



Research on Evolutionary Mechanism of Platform Ecosystem Based on Platform Envelope Perspective

Jiaqi Shang

School of Economics and Management, Southeast University; Nanjing 211189, Jiangsu, China

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Abstract: Platform envelope is a crucial strategy for platform ecosystem evolution. To delve into the "black box" of envelopment strategy mechanisms, this paper conducts an exploratory case study on Tencent, a representative platform enterprise, focusing on its path of platform envelopment. The study reveals that within the ecosystem context, the implementation of platform envelopment follows a mechanism chain encompassing "matching-analysis-sharing-stimulation".

Keywords: platform ecosystem, platform envelope, evolution

1. Introduction

As a paradigmatic revolution in business ecosystem innovation during the digital economy era, platform ecosystems bring about diverse transformations to human society, production, and daily life. Notably characteristic of the digital economy era is the rise of cross-border platforms. While the emerging literature on platform envelopment provides valuable management insights, it often focuses solely on the influence of competitive advantages or network effects without addressing the underlying logical theoretical framework or explaining the "black box" of strategic mechanisms. Understanding the mechanism followed by ecosystem-centered platforms have become pressing issues in enterprise strategy theory and for platform enterprises' development.

2. Conceptual Development

2.1 Platform and platform ecosystem

The concept of platforms originates from the field of product development and encompasses components, rules, and architecture. As the Internet transitions from vertical to ecological, the notion of platform ecosystems emerges through the integration of platforms and business ecosystems. Existing studies primarily fall into three branches: Firstly, from a technological architecture perspective based on modular theory, they focus on enterprise-level technology platforms or product platforms. Secondly is research on double-sided (multi-sided) markets from an organizational standpoint that emphasizes network effects generated by platforms. Thirdly is research considering the strategic perspective of organizational structure[1]. The existing research generally believes that platform organizers, platform users (suppliers and demanders) engaged in value creation, along with complementers offering supplementary services collectively constitute an interdependent ecosystem.

2.2 Platform envelope

The strategy of platform envelopment is crucial for the evolution of platforms into platform ecosystems, as it emphasizes the utilization of platform component rules and user relationship sharing. This approach involves bundling the functions and objectives of existing platforms while also making a strong entry into other platform markets. The existing research on platform envelopment primarily focuses on the dynamics of platform relationships, the pathways to envelopment, and the resulting competitive advantages. Eisenmann et al. categorized the relationship between platforms into five distinct types: complements platforms, nested platforms, weak substitute platforms, functionally unrelated platforms and adjacency platforms. In terms of gaining a competitive advantage, Hidding et al. conducted a study on how platform leaders distinguish themselves in the networked market and emphasized the role of the platform envelope[2].

3. Methodology

Given that the strategic evolution of an enterprise from a platform to a platform ecosystem is a long-term dynamic process, this paper adopts the single case study method to conduct in-depth exploration and analysis of management phenomena from a vertical perspective. The selected case enterprises in this paper encompass situation units across multiple platforms, thereby effectively ensuring research reliability and validity.

In order to construct relevant theories effectively, this paper selects Tencent as the case study object. Firstly, since the establishment of QQ platform, Tencent has developed a business ecosystem with overlapping members around the platform. This aligns with the required evolution characteristics of a platform-to-platform ecosystem in this study. Secondly, Tencent has consistently implemented the strategy of enveloping platforms in its development process and has achieved leading positions in various subsectors such as games, media, and social networking. These achievements provide abundant research materials. Lastly, as a pioneer in the emerging Internet industry since its inception in 1999, Tencent has maintained robust growth and possesses comprehensive information disclosure mechanisms that ensure data authenticity and availability more effectively[3].

4. The development of Tencent platform envelope

4.1 Establishment of the foundational platform: QQ

In 1999, Tencent launched QQ, a unilateral network service focused on entertainment and communication, and subsequently introduced QQ groups, QQ show, Qzone and other functions. By introducing obviously youthful features such as QQ Reading, interest tribe, and CM Show, it successfully attracted young user groups. As a social network platform, QQ is easy to break through the critical mass of users, and brings about the same-side effect and positive network effect, thus rapidly expanding the user scale of the platform. In the early stage of development, due to the relatively small number of species, the ecosystem self-regulation ability of QQ platform was weak. Therefore, expanding and supplementing platform functions became an indispensable choice for Tencent's development. The evolution of a simple instant messaging into an integrated Internet social entertainment and value-added services is also an important issue to be considered in the evolution process of Tencent's business ecosystem[4].

4.2 Platform envelope from QQ to Tencent Games

Since 2003, Tencent initiated its journey with simple gaming products and gradually established a relatively autonomous game architecture system leveraging the immense traffic and cultivated social relationship chain facilitated by QQ. Subsequently, Tencent opened up to game developers by means of agency and joint operation, and laid out various companies in the upstream and downstream of the industrial chain through investment, including upstream IP, game development companies, game live platforms, esports companies, player communities, etc., making games the largest business of Tencent. The strategic positioning of Tencent Games towards the young user group, emphasizing enjoyment, relaxation, and pursuit of excitement, contributes significantly to its cross-platform network effect. This in turn leads to a lock-in effect on the platform and higher conversion costs. From the perspective of platform envelope, the game platform serves as a complementary extension to the QQ platform, effectively capturing users from QQ without conceding to other platforms. In this stage, the ecosystem's species structure is also becoming increasingly intricate, encompassing not only game users but also telecom operators, investors, game developers, live streaming platforms, and advertisers in later stages of development.

4.3 Platform envelope from QQ to Paipai

In 2004, driven by the fierce competition among Internet giants and the transformation of domestic e-commerce landscape, Tencent embarked on its foray into the e-commerce sector leveraging the vast resources of QQ users. By establishing an e-commerce ecosystem based on social networks and adopting the ESC model, Tencent aimed to differentiate itself from QQ with its trading platform "Paipai". This platform provided a distinct set of business model elements compared to QQ, catering to bilateral users (buyers and sellers) while integrating transaction services, instant messaging services, and search services. The early-stage value proposition of "Paipai" was centered around facilitating fast and efficient transactions, meeting sellers' profit objectives, and delivering high-quality goods. However, the functions of the two platforms are not related and cannot be bundled. Consequently, this complexity within the bilateral network itself along with conflicting interests within the ecosystem's stakeholders posed challenges for Tencent in terms of acquiring user resources and providing technical support. Ultimately these factors directly contributed to the downfall of their e-commerce platform amidst intense market competition.

4.4 Platform envelope from QQ to Wechat

The mobile social software WeChat was launched by Tencent in 2011. Presently, its layout encompasses various domains, including but not limited to short videos, live broadcasts, mini programs, WeCom, etc. As one of Tencent's core businesses, WeChat boasts a substantial user base and a comprehensive closed-loop ecosystem. Different communities within this ecosystem achieve limited interaction through "cross-borderers". Similar to QQ, the user needs of the WeChat platform mainly involve repeated social interactions for information sharing and emotional connection. The two platforms

have a limited substitution relationship. WeChat's robust social features and user retention lead to a significant spillover effect. Beginning with communication and social networking, the platform gradually expands its functions to encompass diverse user needs, including online and offline services across various scenarios such as catering, retail, transportation, and public life payment - all while focusing on building ecological value. Simultaneously, the ecosystem's diversity and vitality are enhanced as members become increasingly enriched. QQ and WeChat offer distinct community interaction modes for different target groups of users that complement each other's main resources while stimulating cross-platform network effects.

5. Conclusion

In the process of ecosystem evolution, the implementation of platform envelope follows the mechanism chain of "matching-analysis-sharing-stimulation". The functional relationships between platforms directly result in significant variations in business models, and the selection of non-correlated, weakly substituted, complementary or nested expansion platforms is a prerequisite for enhancing the strategic potential energy of platform ecosystems. User data analysis directly determines the functional design and rules of the platform, as well as the experience and reputation of platform expansion. Once users become part of the ecosystem, they experience strong lock-in effects and high switching costs. To reduce entry barriers into complementary markets and maintain fixed costs of the platform, associated technology sharing needs to drive platform envelopment at its foundation. This enables a positive feedback mechanism for increasing returns on scale. The network effect serves as a key driving force for platform envelopment development by facilitating meeting value demands from multiple stakeholders and accelerating accumulation of complementary resources like products, services, and users.

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Author Bio

Jiaqi Shang (2000-), Female, Han Nationality, Born in Linfen, Shanxi Province, Master Candidate, Institution: School of Economics and Management, Southeast University, Research Direction: Enterprise Management.