Understanding the Emergence of Platform Ecosystems – A Case Study

Higor Cavalcanti Machado Botelho

1 Universidade Federal de Pernambuco, Centro de Informática, Recife, Pernambuco, Brazil
hcmb@cin.ufpe.br

Abstract. A platform is a business that enables value-creation interactions between external producers and consumers. A range of companies are now interested in establishing their own ecosystems seeking the many advantages that come with this approach. Some companies design their ecosystems from scratch. However, it is more common to evolve ecosystems from existing products, which enable the company to enhance the values of its portfolio through continuous integration with new and external products and services.

We are motivated by the still scarce literature that address the process of software platform ecosystem creation. We aim to understand the factors that favour such process. Therefore, this paper describes how architectural, strategic, and technological variables can affect the growth of a software platform ecosystem. We performed a case study at a software start-up during the emergence of its platform ecosystem. The results indicate that creating an architecture that allows easy extensions and further opening the platform for external contributions helps the start-up to grow the ecosystem faster. Assuming an exploration approach to co-create early with partners also allows the startup to discover new value streams and drive growth.

Keywords: Platform, Software Ecosystem, Platform Architecture, Strategy, Platform Openness.

1 Introduction

In October of 2008, Nathan Blecharczyk, Brian Chesky and Joe Gebbia designed a website that would allow anyone, anywhere, to make a spare sofa or guest room available to travelers. In exchange, the company – now dubbed Air Bed & Breakfast (Airbnb) – would simply take a slice of the rental fee. Today, Airbnb is a giant enterprise active in 191 countries, where it lists over 5 million properties ranging from studio apartments to actual castles and has served over ten million guests. In its last round of investment funding (March 2017), the company was valued at more than $38 billion - a level surpassed by only a handful of the world’s greatest hotel chains [9]. In less than a decade, Airbnb has siphoned off a growing segment of customers from the traditional hospitality industry – all without owning a single hotel room of its own.

How can a major business segment be invaded and conquered in a matter of months by a start-up with none of the resources traditionally deemed essential for
survival, let alone market dominance? And why is this happening today in one industry after another?

The answer is the power of the platform [16]. A new business model that uses technology to connect people, organizations, and resources in a collaborative ecosystem in which substantial amounts of value can be created and exchanged. Airbnb, Uber, Alibaba, and Facebook are just some examples from a list of disruptive platforms that includes Amazon, YouTube, eBay, Wikipedia, iPhone, Upwork, Twitter, KAYAK, Instagram, Pinterest, and dozens more. Each is unique and focused on a distinctive industry and market. In addition, these companies have harnessed the power of the platform to transform a swath of the global economy. Many more comparable transformations are on the horizon [16].

Having started out as a start-up in the lodging industry, Airbnb has evolved its platform to sell experiences as well, creating a living ecosystem that touches not one, but multiple distinct market segments. New products and services are emerging everyday on platform companies. Start-ups from different domains are interested in establishing their own ecosystems seeking the many advantages that comes with this approach, such as soaring innovation, and attractivity to new users as consequence, reducing time to market, increasing business opportunities and collaboration between ecosystem actors to name a few [7]. Some companies carefully design their ecosystems. However, it is more natural for companies to evolve ecosystems from already established services. That makes possible for the company to increase the value of its existing platform through continuous integration with new and external products and services.

As the examples of well known global platforms demonstrate, the successful introduction of ecosystems can rapidly undermine apparently indisputable positions in seemingly matured and settled industries. With the continuous diffusion of technologies across industry sectors and the associated spread in the use of ‘platform strategies’, managerial attention is increasingly focusing on ‘business ecosystems’ or ‘innovation ecosystems’ [20]. Therefore, research attention on those topics also seems to be increasing [20].

So far, most literature on software ecosystems has focused on understanding the structure and dynamics of already existing software ecosystems, with research attention focused on issues, such as governance [22], value co-creation and value appropriation in ecosystem contexts [1]. Much less attention has been attached to the creation of ecosystems [21]. The early ecosystem literature proposes a four-stage model of an ecosystem lifecycle, which consist of birth, expansion, leadership and self-renewal phases [14]. More recently, Eisenmann and colleagues [18] suggest an evolutionary typology of platform leadership. However, previous works do not specifically examine the processes underlying ecosystem emergence, i.e. they do not focus on the creation processes of ecosystems. The lack of research on ecosystem emergence represents an important gap, given that many organisations, particularly in the software industry, explicitly seek to create ecosystems and drive these to their advantage.

As value creation processes become increasingly intertwined in today’s highly specialised industrial landscape, it is important to start considering how ecosystems
are created in the first place, what activities and dynamics characterize ecosystem emergence and evolution, and under which conditions could ecosystem innovators stand a realistic prospect of achieving success [20].

In this paper, we conducted a case study to understand the emergence of platform ecosystems. We recognised factors that might contribute positively and negatively for the ecosystem growth, and summarized strategies that other companies might employ to scale their platforms. We structured this paper in 6 sections. Section 2 provides a conceptual background on software ecosystems and ecosystem emergence theories. Section 3 details the research method to conduct the case study, and briefly describes the subject start-up architecture. Section 4 details the case study findings, and compares them to concepts present in the software ecosystem literature. Section 5 summarizes the lessons learned from the study. Finally, Section 6 presents the contributions of our work and points directions where future research might follow, and discusses threats to the validity of this work.

2 Background

The concept of Software ecosystem establishes a metaphor with natural ecosystems, in which species are part of a food chain and depend on each other. In this setting, a network of actors function as a unit and interact within a shared market for software and services. The relationships among ecosystem participants are generally underpinned by a common technological platform or business opportunities, through the exchange of information, resources and artefacts [12]. In the last decade, relevant players from the software industry created software ecosystems around their products by opening their platforms via interfaces, allowing external actors to integrate complementary solutions and develop new applications [3]. The interactions with external actors allow these players to complement the functionality of existing products as well as expand the offering of systems integration and services [5].

Ecosystems generally evolve during a common lifecycle encompassing the phases of initiation, momentum and control [14]. In this paper, we focus on the transition between the initiation and momentum phases to understand how actors leverage opportunities to attract new participants to the ecosystem. Potential partners must recognise the benefits of complementing the core of their products or enriching the product line around the platform. During the emergence of an ecosystem, actors will accomplish this goal via partnerships, acting as complementors and combining their solutions.

The Initiation phase consists of the early technological development and commercialization of the product or service. Technologically, this phase is characterised by development of the core innovation through a focus on what customers want and the best method of delivering it [14]. During this phase prototypes are developed to assist sense-making and rule-making to establish of the viability and feasibility of the innovation, and the resultant ecosystem. Considering the customer requirements, these development actions are focused on achieving a balance between price and performance relative to the demands of the market [21].
Here the cooperative challenge is the co-option of complementary asset providers and suppliers to work with customers and suppliers to define the new value proposition [14]. Following the demonstration of design feasibility, the market is created through the launch of first commercial product, although there are at most only several market participants [21].

In Momentum phase, sales take-off as competitors arrive. The ecosystem begins to grow rapidly, as an installed base is created and network effects drive ecosystem growth. The ecosystem expands to conquer adjacent markets to the original, where the business concept from the earlier stage is valued by a large number of customers [14]. Ongoing product development activities serve to expand market penetration through reductions in price, and thus process innovations are dominant [21]. Competitive activity is at its greatest here, as challengers also attempt to seize the opportunity. As competing firms begin to have success in the market and accumulate an installed base, the available complementary assets, and the size of the install base, as well the effect of network externalities and switching costs, drive the success of the ecosystem [21].

3 Research Method

We performed a case study of a software start-up (from now on called “the start-up”) that provides a software platform and aims to build a vibrant ecosystem with partners. The start-up was founded in 2013, evolving from an university project. Since then, it has watched a remarkable growth. It currently employs over 200 staff members, mostly software engineers, being evaluated as a 150 million dollars company at 2018, with predictions to achieve over 1 billion on the coming years.

3.1 Start-up Context

The start-up currently has a platform that gathers data about people’s behaviour in the physical world, collected through common smartphone apps that are integrated on it. It provides value for companies that integrate their apps with the platform by offering analytical insights about their users, as well as ways to engage with them. The start-up turns data collected from these apps into useful insights for brands, which can better understand customers’ behaviour. In addition, the start-up provides an environment for those brands to create marketing campaigns based on the behaviour learned, targeting specific segments of users (Fig. 1).
In this way, the start-up has gradually created an ecosystem composed of apps and brands. As more companies integrate their apps with the platform, more analytical data the start-up can gather and offer to brands, benefiting from network effects [16].

### 3.2 Data Collection and Analysis

Initially, we started an analysis of software ecosystems literature to map central concepts and develop the conceptual framework to adopt in our case study. In particular, we considered the main topics described at Platform Revolution book [16] to inspire the definition of the data collection protocol. We analysed which categories would have a greater relation with the platform ecosystem growth.

Hence, the questionnaire adopted semi-structured interviews. The interview topics covered several aspects of the platform themes (Table 1): (1) the technological architecture built so far and how it impacts directly or indirectly the start-up growth; (2) the start-up strategy on building value and co-creating with partners; (3) growth challenges, particularly when launching the platform to new markets; (4) how open or how closed the platform currently is, and how it should be in the future; and finally (5) the current phase the start-up is at ecosystem emergence theory and how it can evolve to the next level.

**Table 1. Interview protocol.**

<table>
<thead>
<tr>
<th>Question ID</th>
<th>Architectural questions</th>
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<tbody>
<tr>
<td>01</td>
<td>How can we describe the architecture of the platform?</td>
</tr>
<tr>
<td>02</td>
<td>What are the network effects generated by the platform?</td>
</tr>
<tr>
<td>Question ID</td>
<td>Strategic questions</td>
</tr>
<tr>
<td>03</td>
<td>How to innovate and co-create value with partners?</td>
</tr>
<tr>
<td>04</td>
<td>What are the main competitors of the platform and how to deal with them?</td>
</tr>
<tr>
<td>05</td>
<td>How do you see this company in 5 years?</td>
</tr>
<tr>
<td>Question ID</td>
<td>Growth questions</td>
</tr>
<tr>
<td>06</td>
<td>How is the launch process/strategy - particularly when the start-up intends to achieve a new market (e.g. new countries)?</td>
</tr>
</tbody>
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What are the main risks/problems the start-up faces in the market, which may limit its growth?

<table>
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<th>Question ID</th>
<th>Openness questions</th>
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<tbody>
<tr>
<td>08</td>
<td>How open is the platform? Why?</td>
</tr>
<tr>
<td>09</td>
<td>Is the architecture already structured to enable external contributions (e.g. modularization, API, SDK)?</td>
</tr>
<tr>
<td>10</td>
<td>Is it open enough to enable contributions in a multi-sided approach?</td>
</tr>
<tr>
<td>11</td>
<td>Are there plans to open it up in the future?</td>
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<table>
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<tr>
<th>Question ID</th>
<th>Ecosystem questions</th>
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<tbody>
<tr>
<td>12</td>
<td>In which phase of ecosystem emergence the start-up is (e.g. initiation, momentum or control)?</td>
</tr>
<tr>
<td>13</td>
<td>What are the challenges that the start-up is facing to take it to the next level?</td>
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We selected the interviewees according to their roles, as well as level of experience with the platform architecture and business knowledge. In total, we interviewed four employees, mostly co-founders, individually (Table 2). The meetings lasted in average 45 minutes each.

<table>
<thead>
<tr>
<th>Interviewee ID</th>
<th>Interviewee role</th>
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<tbody>
<tr>
<td>P01</td>
<td>COO &amp; Co-founder</td>
</tr>
<tr>
<td>P02</td>
<td>CEO &amp; Co-founder</td>
</tr>
<tr>
<td>P03</td>
<td>CTO &amp; Co-founder</td>
</tr>
<tr>
<td>P04</td>
<td>Tech Chapter Lead &amp; Co-founder</td>
</tr>
</tbody>
</table>

The interview audio was transcribed and carefully reviewed to ensure consistency. Then, we organized the transcripts into the initial categories and exploited how those factors were affecting the growth of the start-up ecosystem.

4 Findings

At this section, we summarise information gathered on each theme, carefully analysing how each topic impacts the startup ecosystem growth. We highlight transcripts of interviewee speeches to contextualize our findings.

4.1 Architecture

Platforms are complex, multi-sided systems that must support large networks of users who play different roles and interact in a wide variety of ways [16]. How the way the technological architecture for a platform is built and maintained will significantly
impact its growth and capacity to explore new value streams. According to participant P02:

*There are two kinds of companies: (i) the ones that start from a particular problem, discovering later that the infrastructure they’ve built can accomplish much more, and (ii) the ones that aim to become a platform ecosystem from the very beginning. The second must also start building value from very specific contexts before moving to a broader stage, essentially following the same path as the first.* (P02)

The start-up is tracing the way described on the second approach, with a well-defined goal from day one. However, the complete architecture for such goal cannot be built out of nothing. The infrastructure created currently serves much smaller purposes, and is iteratively being extended to unlock value from distinct segments over time, as P01 states:

*Even when platforms arise to create value in a specific context, they tend to construct an architecture that is capable of running other tasks too. Successful platforms have been able to explore this strength to unlock new sources of value.* (P01)

*It is relatively cheap to maintain a platform. The low cost of operating and scaling allows exploration activities to happen and much bolder and riskier moves to be taken.* (P01)

Platforms cannot be entirely planned; they usually emerge [16]. That is why platform designers should always leave room for serendipitous discoveries, as users and partners often lead the way to where the design should evolve. A good architecture will be the one that leaves room for the accidental, the spontaneous, and even the bizarre [15].

The best platforms enable user quirks and custom services to come up. Besides, they are open enough to gradually incorporate such quirks into the design of the platform. This approach should be present at the design of the platform technological architecture.

At the early years, the start-up had a monolithic platform architecture centred on a single product and concern, providing solution to a single problem (Fig. 2). All platform data was received, processed and turned into value in this same product. However, this structure wouldn’t allow easy extensions to be developed. Data only existed within the product context, and any modifications would affect the already established product. Extensions for distinct markets and goals wouldn’t make sense to developed inside this product. That was capping designers’ creativity and power to conquer adjacent markets, since most solutions that came up for problems in distinct segments weren’t feasible due to the current architecture.
The start-up then decided to re-design the platform, separating data processing from value production. It pivoted from a closed, single purpose architecture an open and extensible one (Fig. 3). Such movement dramatically changed the way the start-up worked. It empowered managers to seek other features for that data they already had, exploring new markets and finding opportunities to build new products from it. Over the years, the start-up has watched multiple products born on what will be mentioned in this article as “exploration approach”.

**Fig. 3.** The start-up modular data architecture after pivoting, with a data layer as a stand-alone module that can be consulted from external services and allows distinct products to exist in parallel.

### 4.2 Strategy

The open-ended nature of platforms brings enormous opportunities for users to create new value. Platform managers can build their businesses by (i) giving partners
frictionless opportunities to innovate and then (ii) capturing some or all of the value created by acquisition or duplication [16]. Interviewee P03 explained this strategy:

*There is a phase in the start-up when you explore options. You need to open the fan so that you know where to go, and what value can be extracted from your platform. We found that by co-creating with our partners. We could enhance our platform through continuous integration of features on our existing products or even find out that a complete new product could be built for a particular feature. (P03)*

The start-up has chosen to put the business in an exploration approach. It has partnered with many players in the ecosystem to co-create value. The easily extensible architecture developed at first proved itself a valuable tool, capable of offering solutions to partners’ unimaginable problems. Although most of those solutions were given to partners free of charge, the knowledge about market needs and how its own capabilities could unfold new sources of value was a much more precious reward. Eventually, when the solutions got more mature, they started being sold on deals for other companies. Some of them even became stand-alone products, plugged at the platform as new services built over the robust architecture. In the world of platforms, competition becomes less important than cooperation and co-creation [16]. Those solutions could have been charged from the very beginning. However, offering them for free allowed the start-up to exploit these solutions much deeper. Hence, it could understand market needs much better through cooperation and co-creation.

Those solutions were explored and developed by distinct teams in the start-up. Although the exploration approach remarkably allowed them to discover multiple sources of value over distinct segments and markets, it also fragmented the start-up identity and proposal of value at some extent. Various products were created by different teams, to cover isolated, but sometimes overlapping problems. This caused a lot of rework and ultimately produced an overhead of solutions that could be offered to the clients. Users that would want to opt for multiple solutions would have to integrate distinct products that were essentially running on top of the same platform.

At a certain point, the start-up realized that the teams were creating products with solutions to problems that, in essence, were similar. P03 then summarizes what happened after:

*Now, we are in an exploitation moment. We understood how our solutions fit together in the market, and how interconnected they actually are. We are going to exploit them, converging all to a unified product, platform and proposal of value, ensuring maximal interoperability. (P03)*

The next natural step was to converge all distinct solutions and integrate them into a single platform, consolidating a solid proposal of value, on what will be referred in this article as “exploitation approach”. Users should now be able to opt in once, without integration friction, and have access to all features in the suite, ultimately experiencing all the capabilities of the platform.
4.3 Growth

Platforms need to solve a chicken-or-egg problem that other business models do not suffer from: users won’t come to a platform unless it has value, and a platform won’t have value unless users use it. Most platforms fail simply because they never overcome this problem [16]. This was one of the earliest problems the start-up had to solve: how to build a user base for a two-sided market in which one side depends on the prior existence of the other, and vice-versa?

To deal with this question, the start-up used the single-side strategy [16]. It created a business around products and services that benefit a single set of users. Later, it converted the business into a platform business by attracting a second set of users who want to engage in interactions with the first set. Initially, companies had no reason to integrate their apps with the platform. In parallel, without data from these apps, brands wouldn’t join either. That’s why the first services of the platform were specifically built to give value for companies with apps for free, as P03 describes:

*About the chicken or egg problem, we don’t have it anymore. After we created one of our products, we started offering free value for one side of the market. This is the product we advertise first when launching to new markets. After obtaining a large user base, users from the other side start to join.* (P03)

The start-up obtained this result after making many decisive discoveries during the exploration approach of the start-up. During such approach, the start-up understood the challenge to grow the user base. To overcome this problem, it designed a product for one side of the market, which was the most straightforward way to attract new users. That gave birth to a free product, built alongside with partners, from the learning of their needs, and also to many other distinct services. Further, the company aims to offer value to the other side of the market too, as explained by P03:

*Ultimately, with the unification of the products, we will be offering value for both sides.* (P03)

As the business got more mature, the start-up understood that it would manage to offer value for not just one, but for both sides of the market at the same time by converging those services to a single, simpler interface. This removed the problem of first users acquisition and any related difficulties the start-up may find when launching to new markets. It allows the start-up to focus on growing the user base as a whole.

Network effects refers to the impact that the number of users of a platform has on the value created for each user [16]. Positive network effects refers to the ability of a large, well-managed platform community to produce significant value for each user of the platform. Positive network effects are the main source of value creation and competitive advantage in a platform business.
With frictionless entry to new markets, a company is able to focus on building a significant user base fast instead of fighting for the first users to join, thereby driving network effects to its maximum power. Thus, solving the chicken-or-egg problem earlier will greatly help a company grow much faster.

4.4 Openness

A platform is “open” to the extent that (i) no restrictions are placed on participation in its development, commercialization, or use; or (ii) any restrictions are reasonable and non-discriminatory (e.g. requirements to conform with technical standards or pay licensing fees), i.e. they are applied uniformly to all potential platform participants [18].

Being closed isn’t simply a matter of forbidding outside participants on the platform. It may also involve creating onerous participation rules that would-be users are discouraged, or charging such excessive fees (or “rents”) that the profit margins of potential participants are reduced below sustainable levels [13]. The choice between open and closed is not a choice between black and white; there is a spectrum between the two extremes. Calibrating the right level of openness is undoubtedly one of the most complex as well as one of the most critical decisions that a platform business must make [2]. The decision affects usage, developer participation, monetization, and regulation. In sum, as P01 discusses:

_We are not open yet. We still have to face many technological challenges around data protection before opening it up to external contributors. But we are committed to do it. We are going to build an architecture where our data can be open without compromising us or our users. (P01)_

The start-up platform is still completely closed. Users cannot create content and developers cannot add extensions. It considers that the architecture developed so far isn’t yet ready to be used from outside the start-up. This architecture is composed of a data layer that relies on sensitive personal information about its users to work. Hence, no developer outside the start-up should be able to see or manipulate such data.

However, the start-up considers that opening the platform is a crucial step to drive ecosystem growth. More than that, this is a well-defined goal from the very beginning. Platforms can expand and develop stronger network effects by opening out over time [16]. Therefore, it is on the start-up roadmap to improve its data architecture and get rid of the obstacles that are forcing it to be closed.

_On the long run, that’s what we ultimately believe that is going to extract most value from the platform and promote network effects to the maximum. (P01)_

The platform fragmentation is another key aspect that contributes to its closeness. The exploration approach has led to many remarkable discoveries, but also contributed to the growth of many disjoint, non-interoperable infrastructures. The creation of distinct solutions for multiple problems, conducted by different development teams, generated
the a fuzzy architecture that is not so straightforward to extend – even for inside developers.

We grew very fast, which led to many technical debts that are preventing the platform to be opened. Many parts of our architecture were developed by different teams, and weren’t made to be interoperable. A lot of rework and replication of modules occurred. (P04)

There are advantages to an integral approach where the system is developed as quickly as possible to serve a purpose, especially in the early days of a platform. However, in the long run, a successful platform must turn to a more modular approach [16]. That maturity will be reflected on its capacity to develop APIs and to facilitate access by external entities to core resources [6].

4.5 Ecosystem

From the related platform literature, Gawer has suggested a three-stage model where platforms evolve from a closed system towards greater openness [10]. This model is composed of Initiation, Momentum and Control phases [14]. For Gawer, the internal platform evolves into a supply chain platform as components of an internal product are outsourced from external suppliers. The supply chain platform evolves into a platform ecosystem when the outsourced subsystems take on a life of their own and suppliers develop horizontal links among one another. P04 talks about the current phase of the start-up regarding ecosystem emergence:

I believe we are somewhere between the initiation and momentum phases of ecosystem emergence. We are developing some aspects of our platform in order to start growing it. Also, it is still too closed; value can only be created from inside the start-up itself. (P04)

Though the start-up has already explored and unlocked various sources of value, it still focuses on promoting few core interactions between platform actors. The multiple products created are now converging to an unified proposal of value. Hence, the ecosystem structure is affected by earlier decisions of standards and modularity. Since innovations and the ecosystem itself are still nascent, the start-up perceives little competitor activity or interest from society [16].

However, the start-up already has a good market share and a bright horizon regarding sales. The structure starts to achieve stability as investments are received. Exploration approach gave place to exploitation. It seems like the unification of the proposal of value is the one thing missing to reach the Momentum phase. The start-up aims to expand internationally, in particular. The three major steps required to grow the ecosystem for the Momentum phase are observed in the arguments from P01:

All disjoint, non-operable solutions developed at exploration approach must now converge and be exploited into a unified product and proposal of value. The fragmented architecture must now get more mature and evolve to a more modular structure allowing easy
extensions to be developed from the outside. And the platform should be open to allow external contributions. (P01)

Opening the platform to external contributions (the third step mentioned above) does not seem to be viewed as a needed factor to drive ecosystem growth, despite its importance. P03 reinforced this fact:

Opening the platform won’t necessarily skyrocket our platform. We may find a way to grow the ecosystem even in a closed environment; this may lead to satisfactory results. (P03)

Platform ecosystems can also evolve along leverage trajectories in addition to developing along a predefined openness trajectory [8, 19]. The openness may be a critical, but not the only, path of platform ecosystem emergence.

5 Lessons Learned

In this section, we summarise our findings into recommendations that are useful for similar start-ups, as well as for companies that aim to grow a platform ecosystem.

Whether a start-up has the goal to become an ecosystem from the very beginning or not isn’t important. All companies will start in a smaller context and build an earlier architecture from scratch. They can grow their ecosystems by continuously integrating the extensions to existing products or services.

Platforms should create an infrastructure that enables easy extensions and new services to emerge. It will make possible for the start-up to enter in an exploration approach and learn market needs through experimentation and testing, allowing the creation of quick extensions.

Platforms should focus on value co-creation with partners at first. Since costs to maintain a platform are relatively cheap compared to other businesses [16], this is not only feasible but represent a good opportunity for start-ups to find numerous sources of value their platforms may be able to deliver, unnoticed at first. Even when platforms are built aiming specific contexts, their very nature of scale and data infrastructure tends to allow new sources of value to be uncovered.

Start-ups should make an effort for well modularizing the platform. Fragmenting the architecture unwisely may create a challenge for the start-up to deal, which can delay its growth and limit its capacity to become open for external contributions. A fuzzy architecture resulted from an exploration approach may lead to the accumulation of many technical debts and create barriers for the platform to become open.

Start-ups should ensure that exploration approach doesn’t lead to chaos. Creating multiple features imposes the risk of fragmenting both the platform architecture, as well as its proposal of value. When creating multiple products for serving similar purposes, companies can face a lot of rework and friction for the users to join the platform.
Platforms must solve the chicken-or-egg problem earliest possible. This will make easier to (i) launch for new markets, (ii) grow the user base, and (iii) drive network effects to their full potential. A platform may use exploration to understand the best approach to break the chicken-or-egg problem, possibly offering free value to a set of users.

Opening the platform for external contributions seems to be a critical, but not the only path for ecosystem growth. Opening a platform can radically foster network effects and dramatically impact user acquisition. However, not every company aim to become open. Challenges regarding the protection of the company data can be an impedeive to openness. Opening the platform is not a necessary step to drive ecosystem growth, though it is for sure a very rewarding step. Hence, every company should achieve at least some level of openness.

6 Conclusion and Future Research

In this paper, we conducted a case study at a platform based start-up. We interviewed several employees and analysed how architectural and strategic factors plays a role on the companies growth. We have carefully considered how the openness of the platform can directly impact its ecosystem emergence and consolidation. We have summarized our lessons learned as recommendations for start-ups.

6.1 Threats to Validity

To identify the threats to validity of this study, we considered the definitions from Runeson and Höst [17]. Internal validity refers to the risk of colleting unreal data [17]. To guarantee that our findings reflect our data, we carefully planned the case study. It means we produced extensive transcripts based on recordings, assuring the correctness of data. External validity refers to the extent of which the findings of the research can be generalized to other cases [17]. The generalisability of our study is low because the interviews were performed in only one company. However, the purpose of qualitative studies puts more emphasis on describing and recognising a contemporary phenomenon and less emphasis on generalizing the findings. Nevertheless, we believe the results from this case study may benefit the investigation of phenomena within similar contexts.
6.2 Future Research

Our study contributes to identify influential factors for growing a platform ecosystem to the next level, with respect to a specific case study. In order to gain more confidence in the presented results of our work, we strongly believe that future work should focus on conducting more comparative studies to further investigate the influential factors. A large scale work conducting studies with multiple companies, from different backgrounds, would be appreciated. Also, we have found a non exhaustive list of influential factors. Future work could also analyse distinct factors not explored on the context of our work.

References


