually throughout the project period. Suppose the project cannot be successfully converted into intangible assets. In that case, investors can clearly understand the project's progress in each fiscal year, reducing the risk of excessive expense. Suppose intangible assets that need to be evaluated are generated after the research and development of the project is

completed. In that case, the enterprise should evaluate them based on a reasonable outcome appraisal report and calculate them as the intangible asset's real market worth.

The revision of IFRS on intangible assets is ongoing, and the unique nature of intangible assets requires more comprehensive provisions in the standards. As a result, the regulatory function of asset evaluation institutions as third parties has been amplified. In addition to improving the enterprise's evaluation methods, asset evaluation institutions' evaluation system needs further improvement. Existing evaluation institutions should also increase their professional personnel for the technology and IT industry. For some technology companies that use traditional evaluation methods, third parties have not conducted a correct evaluation of the future operation and current economic development of the enterprise, and there are regulations on the future income time of some technologies, The evaluation agency should conduct more rigorous research and evaluation on technology transformation enterprises, which requires the participation of more personnel with higher professional qualifications. Modern intangible asset recognition and measurement's rationality and adaptability call for a strong sense of responsibility among professional institutions and enterprise personnel. Therefore, to fulfill the requirements of technological progress and innovation, the determination and measurement of intangible assets should be clearer.

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