Business Ecosystem Construction and Profit Model Analysis of Digital Music Platforms

Tong Haitao
School of Music,Wenzhou University ,Wenzhou,China

Abstract:With the rapid development of digital technology and the transformation of music consumption patterns, digital music platforms have become the core carriers of the music industry. Based on the business ecosystem theory and platform economy theory, this paper explores the construction of the business ecosystem of digital music platforms and their profit models.First, it analyzes the value chain of the digital music industry and its key participants, including content providers, platform operators, users, and third-party partners, revealing their collaborative mechanisms. Second, it systematically examines mainstream profit models such as subscription-based services, advertising revenue, digital album sales, and fan economy, while comparing the differentiated strategies of domestic and international platforms. Additionally, it explores the feasibility of emerging profit models such as blockchain, NFTs, and AI-generated music. This research provides theoretical insights and practical guidance for the sustainable development of digital music platforms.

Keywords: Digital Music Platforms; Business Ecosystem; Profit Model; Streaming Music; Copyright Economy

1. Introduction

In recent years, the global music industry has undergone a transformation from physical records to digital streaming, with digital music platforms becoming the primary channel for music consumption. According to data from the International Federation of the Phonographic Industry (IFPI), streaming music accounted for 67% of the industry's total revenue in 2022, with the market continuing to expand. However, while platforms are growing rapidly, they also face challenges such as high copyright costs, low user payment conversion rates, and homogenized competition. How to build a healthy business ecosystem and explore sustainable profit models has become a core issue in the industry[1].

Based on business ecosystem theory, this paper analyzes the structure, key participants, and collaborative mechanisms of digital music platforms. It systematically reviews profit models and explores the impact of emerging technologies (e.g., blockchain, AI) on business models. By comparing domestic and international case studies, it summarizes industry challenges and proposes optimization strategies, aiming to provide theoretical support and practical references for the long-term development of digital music platforms.

2. Theoretical Foundations of Digital Music Platform Business Ecosystems

The construction of the business ecosystem of digital music platforms is grounded in the intersection of multiple economic and management theories, with platform economy theory and business ecosystem theory forming the core framework. Platform economy theory reveals the essential characteristic of digital music platforms as two-sided markets, where value creation occurs by connecting content providers (musicians, copyright holders) and consumers (users)[2]. This theory emphasizes the critical role of network effects: the growth of the user base enhances the platform's appeal to content providers, while the richness of high-quality content in turn boosts user retention, creating a positive feedback loop. The multi-sided platform pricing model proposed by Rochet and Tirole further explains the platform's subsidy strategies, such as the freemium model where advertising revenue subsidizes free users, while premium subscription services enable tiered monetization. This pricing structure directly influences the behavioral patterns of ecosystem participants.

The business ecosystem theory, introduced by James Moore in 1993, provides a systemic

perspective for analyzing the complex collaborative relationships within digital music platforms. This theory views the platform as a dynamic symbiotic network composed of core enterprises, users, partners (e.g., hardware manufacturers, ticketing platforms), and regulatory bodies. Within this ecosystem, various actors achieve value co-creation through resource complementarity: copyright holders supply content assets, technology providers offer data analytics tools, and user-generated behavioral data feeds back into algorithm optimization, forming a reinforcing loop of "data-content-experience." Notably, the digital music ecosystem has evolved from a simple linear value chain to a networked value constellation. For example, Tencent Music's "music + social + entertainment" ecosystem strategy creates synergies between core music services and derivative scenarios like live streaming and online karaoke.

Transaction cost theory explains the platform's transformation of the traditional music industry from an efficiency perspective. Coase's theory of firm boundaries manifests in the digital context as platforms reducing transaction costs through standardized interfaces: streaming technology eliminates the distribution costs of physical records, smart contracts simplify royalty settlements, and algorithmic recommendations significantly lower user search costs. This efficiency improvement enables platforms to integrate previously fragmented industry segments. For instance, Spotify simultaneously fulfills roles in content aggregation, distribution, marketing, and data analytics. Moreover, Metcalfe's Law and the long-tail theory jointly explain the logic of platform scale expansion—an increasing user base not only enhances network value but also allows niche artists to gain commercial opportunities through precise recommendations, thereby altering the "80/20 rule" of the traditional record industry. These theories collectively form the theoretical foundation of the business ecosystem for digital music platforms, providing analytical tools for subsequent profit model innovation and ecosystem governance.

3. Construction of Digital Music Platform Business Ecosystems

The construction of the business ecosystem for digital music platforms is a dynamically evolving process, with its core lying in the co-creation of value among multiple stakeholders through technological empowerment and institutional design. At the infrastructure level, cloud computing and edge computing technologies provide the foundational support for the storage and low-latency transmission of vast music libraries, while the integration of blockchain technology has reshaped copyright management mechanisms[3]. For instance, Audius employs distributed ledgers to ensure transparent revenue distribution for creators. The widespread adoption of 5G networks has further eliminated technical bottlenecks in high-fidelity music streaming, making immersive audio experiences like Dolby Atmos a key differentiator in platform competition. These technological elements collectively form the "digital foundation" of the ecosystem, whose performance directly determines the efficiency of content distribution and the ceiling of user experience.

In terms of stakeholder collaboration, platform companies balance the interests of various parties through well-designed rules. A tiered revenue-sharing strategy is applied to musicians, where top-tier artists receive customized promotional resources, while independent musicians gain long-tail exposure through algorithmic recommendations. This hierarchical operational mechanism effectively expands the diversity of content supply. On the user side, membership tier systems enhance engagement—NetEase Cloud Music's "Black Vinyl VIP," for example, not only offers improved audio quality but also integrates offline benefits like concert ticket pre-sales, creating a seamless online-to-offline experience loop. Notably, third-party service providers are playing an increasingly vital role in the ecosystem. Music analytics firms like Chartmetric provide artist development insights for platforms, while short-video platforms like TikTok serve as crucial channels for new song promotion. Such cross-platform collaboration blurs traditional industry boundaries, forming a digital entertainment value network centered around music.

The sustainability of the business ecosystem relies on the formation of positive feedback loops. User behavior data, processed through machine learning, optimizes recommendation algorithms and improves content matching

accuracy, which in turn stimulates increased user engagement. Greater engagement provides richer targeting dimensions for advertising systems, thereby boosting the platform's monetization capabilities. A portion of advertising revenue is then reinvested into content production through initiatives like creator funds, creating a reinforcing cycle of "data-experience-revenue." Apple Music's Spatial Audio Production Incentive Program exemplifies this flywheel effect—by subsidizing production technology, the platform lowers creative barriers, enriches its exclusive content library, and attracts more high-end device users to subscribe to its lossless audio services. This self-reinforcing mechanism continuously amplifies the competitive edge of leading platforms. However, it also raises concerns about monopolistic tendencies, necessitating governance tools such as collective copyright management systems and platform neutrality rules to foster innovation while maintaining ecosystem fairness.

4. Analysis of Digital Music Platform Profit Models

The revenue models of digital music platforms exhibit diversified and multi-layered characteristics, with their core lying in building sustainable income structures through content monetization, user subscriptions, and commercial partnerships. Subscription-based memberships form the foundational revenue stream, exemplified by Spotify's "freemium" dual-track model, where ad-supported free services coexist with premium features like lossless audio and offline downloads to incentivize upgrades. The key to this model lies in improving conversion rates, often achieved through progressive engagement strategies. For instance, Tencent Music Entertainment (TME) deliberately degrades audio quality for free-tier users and inserts member-exclusive tracks into playlists, creating subtle nudges toward paid subscriptions. Notably, membership systems are evolving toward tiered structures—Apple Music's student and family plans target specific demographics, while Amazon Music Unlimited leverages cross-selling by bundling with Prime memberships. Such refined operations continuously optimize platforms' ARPPU (Average Revenue Per Paying User).

Advertising serves as the second major revenue pillar, with its efficiency hinging on the precision of user profiling. Programmatic ad exchanges (DSPs) analyze listening preferences, geolocation, and spending power to dynamically insert targeted ads. NetEase Cloud Music, for example, embeds branded audio ads within daily recommendation playlists. The integration of in-feed ads with content marketing is particularly effective—TikTok Music promotes branded "challenge campaigns" where users create videos with sponsored background music, simultaneously amplifying song exposure and generating ad revenue. Programmatic creative technology further enhances ad relevance: when detecting repeated plays of a specific genre, the system auto-generates video ads with matching aesthetics. Additionally, interactive ad formats like virtual gifting thrive in live-streaming scenarios, where fans purchase digital items to tip artists while platforms retain 30%-50% as commission. This socialized monetization approach has proven especially successful in East Asian markets.

Copyright operations and derivative services constitute the third dimension of profitability. Original music copyrights generate income through exclusive licensing and sublicensing deals, as seen in Warner Music's China distribution agreement with TME, where platforms resell rights to short videos, gaming, and other scenarios for margin arbitrage. Commercial licensing of long-tail music libraries represents a hidden growth area—B2B clients like restaurant chains and gyms pay annual fees via SaaS systems for background music usage, a high-margin enterprise service. Hybrid online-offline monetization is emerging through paid livestreams of concerts: TME Live transforms physical performances into premium digital content with 4K multi-angle filming and real-time interaction, generating millions per event in virtual ticket sales. More cutting-edge explorations include revenue-sharing from virtual idol concerts and NFT-based digital album collectibles, innovations that are redefining the boundaries of music asset monetization.

Optimizing these revenue models faces three key challenges: rigid content costs pressure gross margins, with global music copyright expenditures growing at over 8% annually;

regional disparities in user willingness to pay persist, with 40%+ subscription rates in Western markets versus under 5% in emerging economies; and regulatory restrictions on exclusive licensing introduce uncertainty. Counterstrategies include creator community development to reduce content acquisition costs (e.g., SoundCloud's FanPower enabling direct fan monetization), expanding payment touchpoints through IoT scenarios like car audio and smart home devices, and leveraging AI composition to generate copyright-cleared backing tracks for B2B music libraries. These innovations signal that the platforms' value extraction is evolving from traffic monetization to ecosystem empowerment.

5. Challenges and Optimization of Digital Music Platform Business Ecosystems

The commercial ecosystem of digital music platforms is rapidly expanding, yet it faces multiple challenges. First, soaring copyright costs have become an industry-wide pain point. Exclusive licensing agreements with major record labels often come with high upfront payments and revenue-sharing clauses, putting sustained pressure on platform profitability. For instance, Tencent Music's renewed exclusive deal with Universal Music saw licensing costs rise by nearly 50% compared to the previous contract. This cost pressure has forced platforms to explore more refined copyright management models, such as AI-driven catalog tiering systems that prioritize mid- and long-tail content with higher ROI.

Second, cultivating user payment habits remains an uphill battle. While leading platforms have achieved a paid subscription rate of over 15%, this still lags behind video streaming services, where rates exceed 30%. Moreover, a significant portion of users are "silent subscribers"—those who purchase basic plans but rarely engage with premium services. To address this, platforms must restructure their content value propositions. For example, NetEase Cloud Music has strengthened user engagement through virtual identity badges ("Villager Certificates") and social features like music reviews, boosting average annual spending per user to ¥35—40% higher than the industry average.

Business model innovation also faces technological integration hurdles. While virtual concerts have generated single-event revenues in the tens of millions, their immersive potential is limited by low VR headset adoption. Similarly, blockchain-based music NFTs encounter regulatory challenges in China, prompting platforms to adopt consortium chains as a workaround. A deeper issue lies in the fragmentation of data assets across scenarios—user behavior data from emerging touchpoints like smart cars and IoT devices remains siloed, hampering the precision of personalized recommendations and programmatic advertising.

To tackle these structural challenges, the industry is converging on three optimization strategies: reducing copyright costs through dynamic rights management (e.g., Tencent Music's direct revenue-sharing system with indie artists cuts intermediary fees by 30%); building hybrid paywalls that bundle "content + scenarios" (China Mobile's Migu Music saw 78% subscriber retention after integrating 5G cloud concerts with mobile plans); and accelerating IoT ecosystem integration (Huawei Music's in-car entertainment system increased user LTV by 2.3x). These practices suggest that the next phase of competition will hinge on platforms' ability to develop systematic capabilities in copyright efficiency, user value extraction, and technological convergence.

6. Conclusion

The construction of a business ecosystem and the optimization of profit models are crucial for the sustainable development of digital music platforms. This study shows that successful platforms must balance content supply, user experience, and monetization while exploring diversified revenue streams. In the future, with the deeper integration of AI, blockchain, and other technologies, business models may further innovate, such as NFT-based music copyright management and the commercialization of AI-generated music. Additionally, strengthening copyright protection, improving user willingness to pay, and expanding into international markets will be key directions for industry growth.

This research has certain limitations, such as insufficient empirical analysis of emerging profit models. Future studies could incorporate operational data from specific platforms for more in-depth quantitative analysis. Overall, digital music platforms must continuously

optimize their business ecosystems in response to technological advancements and evolving user demands to achieve long-term and stable growth.

References

[1]Barata ML, Coelho PS (2021) Music streaming services: understanding the drivers of customer purchase and intention to recommend. Heliyon 7(8):e07783。

[2]Chen CC, Leon S, Nakayama M (2018) Converting music streaming free users to paid subscribers: social influence or hedonic performance. International Journal of Electronic Business 14(2):128.

[3]Coelho MP, Mendes JZ (2019) Digital music and the “death of the long tail.” Journal of Business Research 101:454–460.

