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Network Effects and Switching Costs as Entry Barriers: The Failure of the Epic Games Store's Challenge to Steam's Platform Dominance

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Abstract. The PC digital game distribution market is characterized by high concentration and strong incumbency advantages, where Steam has leveraged network effects and user switching costs to establish a durable dominant position. Taking the Epic Games Store's challenge to Steam as its case, this paper examines the competitive strategies and failure mechanisms faced by a late-entering platform when confronting barriers created by network effects. Through an analysis of the industry background and Epic's strategies of low commissions, exclusive releases, and free games, the study finds that although Epic achieved some success in reducing developer costs and accumulating an initial user base, the self-reinforcement of Steam's network effects and users' multidimensional switching costs created structural barriers. Epic also had a weak platform ecosystem and lacked many other functions and social support to attract users to stay and use it for a long time. Therefore, this paper proposes building differentiated social functions, designing progressive switching incentives, and improving the platform function ecosystem. Based on the above research, a new latecomer platform seeks to disrupt the dominance of established players by reducing switching costs and offering new value. This paper offers an empirical case study and practical implications for research on competitive strategies of digital platforms.

Keywords: Network Effects, Switching Costs, Platform Competition, Digital Distribution Platforms, Incumbent-Entrant Dynamics

1. Introduction

1.1. Industry context and competitive landscape

The typical features of the two-sided platform model in the PC digital game distribution market are high concentration and powerful incumbent advantages. Valve used its first-mover advantage to establish an all-encompassing ecosystem of the Steam platform for distribution, social functions, reviews, and technical support. It has hundreds of millions of registered users and tens of thousands of games, and is an absolute leader [1]. At the end of 2018, Epic Games Store entered China with the goal of reducing the extended lead of Steam by launching a three-pronged plan: a reduced 12%

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commission rate, time-limited exclusive rights for some games, and weekly free game giveaways. Despite substantial investment, the share of the market has not increased. Steam still leads in terms of the number of users and rich social functions, and the barrier for new users is relatively high [2]. The main reasons for this are network effects and the cost of switching for users. Together, they have created a high barrier to entry, and it is difficult for latecomers with financial and content advantages to displace the existing company.

An in-depth study of this case has significant value. The platform company can build a high-barrier-to-entry system and create a competitive edge for its investors at the business level. At the social level, it affects consumer welfare and market fairness, can offer an important reference for learning about the rules of two-sided markets, evaluate the application of antitrust policies, and promote fair competition in the digital economy.

1.2. Literature review

Scholars have used various theoretical systems to conduct extensive research on platform competition and network effects. According to Metcalfe's Law and network effects, the value of a platform will grow at an increasing rate with the number of users; thus, a virtuous cycle will be formed [3]. Complementary research defines switching costs as several impediments to the exit of users that help preserve the price advantage of incumbent enterprises [4]. Some research has specifically studied the competitive dynamics of digital game platforms and analyzed how the ecosystem of Steam, through features such as achievements, friends list, user reviews, and the Workshop, creates a lock-in effect. Therefore, even if the competitor has a lower price or an exclusive plan, the players are not motivated to switch [5]. Research on the effect of platform commission rates on developer behavior has also shown that although a lower commission may attract developers to use the platform, they will ultimately choose a platform with a large number of users if the platform lacks sufficient user-side scale [6]. Platform governance rules also shape how complementors contribute and share knowledge within a platform ecosystem [7]. The above-mentioned literature provides strong theoretical support for the study of network effects and switching costs in platform competition.

Although many studies have been conducted on this in theory, few have explored the joint effect of network effects and switching costs on creating structural barriers for latecomer platforms. In particular, there is a lack of research on the failure mechanisms of latecomers through the lens of network effects and switching costs, especially in high-stakes, real-life platform rivalries such as the Epic-Steam competition.

1.3. Research design and analytical framework

A four-stage analytical system is used in the single-case study method of this paper. First, based on an analysis of the industry context and competition in the personal computer digital game distribution market, this paper introduces the practical background and theoretical value of the research. Second, it will introduce the development history, competition strategy, and market performance of the Epic Games Store in detail to provide a factual basis for the analysis below. Third, based on an analysis of the strengths and weaknesses of Epic and Steam and how network effects and switching costs have created a structural barrier to expansion, research will be conducted on their competition. Then it puts forward new ideas to solve the main problems of platform operation, user acquisition, and ecosystem construction. Finally, it summarizes the research results,

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explains the theoretical contributions and practical applications of this paper, and points out the shortcomings and future research directions.

2. Case description

The Epic Games Store (EGS) opened in December 2018 with strong backing from Epic, the company behind Unreal Engine and Fortnite. It charged developers only a 12% commission instead of Steam's 30%, and it used timed exclusives and weekly free games to draw players in [8]. Hundreds of millions of users registered, yet most did not become active daily users, and Steam's lead remained largely intact.

Table 1. Key indicators of Steam and Epic Games Store

Indicator	Steam	Epic Games Store
Launch date	2003	December 2018
Platform commission	30% (25%/20% for high revenue)	12%
Core functions	Store, community, reviews, Workshop, cloud saves, achievements, Remote Play	Store, basic library, free games, limited social functions
Competitive strategy	First-mover ecosystem and community lock-in	Low commission, timed exclusives, weekly free games
Main advantage	Network effects, switching costs, functional ecosystem	Developer-friendly terms, content incentives

Table 1 summarises the main differences between the two platforms. Steam began in 2003 and has spent more than twenty years layering features, so players can buy games, read reviews, download mods, use cloud saves and achievements, and play remotely in one place. EGS, on the other hand, began with only a basic store and game library, used free games, and had a low developer fee. The offers may lead to a single purchase, but they do not have the multi-level functions that have kept people using the client daily. The function deficiency is the subject of Section 3.

3. Analysis of competitive barriers and strategic constraints

3.1. Strategic outcomes of epic's market entry

3.1.1. Disrupting the commission benchmark and expanding developer margins

EGS's 12% commission rate was deliberately kept low for a long time compared with Steam's 30% to reduce distribution costs for developers and change the industry's expectations of platform rent extraction. Under the old commission system, small and medium-sized developers had to pay almost a third of their income to the platform and thus could not accumulate much funds for other uses. Due to Epic's low-price policy, the whole industry began to question the fairness of the standard fee, and Steam later revised its own commission model. Late in 2018, Valve added a tier system; at the same time, Epic also launched a product. Under the new rule, Steam keeps 30% only of the first US$10 million a game earns; its share then drops to 25% between US$10 million and US$50 million, and to 20% above US$50 million. The threshold applies to each title separately, and most independent games never reach US$10 million, so the change mainly helps large publishers. Epic's entry thus

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broke the platforms' unilateral power over commission pricing, secured more revenue space for developers, and helped encourage the supply of more high-quality content.

3.1.2. Accelerated user acquisition via exclusives and free-game distribution

Through timed exclusivity agreements and free game giveaways, Epic achieved rapid growth in registered users in the short term. The exclusivity strategy used consumers' strong demand for particular popular games and directly converted the attractiveness of content into platform registrations. The free-game strategy reduced users' trial costs and enabled many users who had not previously used any digital game platform to encounter Epic's ecosystem for the first time. Although these strategies had limited effects on long-term user retention, they successfully established the Epic brand in consumers' awareness and verified the feasibility of a business model in which content investment drives platform growth [9].

3.2. Structural barriers to platform challengers

3.2.1. Direct and indirect network effects as entry deterrents

After nearly two decades of development, Steam has accumulated hundreds of millions of active users, and this large user base itself constitutes a strong direct network effect [10]. Direct network effects manifest in the embedded social graphs of players, whose friendship networks, group affiliations, and community identities are deeply integrated into Steam's ecosystem. When a new user considers which gaming platform to choose, the platform used by the user's friends becomes a decisive factor. Even if Epic offers lower game prices or exclusive content, a user's consumption utility will decline substantially if the user cannot interact with friends on the same platform. This social lock-in effect gives Steam a very low user acquisition cost, whereas Epic must persuade users one by one to migrate or use both platforms without the support of a social network. In addition, user reviews, guides, and community discussions on Steam generate rich indirect network effects. New users rely on such user-generated content to support purchasing decisions, while Epic's accumulation in these areas remains far from sufficient to compete with Steam [11]. The positive feedback loop of network effects causes Steam's leading advantage to increase continuously over time, and late entrants find it difficult to close this gap through simple financial investment.

The scale gap is not abstract. Steam reported a peak of 33 million concurrent users in 2023, with more than 12.5 million of them inside a game at the same time [12]. Epic does not release comparable concurrent figures, and its 68 million monthly active users, reported for 2022, spend far less time in the client [8]. Consider a simple situation. Five friends buy a co-op game together, and four of them own it on Steam. The fifth gains very little from buying it on Epic, because cross-store multiplayer is not guaranteed. Each person's choice, therefore, depends on the choices their friends have already made. This is exactly how a direct network effect locks in an installed base [10]. As a result, many players keep both clients installed at the same time: they open Epic to claim a free title or play an exclusive, and then return to Steam for the games and friends they use most. This multihoming lets Epic report large account numbers while Steam keeps the daily activity, which is why a large registered base has not translated into a comparable network [8].

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3.2.2. Multidimensional switching costs and structural lock-in

Switching costs present a multidimensional barrier to user migration, encompassing financial, procedural, relational, and psychological dimensions [13]. The most obvious one is procedural. A migrant has to download and install a separate client, then redo hardware settings, controller preferences, and graphics options. None of these steps is difficult on its own, but together they create real friction. The financial barrier is easier to quantify. As a simple hypothetical example, consider a player who owns 100 Steam games at an average price of US$20. Roughly US$2,000 is already tied to the platform, and none of those titles can be transferred to Epic; playing the same games there would mean buying them again. Re-purchasing even part of such a library is unrealistic for most users, and the sunk cost grows with every new purchase.

Social ties raise the barrier further. Friend lists, chat history, regular teams, and community reputation all live on Steam's servers, so leaving means giving up social capital, not just software. Long use also creates psychological inertia: players know where everything is on Steam, while trust in a new store takes time to build.

The 2019 Metro Exodus exclusivity episode illustrates the structural limitations of content-driven migration strategies. After accepting Steam pre-orders since August 2018, the game was moved to a one-year Epic exclusive only two weeks before its February 2019 release, a move that drew public criticism." It sold well as an exclusive, yet players who bought it on Epic typically returned to Steam for their existing library and friends. Exclusivity may change the parties to the transaction, but it will not reduce the accumulated switching costs for users' entire game libraries, social connections, and platform-specific data. Therefore, although it gained some attention, it did not reach the core users of Steam [13].

3.2.3. Ecosystem deficits and the limits of transactional growth

At the start, the only functions of the Epic Games Store were game purchase and download. Steam, on the other hand, has been continuously improved and now offers a whole range of functions, such as an achievement system, cloud saving, a Workshop, Remote Play Together, game streaming, a mod market, and community forums. Although these extra functions do not generate income directly, they help to increase the sense of belonging and reliance on the platform among users. For instance, the Workshop enables the creation and sharing of game modifications to extend the life of the game significantly; cloud saves allow users to switch game progress seamlessly across multiple devices; and the achievement system meets players' wishes to collect and display achievements socially. Epic's lack of or late addition of these functions means that even if users install the Epic client for an exclusive game, they will have little incentive to continue using the platform after playing the game. In practice, many users only use the client to claim free games or play exclusive games, and are still mainly reliant on Steam for daily gaming-related social interaction and the discovery of new games. Therefore, the 'instrumental' mode of use is relatively inactive for users and has a lower average revenue per user than that of Steam. It has a growth model of 'high acquisition and low retention', and is therefore difficult to build a stable competitive advantage [14].

The temporal lag in feature deployment further illustrates this ecosystem deficit. The Epic Games Store did not add a shopping cart until December 2021, three full years after launch, so buyers could only purchase one game at a time. Its achievement system arrived the same year and was supported by only a handful of games at first. Steam had offered both features for more than a decade. Epic also never built an equivalent of the Steam Workshop, where players upload and download mods that keep games such as Skyrim and Cities: Skylines active years after release. Without these

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retention tools, the client had little to offer once an exclusive game was finished [14]. For such games, player-made content is part of the product itself; without a comparable workshop, Epic supplies the base game but not the community-created content that brings the same players back year after year.

4. Strategic paths for overcoming incumbency advantages

4.1. Constructing differentiated cross-platform social value

Instead of imitating Steam's social structure, Epic can use the cross-platform compatibility of Unreal Engine to build a distinct social model and support players on different devices interchangeably. Strengthen the development of in-game social features and integrate interaction into the game experience. Integrate with streaming and social media to create 'gaming as social interaction' scenarios and offer a form of social value that Steam cannot. Therefore, this way can reduce the relational switching costs caused by a lack of Steam-based social graphs. Unreal Engine can run on all these platforms in Epic, but it is still necessary for other platforms to open their own multiplayer interfaces. Epic took a practical step in this direction in 2022 by releasing a cross-play toolkit that lowers the technical cost of connecting players across PC, console, and mobile, thus reducing the platform-specific lock-in effect of network effects [15].

4.2. Implementing tiered switching cost mitigation mechanisms

To reduce the switching cost, Epic could introduce a 'game library migration subsidy' to offer discounts or free copies of the same games for users who have already purchased them on Steam. A one-click import function can be added to automatically copy the user's previous settings and friend list. It could also build a limited interface for social data interoperability, show users the status of their Steam friends, and send cross-platform invitations to gradually transfer relationship networks. At the same time, Epic can optimise the interface and brand marketing to reduce the psychological learning curve and build an independent brand system. The total number of the above-divided measures is the different types of switching-cost systems in Section 3.2.2, and they address financial, procedural, and relational barriers in an organised way. Due to budget constraints, it is not feasible to offer broad library subsidies; therefore, Epic should focus on the most active Steam developers first.

4.3. Accelerating ecosystem completeness and habit formation

Epic needs to speed up the iteration of core functions, such as cloud save, achievements, and automatic updates, and prioritise high-frequency demands. Build a workshop and mod store to extend the life cycle of the game and create an all-new content system. Build an intelligent recommendation system to address the problem of a lack of review data through algorithms. It should also strengthen cooperation with Unreal Engine to offer developers exclusive functional support. Expand the ecosystem to make it harder for users to leave; otherwise, they will find it inconvenient and stop using it. Therefore, according to the transactional usage pattern identified in Section 3.2.3, users of EGS were mainly engaged in free-to-play claims and did not have continuous interaction. Epic cannot offer all the features that Steam has simultaneously; therefore, it should list only the functions that are used more frequently by players. Cloud saving, automatic updates, and a stable in-game overlay are used in almost every session, so they should come first; once these are

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stable, a recommendation system can be built based on play-time data to present games and partially replace the user reviews that Epic is still missing.

5. Conclusion

5.1. Key findings

Network effects and user switching costs work together to create a high barrier to entry for new players in the digital game distribution market, as shown in this study. Steam leverages the network effect of a large number of users and social connections to reinforce itself, and various switching costs further lock in users. Epic attempted to break into the market with a low-commission, exclusive, free-to-play model, but it did not displace Steam due to an incomplete platform function ecosystem and a lack of user retention mechanisms. Therefore, the following strategies are proposed in this paper to help late-entering platforms overcome the above obstacles: build an all-weather differentiated system of social functions, design progressive switching incentives, and strengthen the ecosystem of platform functions.

5.2. Research significance

At the theoretical level, this study validates the essential role of network effects and switching costs in platform competition and expands the body of knowledge on platform competitive strategy. At the practical level, it provides a reference system for late-entering enterprises to assess the difficulty of market entry and plan how to achieve it. Regulators can use the empirical results of market concentration due to network effects to support antitrust decisions. It can help consumers understand the impact of platform competition on service quality and incentives for innovation. The case of new entrants shows that capital and exclusive content alone are insufficient to build a network; investment is more effective if the goal is a particular cost of user retention, such as financial, procedural, or relational.

5.3. Limitations and future research

This study will be restricted to using secondary data and cannot obtain direct information on the decisions made by users and developers. Next, a questionnaire and interviews will be organised to collect primary data for the framework validation. Analysis can be extended to other regions for the dissemination of digital content, such as mobile games and console platforms, and their results can also be generalised. Future research could also use a long-term tracking design to observe how network effects and switching costs change with the development of technology.

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