

From power asymmetry to collective action: Brazilian developers in the digital games ecosystem

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Abstract

Purpose – The purpose of the article is to explore the perceptions of Brazilian game developers about the power relations between them and the sponsors of digital game platforms. It also aims to identify forms of collective action that developers can use to counteract the asymmetry of power.

Design/methodology/approach – The research employed an abductive approach, seeking empirical evidence that would challenge consolidated theory. To achieve this, semi-structured interviews were conducted with 25 Brazilian developers. The data were analyzed qualitatively using NVivo software. The aim was to resolve theoretical ambiguities identified in the literature review and to explore unexpected findings.

Findings – The study explores Brazilian game developers' perceptions through interviews, revealing their experiences within the industry's concentrated structure and their use of collective action to navigate power dynamics.

Research limitations/implications – The study's focus on Brazil limits the generalizability of its findings to the broader game development industry.

Practical implications – The study suggests Brazilian game devs can leverage collective action to counteract power imbalance with platforms, collaborate through events and projects and facilitate internationalization of their games.

Social implications – The study suggests collective action could empower developers to challenge platform dominance and foster a stronger community among Brazilian game developers.

Originality/value – The article's value lies in examining Brazilian devs' experiences within their specific industry context and highlighting collective action as a potential strategy for developers.

Keywords Platforms, Ecosystems, Power asymmetry, Digital games, Resource dependency theory, Power dependency relations

Paper type Research paper

Introduction

Platforms represent emerging organizational structures characterized by a technological framework featuring a central hub, standardized interfaces and complementary extensions. These platforms operate within social ecosystems, guided by a set of governance mechanisms that manage a network of independent complementors. These complementors play a crucial role in enhancing the value proposition of the platform (Saadatmand, Lindgren,

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& Schultze, 2019). For instance, in the context of game development, Nintendo serves as the platform sponsor, while Systems Research and Development (SRD) acts as the complementor, responsible for developing the Mario Bros. game.

Recent research on platforms has highlighted a paradox concerning power dynamics between platform sponsors and complementors (Cusumano, Gawer, & Yoffie, 2019). On one hand, sponsors wield significant power (Kude, Dibbern, & Heinzl, 2012). They predominantly control access to end users, limiting the potential for disintermediation by complementors. Simultaneously, platform ecosystems must be appealing to developers. To achieve this, sponsors must foster an environment where complementors have creative freedom and autonomy, which can weaken the sponsors' power (Foerderer, Kude, Schuetz, & Heinzl, 2019). Moreover, sponsors must attract and retain complementors, making the platform more appealing for future investments (Gawer & Henderson, 2007). From a literature perspective, this paradox arises because sponsors wield significant power, yet they must also limit their control to maintain the ecosystem's attractiveness. Although this paradox has been recognized in the literature, it remains underexplored (Cusumano *et al.*, 2019).

To address this gap, we turn to Resource Dependence Theory (RDT) and Power Dependency Relations (PDR) theory, which examine the implications of power imbalances among different actors (Cook, Emerson, Gillmore, & Yamagishi, 1983; Pfeffer & Salancik, 2003). These theories explore how actors shape their relationships based on power disparities. While platform sponsors are responsible for orchestrating the ecosystem, developers' decisions to join the ecosystem significantly affect its attractiveness. Therefore, understanding complementors' perceptions of power relationships and their effects on relational practices is vital in examining the power dynamics between sponsors and complementors. Under the theoretical lens of Power Dependency Relations, we formulate the following research question:

RQ1. How do developers assess potential courses of action stemming from their perceptions of industry structure and power dynamics?

Our chosen context for this study is the gaming industry, as its ecosystems thrive when they incorporate a wide array of complementary elements (Cox, Crosby, & McKenzie, 2022). We adopted an abductive qualitative approach (Timmermans & Tavory, 2012), well-suited for situations where researchers aim to contribute to theory based on empirical surprises. We conducted semi-structured interviews with digital game developers in Brazil to gain insights into their perceptions of the industry ecosystem, their interactions with platform sponsors and their relationships with fellow developers. These insights were aimed at addressing the challenges posed by power imbalances within ecosystems. In conclusion, we highlight our contributions to the existing literature and suggest areas for future research.

Theoretical lenses

The existing body of literature regarding platform-based ecosystems primarily focuses on examining the dynamics of relationships between platform complementors and sponsors (Cusumano *et al.*, 2019; Kude *et al.*, 2012). However, a limited number of articles delve into the adverse aspects associated with power dynamics between complementors and innovation platform sponsors.

Traditionally, the literature on ecosystems organized around platforms has primarily explored vertical relationships (Huber, Kude, & Dibbern, 2017). For instance, in automotive industry ecosystems, platform sponsors dictate the “what,” “how much,” and “when” for suppliers' production (Dyer, Singh, & Hesterly, 2018). Other studies have investigated the relationships between sponsors and complementors in contexts where no pronounced power asymmetry exists (Valença, Alves, & Jansen, 2018).

In innovation-oriented ecosystems, complementors are typically expected to take on a more proactive and autonomous role (Foerderer *et al.*, 2019). For example, within the gaming industry context, developers are often tasked with deciding the type of game they wish to develop (Wareham, Fox, & Cano Giner, 2014). Nonetheless, despite these expectations, platform sponsors still wield significant power. They have the capacity to determine when and in what direction the platform's technology will evolve (Boudreau, 2010). While the platform sponsor relies on the overall ecosystem's appeal, complementors are reliant on the sponsor. The sponsor may benefit from the power asymmetry concerning complementors, but it must also ensure that the ecosystem remains attractive to developers. This paradox has been recently identified in the literature but has yet to be thoroughly explored (Cusumano *et al.*, 2019).

Power is defined as the ability of actor A to coerce B into doing something against their will and preventing B from doing something they would otherwise do (Bachrach & Baratz, 1962). In this study, we adopt the perspective of two traditional theories in organizational studies to investigate power relations between firms: Resource Dependence Theory (RDT) and PDR. RDT is based on the concept that organizations integrate into their environments to acquire essential resources for survival (Pfeffer & Salancik, 2003). When organizations engage with their environment to secure crucial resources, they increase their dependence, leading to uncertainty as their fate becomes tied to the decisions of other organizations. RDT borrows from Emerson (1962) the premise that power asymmetry exists between two actors (A and B) when A needs resources held by B to achieve its objectives and lacks access to equivalent resources from other sources (Emerson, 1962). Power is not an individual attribute but rather a characteristic of a relationship (Emerson, 1962; Pfeffer & Salancik, 2003). PDR views interpersonal and interorganizational relationships as antecedents and outcomes of power dynamics. Authors associated with PDR argue that ties can be both "positive" (contributing to an individual's economic well-being) and "negative," where individuals can exclude others from critical economic transactions needed for resource acquisition and survival (Cook *et al.*, 1983).

This article focuses on how developers perceive power relations in the gaming industry and how this perception influences their relationships with platform sponsors and among themselves. We draw upon analytical sociology, which examines how perceptions influence actions by considering the interplay of "beliefs," "desires," "opportunities," and "actions" (Hedstrom & Ylikoski, 2011). "Beliefs" correspond to propositions perceived as true (Hahn, 1973), "desires" to aspirations and "opportunities" to the range of possible actions. The combination of beliefs, desires and opportunities provides the rationale for actors to engage in specific actions (Davidson, 2001; von Wright, 1989). From this perspective, we analyze the conditions that potentially lead to alternative actions by developers.

To investigate how developers perceive power relations, we have incorporated two theory-based categories relevant to the industry context (Pfeffer & Salancik, 2003): "Perceived Barriers to Entry and Mobility" and "Industry Structure." The "Perceived Barriers to Entry and Mobility" category pertains to developers' perceptions concerning the ease of entry for new developers into an ecosystem and the potential for mobility between platforms. An easier entry increases the number of alternatives for the platform sponsor, while enhanced mobility provides developers with more options (Cook *et al.*, 1983). The "Industry Structure" category focuses on the distribution of transactions within an ecosystem, thus capturing developers' perceptions of the asymmetry in scale among those involved in transactions. Differences in the size of actors directly affect their relative bargaining power, making this an essential aspect in the study of interorganizational power (Haveman, 1993).

To explore the desired relational actions of developers within the context of perceived power asymmetry, we have incorporated two theory-based categories: "Building Relationships with Platforms" and "Collective Action." Both categories capture potential

responses by developers. “Building Relationships with Platforms” concerns the interactions between developers and sponsors, while “Collective Action” deals with the establishment of relationships among developers with the goal of fostering collaboration and collective action. In the following sections, we will provide a more comprehensive examination of these categories. Although this study does not involve hypothesis testing, we will establish theoretical expectations for these categories. Two reasons support this approach: first, the context generates ambivalent expectations from the theory, and second, the empirical study’s findings present surprising results compared to established theory.

Perceptions of entry barriers and mobility

Entry barriers into an industry and the mobility of organizations significantly influence the power dynamics among the most influential actors (Haveman, 1993). However, in the context of platform-based ecosystems, the impact of these factors is ambivalent. Entry barriers refer to the elements that discourage new entrants from joining an industry as they make it unprofitable (Demsetz, 1982). According to the PDR theory, the more opportunities complementors have to enter, the greater the bargaining power of the platforms, as they offer more alternatives. Conversely, the higher the mobility potential of complementors to switch to alternative platforms, the lower their bargaining power, as their ability to access alternative partners for transactions is reduced (Cook *et al.*, 1983).

To attract complementors, sponsors can adopt strategies such as open-sourcing technology or reducing entry barriers. In the first scenario, technology becomes accessible to all (e.g. the Linux environment). In the second scenario, the development of user-friendly interfaces lowers the learning curve for new developers (e.g. Apple provides app development tools for the iPhone) (Boudreau, 2010). When platforms reduce entry barriers to indirectly attract complementors, it increases mobility between platforms. Therefore, based on the PDR theory, the reduction in entry barriers has ambivalent effects on the sponsor’s bargaining advantage over complementors.

Industry structure

Industry structure relates to the average size of firms within an industry. When firms exhibit disparate sizes, the potential for power imbalances arises (Pfeffer & Salancik, 2003). Larger companies, due to their enhanced resource access, often enjoy advantages during negotiations with smaller counterparts. The concentration of an industry directly affects power dynamics, as transaction opportunities are unevenly distributed among its participants (Yin & Shanley, 2008).

In the context of the gaming industry, differences in scale between platforms and developers are expected. This disparity emerges because the platform sponsor establishes an extensive network of suppliers, resulting in network externalities that predominantly benefit the sponsor. Network effects or network externalities refer to the non-linear advantages gained when new actors join a network (Cusumano *et al.*, 2019). Conversely, developers must link with the network orchestrated by the platform sponsor to access game development technology and distribution channels. Consequently, it is anticipated that developers will have a high degree of dependence on platform sponsors (Cutolo & Kenney, 2021). A potential response to this scale difference is to exert effort towards growth, thereby achieving less asymmetric relationships (Pfeffer & Salancik, 2003).

Building relationships with platforms

In contexts marked by high power asymmetry, less powerful actors become highly dependent on their more influential counterparts. The latter have the capability to compel the

former into accepting less favorable transactions. Often, the mere potential of excluding a less powerful partner from future transactions is adequate to enforce lower profit margins (Cook *et al.*, 1983). When less powerful actors lack access to alternative resource sources, it is expected that they will proactively seek to establish and reinforce their relationships with more influential actors (Hirschman, 1970; Peng & Luo, 2000). Similarly, it is expected that complementors will make efforts to cultivate and strengthen their relationships with platforms to avoid exclusion from transactions. However, it is unlikely that platform sponsors would accept exclusive relationships since this would limit their flexibility to negotiate contractual terms for more favorable deals (Cook *et al.*, 1983).

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Collective action

According to Resource Dependence Theory, organizations, in response to the risk of dependence, heightened uncertainty and reduced autonomy, are compelled to engage in collective action to promote greater symmetry in negotiations (Blau, 1964; Pfeffer & Salancik, 2003). Through collective action, the resources of smaller entities increase, resulting in a more balanced bargaining situation.

Method

In the specific context of this research, the theoretical ambiguities presented in the literature review make it challenging to establish a priori hypotheses. However, these are not entirely “unknown” phenomena that would justify or be purely based on an inductive approach (for a discussion and critique of practices often associated with Grounded Theory, see Timmermans & Tavory, 2012). Consequently, our approach was “abductive” (Peirce, 1974; Timmermans & Tavory, 2012). The abductive approach differs from inductive and deductive approaches. The inductive approach aims to construct knowledge through accumulating empirical data and establishing patterns. In contrast, the deductive approach aims to formulate new hypotheses based on existing theory and then test them by collecting empirical data. The abductive approach seeks empirical evidence that challenges established theory, leading to the development of new theoretical conjectures in response to surprising evidence (Timmermans & Tavory, 2022). In the specific context of this research, these conjectures help address the established ambiguities. Furthermore, as we will demonstrate, there are findings that challenge the theory without necessarily introducing ambiguity beforehand.

To achieve this goal, we developed an interview guide based on the theoretical categories outlined in the “theoretical lenses” section (for a similar approach, see Cabral & Krane, 2018). During the interviews, we encouraged participants to share their insights about the industry, with the aim of understanding how they perceived the context and power dynamics. Subsequently, the interviews delved into the relational aspect of developers with other industry players and among themselves. The use of semi-structured interviews allowed for a deeper exploration of emerging themes, including criteria for platform selection, perceived benefits of ecosystem membership, access to end users and the choice between exclusive relationships and platform mobility.

We conducted semi-structured interviews with 25 Brazilian developers, with 22 of these interviews conducted during the BIG Festival 2014 event, and the remainder carried out remotely in the period close to the event. Interviews were pre-scheduled with developers prior to the event, and we made an effort to ensure diversity in terms of company size and geographical region. This diversity aimed to provide a more balanced perspective on developer scale since the size of a firm can significantly influence negotiation dynamics with other industry actors. Our selection predominantly included small developers, as 19 of the

interviewed developers had ten or fewer employees. Additionally, two developers were associated with firms having between 11 and 20 employees, and four developers worked with firms having more than 20 employees. The preponderance of small developers aligns with the profile of digital game development firms in the country. Geographically, 15 firms were located in the southeast region, 4 in the south region and 6 in the northeast region of the country.

These interviews had an average duration of 48 minutes. To ensure the confidentiality of the interviewees, we assigned codes following the pattern [Role]+[ID]. The interviews were transcribed, resulting in a total of 350 single-spaced pages. In this research, we treated the interviews as individual cases to be qualitatively analyzed and compared (Eisenhardt & Graebner, 2007). Our initial review of all interviews aimed to generate the first set of codes through open coding, which were associated with the collected material. We used NVivo software (Bazeley & Jackson, 2015) to assist in this process.

As new codes emerged, both authors discussed and made revisions to the code dictionary, resolving any discrepancies in the interpretation of the data. Since the interview script was constructed to align with the pre-established theoretical categories ("Perceived barriers to entry and mobility," "Industry Structure," "Building Relationships with Platforms," and "Collective Action"), we were able to associate the codes generated from the interview readings with the categories originally established in the literature review. While we did not fully adopt the Grounded Theory approach, we organized the codes into a "Code Structure" that incorporates "First Order Themes" (associated with empirical material), "Second Order Themes," and "Aggregate Dimensions" (which are more comprehensive and connected with theory). Although "code structures" are commonly used in studies affiliated with Grounded Theory, they are also a path taken by case studies (for further discussion, refer to Gehman et al., 2018; for an example, see Trocin, Hovland, Mikalef, & Dremel, 2021).

Observed results

The results obtained align with the four categories established in the literature review: "Perceptions of Entry Barriers and Mobility," "Industry Structure," "Building Relationships with Platforms," and "Collective Action." Table 1 provides a summary of the aggregated dimensions, second-order themes and first-order themes.

Perceptions of entry and mobility barriers

Reducing entry barriers

Several interviewees pointed out how emerging technologies have increased access, which we interpret as a reduction in entry barriers for new developers and enabled the greater popularization of game development. Several mentioned engines (specific software for game development that has modular characteristics) that reduce development time and cost:

[...] Nowadays, any independent person, even at a low cost, can download an application, can develop a game from their home and can publish this game. So, with little resources, let's say, you can develop an entire game and publish that entire game. That power has increased. (Developer 19)

For those interviewed, the development of these technologies allowed thousands of new studios to produce hundreds of thousands of games for different platforms.

Mobility of knowledge and resources

Many interviewees emphasized the ease of transferring different types of resources from one ecosystem to another. For instance, they believed that technical knowledge, whether related to programming or project management, could be largely adapted to new technologies.

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First Order Concepts	Second Order Themes	Aggregate Dimensions
Popularization of Access "It has increased the power of the developer. We have more resources, we can acquire audio, we can acquire scripts, scripts are easier to develop for games." (Developer 7)	Reducing Entry Barriers	Perceptions of Entry and Mobility Barriers
Customization "The asset store is very useful for gaining agility and speed in development. There are so many things ready, you just need to customize them for your game..." (Developer 8)		
Portability "With engines, working on more than one platform is very easy." (Developer 13)	Mobility of knowledge and resources	
Multithoming "[...] today, a large part of the market is digitally distributed. It doesn't make sense to lock your product into just one market. It doesn't make sense to make a game and only keep it in Brazil when you can just click a button to put it in other places." (Developer 11)		
Blockbusters and Long Tail "The market is saturated. Only a few get the attention." (Developer 9)	Sales Concentration	Industry Structure
Difficult to scale "We always see new developers coming in, but many end up leaving quickly. Getting in is easy. Becoming established and growing is hard." (Developer 11)		
Scale difference [...] "some powerful studio has power [...] Governments have power too, the investor has power. Those who don't actually have power are the little ones and those who are disaggregated. They only gain power as they organize themselves." (Developer 5)	Power Asymmetry	
Bargaining power "It's very difficult for little ones to negotiate good deals." (Developer 16)		
First Order Concepts	Second Order Themes	Aggregate Dimensions
Conditions for exclusive developers "At first we didn't want to tie our hands. But the margin was much more attractive to developers on an exclusive basis." (Developer 4)	Expected benefits of exclusivity	Building Relationships with Platforms
Endorsement "After years in this industry, it's obvious to me that the treatment, the visibility given to exclusive developers is much greater." (Developer 3)		
Speed in negotiation "When you are already known [by the publisher], everything becomes easier. The entire sales process is much faster." (Developer 9)	Benefits expected from Reputation	
Greater chance of being chosen [...] "you have to go, meet the guy at an event, the following year show that you have progressed, and after a while he sees that your work is serious and he can do business with you." (Developer 19)		
Networking "We can't always handle a project alone. That's why it's always good to know potential partners that we can call on [for a complex project]." (Developer 8)	Deepening Relationships between Developers	Collective action
Opportunities "Opportunities in this field are a bit like job openings, right? You can always apply for a 'public call', but it's different when they invite you." (Developer 16)		
Creation of associations "One of the most important things about belonging to a community is being able to [have access] to each other's work." (Developer 13)	Mutual Solidarity	
Mutual help "The development team interacts a lot with the community [...]. When you post a question on the forum, most likely a developer will answer it. Or some community moderator will. Or even the other employees will." (Developer 3)		
Need for local articulation "Once you are outside this context of international companies, you see that local development companies don't have much coordination with each other (...)" (Developer 18)	Collective Internationalization Strategies	
Promotion of local companies at international events "When one of us opens doors in the international market, everyone benefits. The consumer can see the quality of what we are doing." (Developer 12)		

Source(s): The authors

Table 1.
Code structure

When you work with a specific platform, be it console or mobile, you also develop some tools that can be used in different projects. I've done this in projects I've worked on, and I know teams that still do this today. Suddenly, you have to change your development process because you prefer one platform or another; I think it's more challenging, but it's possible. You carry everything, especially the technical aspects. (Developer 15)

This high mobility of resources and skills opens the door to multihoming, where developers plan to create games for multiple platforms simultaneously to avoid becoming overly dependent on any one of them.

Industry structure

Sales concentration

Consistent with the platform literature (Barlow, Verhaal, & Angus, 2019), interviewees expressed that the increased popularity and lowered entry barriers had resulted in an oversupply. The growing number of developers in the market has led to a dispersion of consumer attention, making it increasingly challenging to stand out in an increasingly saturated market.

Today, the market is full of options. It's very difficult to attract users to your game. (Developer 12)

Simultaneously, developers encounter hurdles when trying to expand. Sales concentration has increased around blockbuster titles, leaving less fortunate developers with reduced revenues.

It's becoming increasingly difficult to become successful. While the entry cost to the market is still low, scaling up requires capital. So, it's challenging to achieve significant growth without substantial support. This is quite difficult unless you're very lucky. (Developer 7)

Power asymmetry

The interviewees referred to the idea of inequality in the firm's bargaining power vis-à-vis customers and suppliers:

I believe that developers need to have more power. Today, the power of developers is a very rare exception; in fact, it is virtually non-existent. [...] The BNDES survey stated that the vast majority of developers earn (up to) 200,000 reais per year. You can't have power with an annual income of 200,000 reais. (Developer 12)

The asymmetry of power is perceived as a result of the entry of numerous small developers, who have difficulty in collective coordination.

Building relationships with platforms

Expected benefits of exclusivity

The interviews revealed that it is a recurring practice among developers and platform sponsors to establish exclusivity contracts. However, by granting exclusivity to the platform, developers hope to receive promotion by sponsors to various markets. This increases the developer's dependence on the platform. However, this relationship is not always seen as a restriction; it is often viewed as access to resources that would not be available otherwise:

I decided to give preference to one platform because I wouldn't have the energy for more than one right now. . . but it was good, (the platform) took me along for a lot of things, it was worth being their poster child. (Developer 17)

Developers see investing in relationships with platforms as important for several reasons. Firstly, interpersonal access between developers and platforms allows access to valuable information about the market and new technologies. Secondly, strengthening relationships can be accompanied by support in standing out, thus overcoming the challenge of too many developers:

Getting the game featured in the app store is a lengthy process, but it's worth it. After all, it's an editorial choice, so in addition to saving advertising money, it's a huge endorsement of the game's quality. . . but it doesn't happen overnight. In our case, we already knew the people at the stores from previous games, and they followed the evolution of the game over time. . . so when we said it was ready and we were going to launch it, they already knew what to expect. (Developer 10)

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Benefits expected from reputation

Several interviewees expressed that relationships with publishers and other actors guarantee a flow of opportunities:

Relationships, if you are working on a project with the same investor or publisher you've worked with before, you can maintain that relationship, especially if it's a good one. This is really beneficial because it bypasses all the initial meetings to get to know the team or discuss what has already been done. You can dive straight into the game concept, the required resources, and the negotiation, as everything is based on your prior work, saving time and money. You've already demonstrated what you can deliver, and that carries weight. (Developer 15)

Many interviewees identified a strong reputation with platforms and publishers as a mechanism that leads to new partnership invitations. On platforms using emerging technologies, such as virtual reality, this reputation linked to game development expertise is more valued than specific technology mastery:

As you progress, each game you release is more successful. (. .) When making investment decisions between two projects, whether they'll be included in the store, or whether they'll get developer kits, the tendency is to choose the company with the better track record. (. .) There's less risk when investing in a team that has already successfully completed projects compared to a team that hasn't. (. .) For example, with new technology like VR [Virtual Reality], choosing between a team with a 15-year track record of success and a team with VR experience but no game development experience, the weight naturally shifts toward the team with a longer history of successful games. (Developer 22)

Collective action

Deepening relationships between developers

Interviewees cited participation in events as a way of fostering relationships among actors complementary to the platforms. These events can facilitate connections between consumers and developers, as well as between developers, publishers, suppliers, investors and government representatives.

If there is no contact, it is almost impossible to understand what needs to be done to be successful within that platform. For us, it meant attending events, meeting people, taking advantage of opportunities in accelerators to get to know these platforms and establish closer relationships. Each year, attending major events allows us to get to know people better, build personal connections with those we work with. (Developer 17)

Mutual solidarity

From the interviews, we identified that collaboration between developers takes place in various ways, extending beyond interpersonal relationships and often taking on the character of a collective relationship with the aim of promoting the developer community. This solidarity is based on the expectation that members of the same group will assist one another in responding to policy changes on a platform, developing a critical mass of companies to generate a continuous flow of projects, or achieving higher visibility collectively (whether geographical, as in a regional cluster, or related to a specific game type, such as one based on new technologies like virtual reality).

[...] Today, the industry is very united, you know? We observed this last year. Those who have achieved success are now very open to assisting those who have not yet succeeded. (Developer 18)

Collective internationalization strategies

The developers interviewed pointed out that the internationalization trajectory is accompanied by multiple alternative trajectories. One of these trajectories associates the success of individual developers with the collective group of developers in the country: the greater the recognition obtained by the collective group of developers in a country, the greater the group's insertion in the international market. Furthermore, with greater international recognition, national recognition also increases, due to the prestige that the developer obtains in highly prestigious markets. These two trajectories can reinforce each other: as a market becomes more mature, it becomes difficult to compete nationally without obtaining international recognition. This dynamic contributes to collective action:

[...] We formed a state association of developers. (...) It's a group of companies that help each other however they can. For example, if one company goes to an event and others can't, that company takes all the other companies' games there. As an association, we get investments from state agencies and take on bigger projects. (Developer 17)

Discussion

In this section, we will discuss the results in an integrated way and relate them to the relevant literature. For this purpose, we refer to Figure 1, which presents the findings in an articulated way in a table that summarizes perceptions and beliefs about how the industry works, developers' desires, perceptions of opportunities and actions.

We contrast the observations described in the previous section against what would be expected from theory (Table 2). This contrast allows us to identify surprising findings that potentially lead to a reformulation of the theory.

Perceptions of entry and mobility barriers

Developers interviewed for this research expressed a perception of low barriers to entry into the ecosystem and high mobility of knowledge and resources across various platforms. The decrease in entry barriers corresponds to an increase in the number of developers.

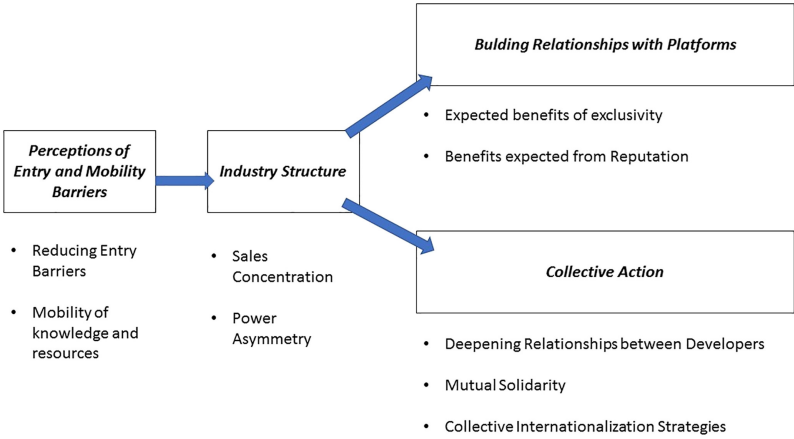


Figure 1.
Framework of beliefs, desires, opportunities and actions

Source(s): The authors

Analytical dimension	Theoretical expectation	Observed	From power asymmetry to collective action
Perceptions of entry and mobility barriers	<i>Ambivalent effect</i> : lowering barriers to entry increases the power of platform sponsors, but mobility increases the power of developers	Both effects observed	
Industry structure	<i>Advantage of platform sponsors</i> due to the high concentration of sales around them; developers seek to scale up	Platform sponsors concentrate sales; among developers, “blockbusters” attract the most attention; developers face difficulties in scaling up	
Building relationships with platforms	<i>Platform sponsors avoid establishing exclusive relationships</i> if there are low barriers to entry for new developers; <i>Developers avoid exclusive relationships</i> if there is high mobility between platforms	Platform sponsors establish exclusive contracts with a minority of developers; developers seek to establish exclusive relationships in search of greater prominence	
Collective action	Developers’ efforts to develop <i>collective action</i>	Efforts toward collective action and the development of a collective identity were noted. Nevertheless, the substantial fragmentation of the ecosystem, involving numerous developers, poses challenges to effective coordination	

Table 2.
Comparison between theoretical expectations and research findings

Source(s): The authors

Simultaneously, the ease of developing games using engines has heightened the likelihood of developers engaging with multiple platforms, a phenomenon known as “multihoming”, i.e. the possibility of joining several platforms. Multihoming presents several challenges to platform performance. First, when developers have access to multiple alternatives, the platforms’ bargaining power decreases (Emerson, 1962). Second, it erases platform content differentiation, as the same game becomes available across multiple platforms. Third, it diminishes the “network effect” of the platform, as complementors can migrate to other platforms. In other words, the reduction in entry barriers and increased mobility diminishes the power asymmetry between platforms and developers, as developers can migrate more easily between platforms.

Industry structure

The evidence collected throughout the interviews reveals that developers associate the easier entry of newcomers with an increase in the power of the platforms. While expanding access to new developers ensures the fulfillment of demands for greater supply diversity, it also results in oversupply. This oversupply of cultural products leads to the concentration of sales of some items, commonly referred to as “blockbusters.” Most items offered receive less attention and consequently achieve small sales volumes, constituting a “long tail” (Elberse, 2013).

As a result, the platforms’ bargaining power far surpasses that of developers, as the latter typically operate on a smaller scale compared to the platforms. The substantial number of small developers, with their challenges in scaling up and fierce competition, reduces their bargaining leverage with platforms and publishers (Lavie, 2007). The difficulty in achieving scale impedes one of the primary strategies envisaged by RDT, which is growth aimed at improving the terms of negotiation (Davis & Cobb, 2010; Pfeffer & Salancik, 2003).

Interviewees also reported that their primary affiliation within the ecosystem is through their relationship with the platform, rather than with other developers. In this setup, platforms serve as intermediaries between developers (Jacobides, Cennamo, & Gawer, 2018). Consequently, platforms have the ability to foster rivalry among developers, who compete to

capture the platform's attention (Cook *et al.*, 1983). Throughout the interviews, many interviewees emphasized the rivalry among complementors, leading to efforts aimed at attracting the platforms' attention.

On the other hand, the threat of multihoming allows developers to explore alternative platforms, thereby reducing dependency relationships. However, despite the advantages associated with multihoming, a developer without strong ties to platforms or peers may find themselves immersed in intense competition and receive limited attention from consumers.

Building relationships with platforms

Given this scenario of asymmetry and centralization, developers employ various relational strategies and tactics. Developing a strong reputation and complying with requests for exclusivity are crucial relational strategies aligned with the interests of the platforms. In interviews, developers emphasized the importance of engaging with platform sponsors to secure promotion. Consequently, developers and platforms often enter into exclusivity contracts, which grant developers greater visibility.

It's necessary to revisit the theoretical expectation that exclusivity relationships pose a risk to developers in a context of high mobility, as they increase dependence on the platform. While seeking greater visibility, developers tend to reinforce asymmetric relationships, contributing to a network characterized by dependencies and power dynamics (Cook *et al.*, 1983; Emerson, 1962). However, as mentioned earlier, the growing number of small developers in the market intensifies competition for user attention and weakens their bargaining power against platforms. The literature suggests that when one party's bargaining power is low, there is a higher likelihood of seeking exclusivity contracts (Khoury, Pleggenkuhle-Miles, & Walter, 2019). Consequently, preserving autonomy isn't the sole objective pursued by organizations (Hillman, Withers, & Collins, 2009). Exclusivity contracts, on one hand, increase developers' reliance on the platform but also reduce other sources of uncertainty, indicating that developers prioritize which uncertainties they need to eliminate or mitigate.

For platforms, the establishment of exclusivity contracts initially diminishes the power they hold over developers, as it eliminates some of the bargaining and exclusion power that would otherwise exist without the contract (Casciaro & Piskorski, 2005; Cook *et al.*, 1983). However, by entering into exclusivity contracts, the risk of developers engaging with multiple platforms is reduced, strengthening network effects (Cusumano *et al.*, 2019). This mutual uncertainty results in the establishment of an exclusivity contract that enhances interdependence between the platform and developers. This demonstrates how the reduction of entry barriers and increased mobility between ecosystems leads to the formation of exclusive relationships between sponsors and developers, a mechanism that was not initially addressed in theory.

Our evidence also suggests that developers invest in building a reputation with platforms, as they believe platforms tend to favor and promote developers with established reputations. Additionally, the literature establishes that long-term relationships contribute to greater bargaining power (Bidwell & Fernandez-Mateo, 2010).

Collective action

An alternative to entering into exclusivity contracts with platforms is to invest in relationships with other developers. Collaboration among developers enables the sharing of knowledge and fosters a sense of community. The literature suggests that a sense of belonging to a community is often accompanied by mutual solidarity, which supports the development of a collective identity (Lawler, Thye, & Yoon, 2009). Consequently, the promotion of a collective identity may enhance the developers' ability to coordinate for

collective action, which, according to the RDT perspective, aids in collective bargaining (Davis & Cobb, 2010). Simultaneously, following the PDR perspective, creating lateral connections can reduce the centralization of platform sponsors.

Based on the data collected, we identified several pieces of evidence indicating relational efforts aimed at mitigating the centralization and asymmetry previously analyzed. Firstly, many interviewees reported their efforts to establish relationships with other developers, thereby reducing the intermediation power of the platforms. In contrast to a “divide and conquer” relational strategy, these developers find greater value in collaboration and working together (Kauppila, Bizzi, & Obstfeld, 2018). This approach aligns with strategic responses in situations of dependence (Davis & Cobb, 2010). Secondly, we found initiatives aimed at creating collective actions and fostering group identity (Lawler *et al.*, 2009). These collectives serve as a counterbalance to highly vertical, asymmetric and uncertain ecosystems, allowing for the advancement of collective interests among developers, including negotiations with platforms. Similarly, collective identity is linked to the efforts to establish an international reputation for the collective of Brazilian developers.

In summary, we observed the emergence of a sense of community, reciprocity and knowledge exchange among developers (Hippel & Krogh, 2003). The prospect of internationalization reinforces the collective identity, offering greater growth opportunities for developers and a wider array of alternative partners, thus reducing their dependence on platforms.

Conclusion

This article addresses the paradox that platform sponsors face concerning the power they wield over developers. On one hand, the power asymmetry between sponsors and developers allows the former to secure advantageous deals, potentially eroding the profit margins of the latter. On the other hand, sponsors must create attractive conditions for developers to ensure the ecosystem’s appeal (Cusumano *et al.*, 2019; Kude *et al.*, 2012).

In this article, we explore this paradox by investigating how various Brazilian developers perceive the ecosystem in which they operate and reflect on their relationships of dependence and interdependence with platforms and other developers. Specifically, we aim to delve into developers’ perceptions of power dynamics with platforms and the potential courses of action stemming from these perceptions. This article contributes to the platform literature by shedding light on how developers cultivate dependency and interdependency relationships with both each other and platforms. We have identified two relational approaches embraced by developers: engaging with platforms and fostering collective action. Notably, the pattern of establishing exclusive relationships emerged as a surprising finding in relation to platform theory. Future studies could develop and test hypotheses regarding the establishment of exclusive relationships between sponsors and developers.

Finally, we propose that a shift in perspective toward the environment can be effectively accomplished by conceiving the context as a “Strategic Action Field” (SAF) (Fligstein & McAdam, 2011). This approach has proven successful in various contexts (Candido, Sacomano Neto, & Côrtes, 2021). It offers the potential to shift the organizational focus to the meso-analytical level of organizational fields while maintaining an emphasis on power relations and collective action (Candido *et al.*, 2021). To this end, we suggest that future studies may expand the research scope to include other actors, such as platforms and publishers and adopt a longitudinal perspective with a focus on field transformation.

References

- Bachrach, P., & Baratz, M. S. (1962). Two faces of power. *American Political Science Review*, 56(4), 947–952. doi: 10.2307/1952796.

-
- Barlow, M. A., Verhaal, J. C., & Angus, R. W. (2019). Optimal distinctiveness, strategic categorization, and product market entry on the Google Play app platform. *Strategic Management Journal*, 40(8), 1219–1242. doi: [10.1002/smj.3019](https://doi.org/10.1002/smj.3019).
- Bazeley, P., & Jackson, K. (2015). *Qualitative data analysis with NVivo*. Thousand Oaks, California: Sage.
- Bidwell, M., & Fernandez-Mateo, I. (2010). Relationship duration and returns to brokerage in the staffing sector. *Organization Science*, 21(6), 1141–1158. doi: [10.1287/orsc.1090.0509](https://doi.org/10.1287/orsc.1090.0509).
- Blau, P. M. (1964). *Exchange and power in social life*. Hoboken, NJ: Wiley.
- Boudreau, K. (2010). Open platform strategies and innovation: Granting access vs devolving control. *Management Science*, 56(10), 1849–1872. doi: [10.1287/mnsc.1100.1215](https://doi.org/10.1287/mnsc.1100.1215).
- Cabral, S., & Krane, D. (2018). Civic festivals and collaborative governance. *Revue Internationale des Sciences Administratives*, 84(1), 191–212. doi: [10.1177/0020852315615196](https://doi.org/10.1177/0020852315615196).
- Candido, S. E. A., Sacomano Neto, M., & Côrtes, M. R. (2021). How social inequalities shape markets: Lessons from the configuration of PET recycling practices in Brazil. *Business and Society*, 61(3). doi: [10.1177/0007650321989063](https://doi.org/10.1177/0007650321989063).
- Casciaro, T., & Piskorski, M. J. (2005). Power imbalance, mutual dependence, and constraint absorption: A closer look at resource dependence theory. *Administrative Science Quarterly*, 50(2), 167–199. doi: [10.2189/asqu.2005.50.2.167](https://doi.org/10.2189/asqu.2005.50.2.167).
- Cook, K. S., Emerson, R. M., Gillmore, M. R., & Yamagishi, T. (1983). The distribution of power in exchange networks: Theory and experimental results. *The American Journal of Sociology*, 89(2), 275–305. doi: [10.1086/227866](https://doi.org/10.1086/227866).
- Cox, J., Crosby, P., & McKenzie, J. (2022). Don't look back? Backward compatibility in the video gaming industry. *Strategy Science*, 8(3), 387–404. doi: [10.1287/stsc.2022.0177](https://doi.org/10.1287/stsc.2022.0177).
- Cusumano, M. A., Gawer, A., & Yoffie, D. B. (2019). *The business of platforms: Strategy in the age of digital competition, innovation, and power*. New York: Harper Business.
- Cutolo, D., & Kenney, M. (2021). Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy. *Academy of Management Perspectives*, 35(4), 584–605. doi: [10.5465/amp.2019.0103](https://doi.org/10.5465/amp.2019.0103).
- Davidson, D. (2001). *Essays on actions and events: Philosophical essays* (1). Oxford: Clarendon Press.
- Davis, G. F., & Cobb, J. A. (2010). Resource dependence theory: Past and future. *Research in the Sociology of Organizations*, 28, 21–42. doi: [10.1108/S0733-558X\(2010\)0000028006](https://doi.org/10.1108/S0733-558X(2010)0000028006).
- Demsetz, H. (1982). Barriers to entry. *The American Economic Review*, 72(1), 47–57.
- Dyer, J. H., Singh, H., & Hesterly, W. S. (2018). The relational view revisited: A dynamic perspective on value creation and value capture. *Strategic Management Journal*, 39(12), 3140–3162. doi: [10.1002/smj.2785](https://doi.org/10.1002/smj.2785).
- Eisenhardt, K., & Graebner, M. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32. doi: [10.5465/amj.2007.24160888](https://doi.org/10.5465/amj.2007.24160888).
- Elberse, A. (2013). *Blockbusters: Hit-making, risk-taking, and the big business of entertainment*. London: Macmillan.
- Emerson, R. (1962). Power dependence relations. *American Sociological Review*, 27(1), 31–40. doi: [10.2307/2089716](https://doi.org/10.2307/2089716).
- Fligstein, N., & McAdam, D. (2011). Toward a general theory of strategic action fields. *Sociological Theory*, 29(1), 1–26. doi: [10.1111/j.1467-9558.2010.01385.x](https://doi.org/10.1111/j.1467-9558.2010.01385.x).
- Foerderer, J., Kude, T., Schuetz, S. W., & Heinzl, A. (2019). Knowledge boundaries in enterprise software platform development: Antecedents and consequences for platform governance. *Information Systems Journal*, 29(1), 119–144. doi: [10.1111/isj.12186](https://doi.org/10.1111/isj.12186).

-
- Gawer, A., & Henderson, R. (2007). Platform owner entry and innovation in complementary markets: Evidence from Intel. *Journal of Economics and Management Strategy*, 16(1), 1–34. doi: [10.1111/j.1530-9134.2007.00130.x](https://doi.org/10.1111/j.1530-9134.2007.00130.x).
- Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding theory–method fit: A Comparison of three qualitative approaches to theory building. *Journal of Management Inquiry*, 27(3), 284–300. doi: [10.1177/1056492617706029](https://doi.org/10.1177/1056492617706029).
- Hahn, R. A. (1973). Understanding beliefs: An essay on the methodology of the statement and analysis of belief systems. *Current Anthropology*, 14(3), 207–229. doi: [10.1086/201319](https://doi.org/10.1086/201319).
- Haveman, H. A. (1993). Organizational size and change: Diversification in the savings and loan industry after deregulation. *Administrative Science Quarterly*, 38(1), 20–50. doi: [10.2307/2393253](https://doi.org/10.2307/2393253).
- Hedstrom, P., & Ylikoski, P. (2011). Analytical sociology. In *The SAGE Handbook of the Philosophy of the Social Sciences* (Vol. 386).
- Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management*, 35(6), 1404–1427. doi: [10.1177/0149206309343469](https://doi.org/10.1177/0149206309343469).
- Hippel, E. V., & Krogh, G. V. (2003). Open source software and the ‘private-collective’ innovation model: Issues for organization science. *Organization Science*, 14(2), 209–223. doi: [10.1287/orsc.14.2.209.14992](https://doi.org/10.1287/orsc.14.2.209.14992).
- Hirschman, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states* (Vol. 25). Cambridge, Mass: Harvard University Press.
- Huber, T. L., Kude, T., & Dibbern, J. (2017). Governance practices in platform ecosystems: Navigating tensions between cocreated value and governance costs. *Information Systems Research*, 28(3), 563–584. doi: [10.1287/isre.2017.0701](https://doi.org/10.1287/isre.2017.0701).
- Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal*, 39(8), 2255–2276. doi: [10.1002/smj.2904](https://doi.org/10.1002/smj.2904).
- Kauppila, O., Bizzi, L., & Obstfeld, D. (2018). Connecting and creating: Tertius iungens, individual creativity, and strategic decision processes. *Strategic Management Journal*, 39(3), 697–719. doi: [10.1002/smj.2728](https://doi.org/10.1002/smj.2728).
- Khoury, T. A., Pleggenkuhle-Miles, E. G., & Walter, J. (2019). Experiential learning, bargaining power, and exclusivity in technology licensing. *Journal of Management*, 45(3), 1193–1224. doi: [10.1177/0149206317693084](https://doi.org/10.1177/0149206317693084).
- Kude, T., Dibbern, J., & Heinzl, A. (2012). Why do complementors participate? An analysis of partnership networks in the enterprise software industry. *IEEE Transactions on Engineering Management*, 59(2), 250–265. doi: [10.1109/TEM.2011.2111421](https://doi.org/10.1109/TEM.2011.2111421).
- Lavie, D. (2007). Alliance portfolios and firm performance: A study of value creation and appropriation in the US software industry. *Strategic Management Journal*, 28(12), 1187–1212. doi: [10.1002/smj.637](https://doi.org/10.1002/smj.637).
- Lawler, E., Thye, S. R., & Yoon, J. (2009). *Social commitments in a depersonalized world*. New York, NY: Russell Sage Foundation.
- Peirce, C. S. (1974). *Collected papers of charles sanders peirce* (5). Cambridge, MA: Harvard University Press.
- Peng, M. W., & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: The nature of a micro-macro link. *Academy of Management Journal*, 43(3), 486–501. doi: [10.5465/1556406](https://doi.org/10.5465/1556406).
- Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective (with new introd)*. ebrary.
- Saadatmand, F., Lindgren, R., & Schultze, U. (2019). Configurations of platform organizations: Implications for complementor engagement. *Research Policy*, 48(8), 103770. doi: [10.1016/j.respol.2019.03.015](https://doi.org/10.1016/j.respol.2019.03.015).

-
- Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research from grounded theory to abductive analysis. *Sociological Theory*, 30(3), 167–186. doi: [10.1177/0735275112457914](https://doi.org/10.1177/0735275112457914).
- Timmermans, S., & Tavory, I. (2022). *Data analysis in qualitative research: Theorizing with abductive analysis*. Chicago, IL: University of Chicago Press.
- Trocen, C., Hovland, I. V., Mikalef, P., & Dremel, C. (2021). How artificial intelligence affords digital innovation: A cross-case analysis of scandinavian companies. *Technological Forecasting and Social Change*, 173, 121081. doi: [10.1016/j.techfore.2021.121081](https://doi.org/10.1016/j.techfore.2021.121081).
- Valença, G., Alves, C., & Jansen, S. (2018). Strategies for managing power relationships in software ecosystems. *Journal of Systems and Software*, 144, 478–500. doi: [10.1016/j.jss.2018.07.036](https://doi.org/10.1016/j.jss.2018.07.036).
- von Wright, G. H. (1989). “A reply to my critics.” In Schilpp, P.A. and Hahn, L.E. (Eds), *The Philosophy of Georg Henrik von Wright*, Open Court, La Salle, pp. 731–887.
- Wareham, J., Fox, P. B., & Cano Giner, J. L. (2014). Technology ecosystem governance. *Organization Science*, 25(4), 1195–1215. doi: [10.1287/orsc.2014.0895](https://doi.org/10.1287/orsc.2014.0895).
- Yin, X., & Shanley, M. (2008). Industry determinants of the ‘merger versus alliance’ decision. *Academy of Management Review*, 33(2), 473–491. doi: [10.5465/amr.2008.31193515](https://doi.org/10.5465/amr.2008.31193515).

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