

Structural Defects in the Social Software Ecosystem: Challenges to Commercial Sustainability and the Construction of a Governance Framework

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Abstract. The research object this paper is the network social platform, By analyzing its structural defects and the potential or already emerging challenges of commercial sustainability, And corresponding governance framework is constructed. This paper points out that with the rapid development of social platforms, there are so many problems such as serious homogeneous competition, privacy and security leakage, ecological pollution of information and vulnerability of business model. These problems have interacted with each other and worsen constantly, and restricted the development of the industry seriously. On this basis, the article reveals how these defects transform to customer defection, brand value erosion, and compliance costs increasing, these real business risks. To resolve these problems, this article proposes advice from four perspective: company strategy, ecological governance, business model innovation, and policy adaptation. It advocates the shift from traffic competition to value innovation and Building a multi-partner, sustainable ecosystem. The aim is to provide enterprises with new ideas for business model adjustment and offer some theoretical reference for strategy formulation.

Keywords: Social Software; Commercial Sustainability; Platform Governance; Business Model Innovation; Privacy and Security.

1. Introduction

According to the 56th Statistical Report on China's Internet Development released by the China Internet Network Information Center (CNNIC), as of June 2025, the number of internet users in China reached 1.123 billion, with an internet penetration rate of 79.7% [1]. Instant social platforms like WeChat and QQ have become indispensable infrastructure for digital life in China, significantly enhancing communication efficiency and information dissemination speed. According to Tencent's interim financial report released in 2025, the combined monthly active accounts of WeChat and wechat have reached 1.411 billion [2]. However, while social software is developing rapidly, it is also facing severe sustainability challenges. There are multiple problems such as intensified homogeneous competition, privacy and trust crises, and pollution of the information ecosystem.

There exists a core contradiction between users and online social platforms: the imbalance between the demand for commercial growth and the protection of users' rights and interests. Free social platforms such as WeChat and QQ will proactively remove or add some functions for the sake of reducing maintenance costs, profitability, and network health and security. Therefore, starting from the "defect-risk-governance" chain, we should pay attention to users' use experience, reform the business ecology model of social platforms, provide new ideas for enterprises to innovate functions and optimize business models, and provide suggestions for policy makers to regulate and govern.

2. Structural Defects of the Social Software Ecosystem

Behind the current prosperity of the social software ecosystem lie many potential structural problems. These issues do not exist in isolation but are interwoven and mutually reinforcing, collectively constituting unknown risks affecting industry development and user experience.

2.1. Homogeneous Competition and Dilution of User Value

Homogeneous Competition: The core products and services provided by platforms and manufacturers are very similar, lacking differentiation, leading many companies to focus solely on singular traffic competition.

Dilution of User Value: Because the core functions provided by platforms are similar, users develop the notion that platforms are "dispensable" or "interchangeable." This leads to reduced user loyalty and increased willingness to migrate.

Platform enterprises tend to enter adjacent markets through "feature replication" and "platform envelopment," stifling innovation and leading to market homogenization, rather than creating new value through fundamental innovation [3].

2.1.1 Feature Redundancy and Lack of Innovation

WeChat and QQ, as Tencent's core social platforms, show no essential difference in their core "instant messaging" function. Emerging platforms, such as Bullet Messenger (Chatbao) and Matong MT, attempted to innovate through differentiated experiences but ultimately struggled to escape being either replicated by feature copy of WeChat or having their traffic diluted. For example, WeChat aggressively entered the short video field through "WeChat video Channel", making its own functions increasingly bloated, yet failing to address user demand for "pure social interaction" or "in-depth interest-based socializing."

2.1.2 Data Silos and User Migration Costs

Users' social relationships and communication data (such as chat history, Moments) are tightly locked within the platform, creating extremely high migration costs [4]. Even if users are filled with dissatisfaction, the convenience of social interaction and communication makes it difficult to leave, which also reduces the external pressure on platforms to optimize due to poor operations. User value is diluted, and platforms largely no longer need to please users with practical innovative features; merely maintaining the status quo is sufficient to retain the vast majority of users.

2.2. Privacy Security Vulnerabilities and Trust Crisis

Privacy has long become an important problem for social platforms. The internal contradictions between the business model of the free platforms which the operations depend on and the protection of the rights and interests that user care about most is becoming increasingly acute. The free model of social platforms inevitably leads to their core benefits come from advertising based on users' private data. Its essence is a form of "surveillance capitalism," a new economic order whose core logic is to generate profit by extracting and analyzing human experience as behavioral data for prediction and sale [5]. From the Facebook-Cambridge Analytica scandal to exposures of apps like WeChat Read and Baidu Netdisk, the fact that many applications have been exposed to reading users' data while without any authorization. It proves that data abuse is not an accidental issue, but a serious systemic risk.

2.3. Information Ecosystem Pollution and Brand Risk

Public social platforms as communication centers of network information, the quality and security of the network environment are directly related to public interests and the credibility.

2.3.1 The Governance Dilemma of Misinformation

Rumors and fake information are extremely easy to be spread in the digital age. It often takes a simple click and short time to share false content to millions of people. Furthermore, the spread of false news is faster and reaches more people than real news, possibly because false news is often more novel and likely to evoke emotional reactions like surprise or disgust [6]. In contrast, the cost of debunking and clarification is extremely high. It requires significant manpower and time for case verification and evidence sorting, while also contending with the public's preconceived cognitive inertia, which greatly hinders clarification efforts. Although platforms continuously introduce and

strengthen various governance measures to filter false content from the information deluge, the governance process often falls into a cycle of “ban - rebound - re-ban.”

2.3.2 Proliferation of Low-Quality Content

In pursuit of user dwell time, platform algorithms prioritize recommending emotionalized, low-intellect content, squeezing out the dissemination space for deep, high-quality content. This situation, akin to "bad money driving out good," will, in the long run, drive away high-value users, gradually push the platform ecology towards low quality, and ultimately erode the platform's brand value. Consequently, companies concerned about brand safety will reduce their advertising spending on such platforms.

2.4. Fragility of the Business Model

Over-reliance on a single or a few revenue sources makes the business model of social platforms exceptionally fragile when facing external shocks.

2.4.1 Singular Reliance on Advertising

According to Tencent's financial reports, its online advertising business revenue consistently accounts for 15%---20% of total revenue. According to Tencent's interim financial report for 2025, Tencent's marketing revenue accounted for approximately 18.5% of total revenue [2]. Once the macro-economy downturns and advertisers cut budgets, platform revenue will be directly impacted.

Secondly, global privacy regulations are tightening. For example, Apple introduced the ATT privacy policy in 2021, which requires applications to get users' agreement through a standardized Visible pop-up window before tracking users' activities on other platforms and websites [7]. Such policies continue to decrease platforms' ability to deliver targeted advertising precisely and damage the foundation of its business model directly.

2.4.2 The Contradiction Between Short-Term Profit and Long-Term Operation

Because of the financial pressures, many companies make strategies that can quickly increase traffic and revenue, such as putting on more advertising delivery and add more eye-catching content. But this strategy often sacrifices positive user experience and long-term brand health. Platforms may miss strategic innovation chance that require long-term investment, such as strengthening privacy protection technology and pay more attention to content ecosystem governance, while also creating hidden dangers for future development.

3. Challenges to Commercial Sustainability

The structural defects in the social platform ecosystem are not minor, statically stable issues but rather concrete business risks that are constantly evolving dynamically. Many potential risks may directly threaten the platform's user base, brand reputation, and financial income. How these defects translate into severe sustainability challenges is noteworthy.

3.1. Loss of User Assets

Users are the core asset of social platforms, but their stickiness is loosening due to systemic defects.

3.1.1 Loss of High-Value Users First

User concern for privacy is not homogeneous. Users with high income and high education levels (high-value users) are typically more sensitive to privacy issues and more likely to take corresponding protective measures, such as switching to alternative platforms with better privacy protection services [8].

According to a CNBC report on January 12, 2021: "Downloads of privacy-focused messaging apps Signal and Telegram got a boost as users looked for alternatives to Facebook-owned WhatsApp over concerns about changes to the service's privacy policy." [9]

Following Facebook's data scandal, user numbers for public social platforms like Signal and Telegram increased. Their loss also means the fracturing of the platform's user structure and the dilution of advertising value. Significant user churn often originates from corporate violations of user privacy rights.

3.1.2 Risk of Losing Position in Generational Transition

Traditional social platforms like WeChat and QQ face certain "aging" issues. According to the 56th Statistical Report on China's Internet Development, the number of silver-haired netizens aged 60 and above reached 161 million, showing steady growth [1]. A large number of elderly netizens have become accustomed to using traditional instant messaging platforms like WeChat. Unlike the elderly, the younger generation seeks interest-based socializing, anonymous socializing, and more creative expression spaces, such as Douyin (TikTok), Soul, and Xiaohongshu (Little Red Book). If traditional platforms cannot shed stereotypes like feature bloat, complex relationships, and a serious atmosphere, the proportion of elderly users among their total users will continue to increase, and they risk being abandoned in future generational shifts, leading to a potential disconnect in the user base.

3.2. Brand Value Erosion

Brand value is an intangible asset for platforms; once damaged, the cost of repair is very high.

3.2.1 Deterioration of Brand Image

Due to multiple major data breach incidents and exposure of "big data price discrimination" (using big data to offer different prices), the public image of social platforms has shifted from being a practical platform for private socializing and entertainment to a potential danger that peeks illegally and misuses users' personal privacy information. This negative brand association is highly contagious and can contaminate the platform's other businesses. Even if the platform launches new innovative features, especially those involving financial services, payment behaviors, and other functions that attract significant user attention, they will face user skepticism and distrust.

3.2.2 Spread of Public Opinion and Misattribution

As spaces for public communication, any negative social event, such as cyber bullying, doxxing, or group confrontation, can rapidly escalate due to the platform's dissemination power. Although the platform may not intentionally aid the spread of public opinion, the public and regulators easily attribute blame to "the platform's inadequate governance." For example, Weibo often finds itself in a whirlpool of heated discussion due to confrontational arguments, public opinion fermentation, and untimely handling of rumors. This kind of joint responsibility continuously consumes its brand goodwill.

3.3. Rising Compliance Costs and the End of the Data Dividend Era

A social platform operated by a Chinese company, if it has European users, must comply with the GDPR. The GDPR clearly states that platform operators must ensure the security of user data and restrict access by third-party institutions [10]. Data cannot be provided to third parties without user consent or legal authorization. Meanwhile, Chinese laws and regulations such as the Cybersecurity Law of the People's Republic of China [11] and the Data Security Law of the People's Republic of China [12] stipulate that network operators must cooperate with the lawful supervision and inspection conducted by state security organs and provide necessary support and assistance. If the Chinese government lawfully requests the platform to provide data on European users, and the platform complies with Chinese law, it violates GDPR provisions and may face hefty fines from the EU.

On the other hand, the past "free service + advertising push" model was built on acquiring user data at low or even zero cost. However, with tightening global regulations, the cost of obtaining and using user data has risen sharply, significantly compressing the profit margin of this model.

4. Constructing the Governance Framework: Solutions from a Business Perspective

4.1. Corporate Strategy: From Traffic Competition to Value Co-creation

Abandon the obsession with super-apps and transition to refined vertical deep cultivation. Create competitive advantages that are difficult to replicate by solving user pain points in specific scenarios.

4.1.1 Differentiated Positioning

Enhance user experience through targeted functional innovation to avoid homogeneous competition. Use practical mechanisms as the main way to improve user experience and solve pain point problems. Taking anti-mis sending mechanisms as an example, develop different scene modes where the system automatically identifies colleague and boss groups, providing prominent prompts during chats. Make such user experience innovations core selling points of the product, rather than simple add-on features.

4.1.2 Privacy Value Reframing

The Privacy Paradox points out that although users claim to highly value privacy, their online behavior often contradicts this. However, when privacy infringement incidents actually occur, the sharp decline in user trust towards the platform and the strong negative reaction are quite evident [13]. Therefore, an improved approach is to reframe privacy from a compliance cost to a brand asset and competitive advantage, proactively addressing users' growing privacy concerns. Offer paid subscription options where users can enjoy ad-free functionality, data privatization, chat content encryption, and other benefits after paying a fee. Transform the universally valued pain point of privacy protection into a favorable competitive advantage, thereby enhancing user loyalty.

4.2. Ecological Governance: Multi-Party Collaborative Mechanisms

The traditional, solely platform-centric, "top-down" content moderation model has limitations. Enterprises should abandon the "dominant player" governance mindset, open up rights, and build a pluralistic co-governance ecosystem. Involve users, experts, third-party organizations, in joint participation, evolving towards a Multi-stakeholder Governance model [14]. Establish deep cooperation with authoritative media, industry associations, and professional organizations to form independent fact-checking committees. Platforms provide traffic and technical support, third-party agencies provide professional judgment, and simultaneously introduce user juries. For certain borderline content, such as vulgar, "edge-ball" content, or some misinformation, decide its retention or removal through voting. This approach can both reduce platform pressure and improve the transparency and fairness of governance.

4.3. Business Model Innovation

Breaking the advertisement dependence and explore new revenue models that are both good for growth and sustainability.

4.3.1 B2B Empowerment Path

Before providing group user analysis to the product party, gaining premise of user authorization. For example, help a shopping company analyze the interest preferences of a regional user group, rather than providing specific personal data with privacy nature.

4.3.2 Scenario-Based Subscription Systems

Deepen the value-added model by providing in-depth paid services for specific scenarios. Examples include conversation management, expanding chat history archive space, marking important information, etc. Also include special services for creators, encompassing content copyright protection and advanced data analysis.

4.4. Policy Adaptation Recommendations

Regulatory policies should aim to maintain network health rather than stifle innovative ideas.

4.4.1 Dynamic Compliance Framework

"Regulatory Sandbox" is a controlled testing environment that allows fintech companies to test innovative products and services under relaxed regulatory requirements [15]. This concept can be borrowed for digital platform governance. Regulatory agencies can establish a safe testing environment similar to a "regulatory sandbox," allowing enterprises to trial new functions and models within it. Companies can launch corresponding beta platforms to test new features under limited user scale, time, and scope. Third-party regulators observe the entire process, formulating regulatory rules together with enterprises to prevent potential hidden dangers that functional innovation might bring.

4.4.2 Cross-Border Collaborative Governance

Establish transnational regulatory alliances to reduce platform compliance costs. Promote the mutual recognition and equivalence certification of authoritative information protection laws formulated by different countries. As long as an enterprise obtains compliance certification from the regulatory agency of one country, it can quickly pass compliance reviews in other mutually recognized regions, avoiding cumbersome, redundant and repeated check.

5. Conclusion

To begin with, social software is facing many structural defects such as homogenized competition, privacy and security leak, ecological information pollution and fragile business model. These defects do not exist independently but are interacted with other problems and form a negative circle, blocking the healthy development of the social platforms.

Second, many of these shortcomings have transformed into real business challenges: the loss of high-value users, harm of brand value and increasing compliance costs, which directly threaten the sustainability of the platform's competitive advantage and growth capabilities.

To overcome these problems, enterprises need to shift from traffic competition to value co-creation, establishing competitive advantages through various innovation and privacy value reconfiguration; establish multi-party collaborative ecological governance mechanisms; explore diversified business models such as B2B empowerment and feature subscriptions; at the policy level, dynamic compliance frameworks and cross-border collaboration mechanisms should be established.

In summary, the sustainable development of social software relies on the reconstruction of business value. Simultaneously, ensuring user rights and a healthy network ecology requires achieving value co-creation through multi-faceted collaboration.

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