Accounting and Corporate Management (2026)
Clausius Scientific Press, Canada

DOI: 10.23977/acccm.2026.080102
ISSN 2523-5788 Vol. 8 Num. 1

Research on Accounting Recognition and Measurement of Data Assets for Community E-commerce Companies: A Case Study of Xiaohongshu

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Keywords: Data Assets, Accounting Recognition, Accounting Measurement, Xiaohongshu

Abstract: Against the backdrop of market-based allocation of data elements, community e-commerce companies have accumulated vast data resources, raising urgent accounting recognition and measurement issues. This paper systematically examines the recognition criteria and measurement methods for data assets from a business model perspective. Using Xiaohongshu as a case study, it delves into the classification characteristics, recognition pathways, and measurement models of data assets in community e-commerce companies. Research indicates that community e-commerce companies should classify data assets into three categories—content data, transaction data, and operation-derived data—based on the ownership of control over data resources and differences in business models. During recognition, the feasibility of economic benefit inflow must be rigorously verified. For measurement, a hybrid system combining "historical cost as the foundation with present value as a supplement" should be established. Additionally, a subsequent measurement mechanism integrating accelerated amortization and dynamic impairment testing should be designed to address the time-sensitive nature of data.

1. Introduction

Amid the digital economy wave, data has evolved from a byproduct of production and operations into a core production factor driving value creation. The Opinions on Establishing a Data Governance Framework to Better Leverage the Role of Data as a Factor of Production, jointly issued by the CPC Central Committee and the State Council, explicitly calls for exploring new models for recognizing data assets on balance sheets. The implementation of the Interim Provisions on Accounting Treatment of Enterprise Data Resources by the Ministry of Finance provides preliminary institutional guidance for accounting for data assets. With the formal launch of the 15th Five-Year Plan in 2025, the digital economy has been elevated to a more prominent strategic position. The plan further emphasizes the need to "unlock the potential of data as an element, advance the assetization and market-based allocation of data assets," marking the entry of data governance and value realization into a phase of systematic advancement. However, compared to the increasingly central role of data elements in national strategy and industrial practice, current accounting standards for their recognition and measurement remain lagging. A significant amount

of high-value data resources have long remained outside financial statements, making it difficult for capital markets to accurately identify and evaluate the true asset structure and value creation capabilities of digital economy enterprises.

As a key business model in the digital economy that integrates social interaction with consumption conversion, community e-commerce employs a dual-engine model of "content community + transaction closed loop," generating a highly integrated and dynamically evolving data ecosystem. Platforms like Xiaohongshu (Little Red Book) not only accumulate social relationship and interest graph data formed by user-generated content but also aggregate consumption behavior data from e-commerce transaction chains. Furthermore, through intelligent algorithms, they continuously refine unique derivative data such as user intent recognition and content distribution efficiency during ongoing operations. These data resources exhibit strong scenario dependency, high value density, and significant time sensitivity, posing profound challenges to traditional accounting recognition and measurement frameworks rooted in industrial economics: At the recognition level, data production involves multiple stakeholders—users, platforms, merchants—with blurred control boundaries; at the measurement level, data value fluctuates rapidly with market conditions, technological iterations, and competitive dynamics, making its economic useful life and impairment indicators difficult to reliably determine.

Existing literature on data asset accounting primarily focuses on conceptual definitions and general recognition principles, lacking differentiated, scenario-based research for emerging models like community e-commerce. As Huang Shizhong et al. note, fundamental differences in business models dictate distinct logical pathways for data asset recognition, measurement, and reporting. Abstract frameworks detached from specific operational contexts struggle to guide complex practical applications [1]. The promulgation of the 15th Five-Year Plan (2025) and related supporting policies further calls for the accounting theory and practice communities to respond to the demands of digital economic development. This necessitates accelerating the construction of a system for accounting data assets that balances principle consistency with industry adaptability. Against this backdrop, this paper uses Xiaohongshu as a representative case study. It aims to provide micro-level evidence from cutting-edge business models to support the dynamic refinement of accounting standards, thereby facilitating the high-quality value realization of data elements under standardized governance.

2. Accounting Treatment of Data Assets

2.1 Definition and Characteristics of Data Assets

Defining the concept of data assets serves as the logical starting point for accounting treatment. Qin Rongsheng, drawing from the International Accounting Standards Board (IASB) Conceptual Framework, defines data assets as "current data resources controlled by an enterprise as a result of past events, with the potential to generate economic benefits for the enterprise." [2] This definition highlights two core characteristics—control and potential economic benefits—laying the theoretical foundation for accounting recognition of data assets. Hou Yanying further emphasizes, from an accounting perspective, that data assets should possess three attributes: clear ownership, measurability, and tradability. She describes them as "sustainable datasets and associated service capabilities owned and controlled by an enterprise, resistant to tampering, and capable of generating future economic benefits." [3] These two definitions collectively provide a basis for realizing the value and accounting measurement of data assets, reflecting how corporate resources are shifting from tangible to intangible forms during digital transformation.

Overall, the key characteristics distinguishing data assets from traditional assets are primarily manifested in the following aspects: First, non-physicality and replicability. Data incurs no physical

attrition and can be utilized simultaneously by multiple entities, presenting new challenges in defining ownership and allocating benefits. Second, time-sensitivity and value volatility. Data value may rapidly depreciate over time—such as short-lived trending content—or appreciate through algorithmic refinement and continuous accumulation, exemplified by user profiling data. Third, context dependency. The same data may exhibit significantly different values across different business contexts. When detached from specific application scenarios, its economic value often becomes difficult to objectively assess. These characteristics complicate the measurement and management of data assets, requiring enterprises to build dynamic evaluation systems and governance frameworks that integrate business objectives with technical capabilities in practice.

2.2 Recognition and Classification of Data Assets

The core of data asset recognition lies in determining whether data resources meet the definition and recognition criteria for assets. According to the "Basic Accounting Standards for Enterprises," a resource is recognized as an asset only when two conditions are simultaneously satisfied: the economic benefits associated with the resource are likely to flow into the enterprise, and the cost or value of the resource can be reliably measured. However, recognizing data assets faces practical challenges because not all of the vast amounts of data collected by enterprises possess asset attributes. Typically, only data resources that have undergone systematic cleaning, annotation, and analysis, and possess clear business application scenarios, are likely to meet the recognition criteria for assets. This screening process itself constitutes a critical step in the process of creating data assets.

The business model perspective proposed by Huang Shizhong et al. provides an effective analytical framework for classifying data assets. This framework identifies two primary categories of business models for utilizing data assets. The first is external sale-based, where value realization depends on transferring data ownership or usage rights. Based on the substance of the transaction, transferring ownership should be recognized as inventory, while granting usage rights should be recognized as intangible assets. The other is the internal utilization model, where data assets create value by empowering internal decision-making and optimizing business processes; such assets should be uniformly recognized as intangible assets.[1] This classification directly links accounting treatment to the path of realizing data's commercial value, offering significant practical guidance.

For community e-commerce companies, this classification framework requires refinement based on their dual-layer business structure integrating "community" and "e-commerce." In their study of Bilibili, He Mengqi et al. categorized platform data assets into three types: user-generated content data, professionally generated content data, and platform operation-derived data.[4] This classification method is equally applicable to platforms like Xiaohongshu. User-generated content—including notes, short videos, and comments—forms the core barrier and engagement foundation of its content community. Transaction data—such as product views, saves, and purchase records—directly supports e-commerce conversion and growth. Meanwhile, data assets derived from platform operations—like algorithmic models and user tagging systems—constitute the foundational technical capabilities enabling precise recommendations and efficient matching. These three data categories mutually empower each other, collectively forming the platform's complete value creation system.

2.3 Measurement of Data Assets

The measurement of data assets involves two stages: initial measurement and subsequent measurement. Its complexity primarily stems from the weak correlation between data value and costs. Simply adopting the historical cost measurement model used for traditional intangible assets

may significantly underestimate the true value of data assets. This is particularly evident in community e-commerce companies, where the substantial commercial value generated by their data assets often far exceeds the value-added costs invested in servers, bandwidth, and labor.

2.3.1 Initial Measurement of Data Assets

At the initial measurement stage, this paper proposes establishing a hybrid measurement system "based on historical cost with present value as a supplement," closely aligned with data asset classification and business models. Qin Rongsheng argues that for externally acquired data resources—such as third-party data interfaces or copyrighted content—the historical cost method remains a reliable choice due to its operational simplicity and verifiability [2]. For internally developed data assets, Zhang Xue et al. propose selecting measurement methods based on specific circumstances: fair value should be used if an active trading market exists; the present value of future cash flows method is more appropriate if the asset can independently generate sustained stable cash flows; and historical cost becomes the pragmatic choice if the asset is solely for internal use and future benefits are difficult to reliably estimate [5]. Xu Pan et al. further emphasize that before formally recognizing data assets on the balance sheet, rigorous cost aggregation and allocation must be completed. This involves using data lineage analysis technology to trace and reasonably allocate costs from data collection, cleaning, annotation, integration, and other stages to the final data product [6].

2.3.2 Subsequent Measurement of Data Assets

The core debate in subsequent measurement centers on whether data assets require amortization. Zeng Jiayu et al. argue that data possesses non-depletable characteristics, with its value potentially increasing rather than decreasing through use, thus advocating against amortization.[7] The iterative value and ecosystem-driven nature of value-generating data assets further supports this view. Such data assets often drive business AI-based inductive learning, spurring spontaneous iterative innovation in products and services. [8] Conversely, research by He Mengqi et al. emphasizes data's time-sensitivity, asserting that value decay is an objective phenomenon and advocating accelerated amortization to reflect this characteristic. [4]

This paper contends that a one-size-fits-all approach is inappropriate; instead, treatment should be differentiated based on the type of data assets: For data with defined lifecycles—such as trending topic content or short-term promotional data—straight-line or production-based amortization should be applied over the expected benefit period; For data assets with rapid technological iteration and high value volatility, such as recommendation algorithm models, amortization should be avoided. Instead, a regular impairment testing mechanism must be established to promptly reflect value reductions caused by technological obsolescence or regulatory policy changes. This differentiated approach better aligns with the dynamic value evolution patterns of data assets.

3. Case Study

3.1 Company Profile

Founded in 2013, Xiaohongshu began as a community platform primarily focused on overseas shopping experiences. After years of development, it has grown into one of China's most influential "community + e-commerce" platforms. Users share daily life experiences and consumption insights through text, images, and short videos, forming a vast content community that has progressively integrated a closed-loop transaction system from daily sharing to direct purchasing. Today, Xiaohongshu serves as a key hub for young people seeking lifestyle inspiration and making

consumption decisions.

3.2 Classification of Xiaohongshu's Data Assets

Xiaohongshu's data assets primarily fall into three categories: content ecosystem, user transactions, and platform derivatives. These data not only support internal operations and monetization but also unlock external value through licensing and analytics services. (See Table 1 for detailed classifications.)

Table 1: Xiaohongshu Data Asset Classification Table

Data Asset Types	Main Content	Asset Attributes
Content Data Assets	Short Videos Comments Bullet Comments	Intangible Assets
Transaction Data Assets	Favorites Wishlist Purchase History	Intangible Assets
Operation-derived Data Assets	User Profiles Search Index Hot Trends	Intangible Assets

3.3 Recognition of Xiaohongshu's Data Assets

The recognition of data assets typically involves three key stages: compliance-based rights confirmation, economic benefit assessment, and cost aggregation. [6] In practice, Xiaohongshu may adopt the following steps:

Regarding compliance and rights confirmation, the platform should clearly define the ownership of user-generated content usage rights based on its user agreement. It must obtain data processing authorization through a "notification-consent" mechanism compliant with the Personal Information Protection Law of the People's Republic of China to establish a system separating data resource ownership, processing rights, and product operation rights. For data rights arising from collaborations with brands and key opinion leaders, clear stipulations should be made through dedicated contracts to ensure explicit and lawful data ownership.

Regarding economic benefit assessment, data assets must demonstrate verifiable capacity for generating economic inflows. Taking Xiaohongshu as an example, its 2023 financial report shows advertising revenue accounts for over 80% of total income, primarily driven by the platform's precision in matching user profiles with content tag data. Simultaneously, the conversion efficiency of its e-commerce gross transaction volume is directly linked to the data quality of its recommendation algorithm models. This demonstrates that data resources can generate sustained, stable cash inflows through precision marketing and transaction commissions, satisfying the criteria for economic benefit recognition.

For cost aggregation, platforms are advised to adopt activity-based costing to address the practical challenge of separating data costs from operational expenses. Specifically, inputs related to data acquisition, processing, and governance can be allocated to corresponding data products based on data lineage. Among these, the cost of user-generated content data primarily manifests as allocated expenses for platform daily operations and maintenance, while the data cost of algorithm models should encompass expenditures meeting capitalization criteria during the R&D phase and computational resource investments consumed during training. This allocation method effectively supports the cost measurement and subsequent accounting treatment of data assets.

3.4 Measurement of Xiaohongshu's Data Assets

3.4.1 Initial Measurement

The initial measurement of Xiaohongshu's data assets should adopt a "layered classification" strategy, with the specific decision logic illustrated in Figure 1.

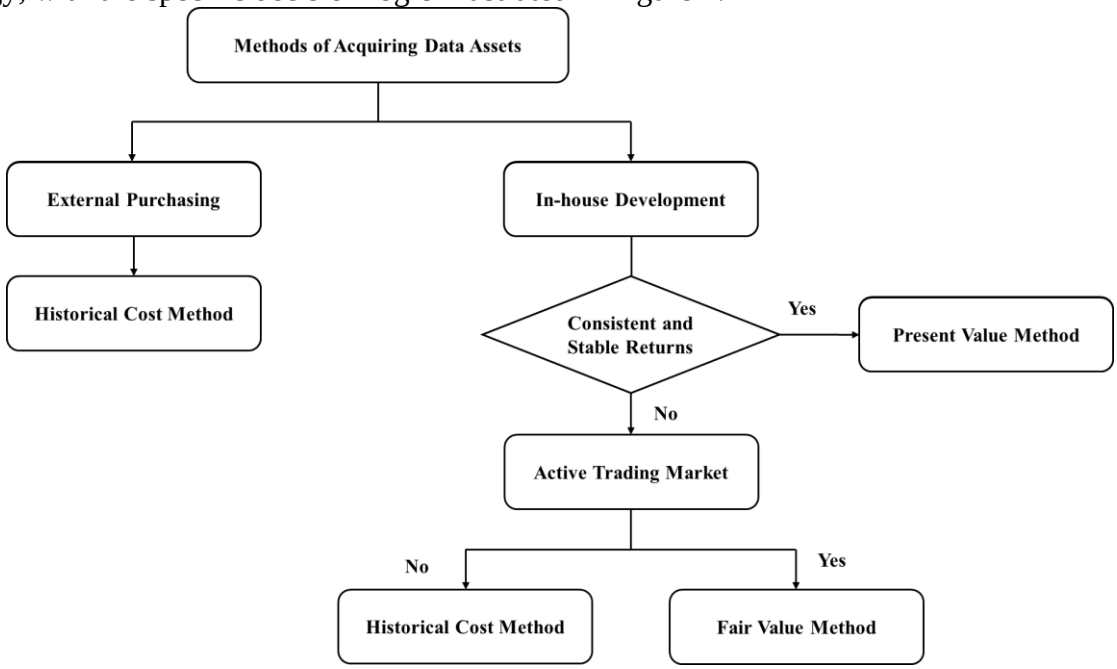

Figure 1: Selection Logic Diagram for Initial Measurement Methods of Xiaohongshu Data Assets

For externally purchased data resources, such as third-party market research data, the initial recorded cost should be the purchase price and related taxes. Accounting entries should be made by debiting "Intangible Assets—Data Assets" and crediting "Bank Deposits," among other accounts. Such data typically involves explicit contractual consideration and usage terms, making historical cost measurement reliable.

For internally developed data assets, distinctions must be made between research and development phases. Expenditures incurred during the research phase—such as exploring data application scenarios and conducting feasibility analyses—should be expensed and recognized in current period profit or loss. Conversely, expenditures meeting capitalization criteria during the development phase—e.g., investments in algorithm model training and data platform construction—should be capitalized. Specifically, for Xiaohongshu's self-developed recommendation algorithm model, its initial cost upon completion should include direct labor, server depreciation, and data annotation expenses incurred during development. If this algorithm model can independently generate revenue—such as by providing external recommendation engine services—and reliable quoted prices or comparable transaction examples exist in an active market, it may be measured at fair value. Conversely, if the model is solely for internal use and its future cash flows cannot be reliably estimated, historical cost measurement should continue.

For "by-product data" naturally accumulated during platform operations alongside user behavior—such as user profile tags—its cost includes only subsequent processing expenses, excluding the original user data collection costs. Such data assets are appropriately measured using the present value method. This involves discounting the expected future cash flows—such as incremental advertising revenue or transaction commissions—to their present value at an appropriate discount rate. The difference between this present value and the asset's carrying cost is

recognized as non-operating income.

3.4.2 Subsequent Measurement

The subsequent measurement of Xiaohongshu's data assets must balance their time-sensitive nature with the risks of technological iteration. A composite measurement approach combining amortization and impairment is recommended.

For content data assets, considering that trending topics typically have a lifespan of three to six months, their amortization should align with their benefit realization pattern. It is generally advised that the benefit period should not exceed five years. Specifically, highly time-sensitive content data (e.g., fashion, beauty) may employ accelerated amortization using the sum-of-the-years'-digits method. For knowledge-based or lifestyle content with enduring value, straight-line amortization over five years is appropriate.

Operational derivative data, including algorithmic models should not undergo systematic amortization due to frequent technological iterations requiring major upgrades every one to two years. Instead, impairment tests should be conducted annually. Impairment testing should employ the present value of future benefits method, comparing the asset's carrying amount with its recoverable amount. Impairment provisions should be recognized if significant declines occur in algorithmic recommendation accuracy, increased user churn reduces data's commercial value, or regulatory changes (e.g., data security policies) render portions of the data unusable.

Furthermore, subsequent expenditures on data assets must be distinguished between capitalization and expensing. Routine maintenance activities like tag refreshes and index updates, conducted to maintain data timeliness, should be expensed. Conversely, expenditures for major technological upgrades—such as enhancing algorithm capabilities or restructuring recommendation systems—should be capitalized into asset costs and subsequently measured as new or improved assets.

4. Conclusion

Based on the study of Xiaohongshu's platform practices, the following accounting framework for data assets can be established for community e-commerce companies: Companies should first classify data assets reasonably according to their business characteristics, completing asset recognition through robust compliance authorization and cost allocation mechanisms. For measurement, appropriate valuation methods should be selected based on data sources, usage scenarios, and value realization methods, while establishing subsequent measurement rules aligned with the data lifecycle.

The industry currently faces widespread challenges including difficulties in cost allocation, lack of unified standards for value assessment, and uncertainty regarding the lifespans of data assets. Therefore, it is recommended that relevant accounting standard-setting bodies promptly issue targeted guidance. Concurrently, enterprises should establish systematic data asset management systems, improve end-to-end management from cost allocation to value assessment, and enhance the quality and transparency of data asset-related accounting information through comprehensive disclosure.

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