3 Digital Platforms: Unlocking the Power of Networks

A plethora of buzzwords exists to describe various platform-based business models: marketplaces, app economy, social networks, crowdsourcing, on-demand economy and sharing economy, etc. The specificities of those business models will be discussed in the subsequent chapters. This chapter focuses on the common characteristics and dominant features of digital multi-sided platforms, introducing strategies to create network effects and solve the chicken-and-egg problem.

3.1 We are in a Platform Economy

Companies that adopted platform business models now dominate the ranking of "most valuable companies". In 2018, seven out of the ten largest companies were platform-based (Figure 3-A). In 2008, only Microsoft would have qualified as a platform business, and even this is debatable. Indeed, digital businesses are not necessarily required to be platforms. Therefore, back then, Microsoft could have been construed as a platform business with products such as Windows; however, tools such as Microsoft Office categorised it as a more traditional software-as-a-service, which is a linear way of monetising transactions through a subscription fee.

2018				2008			
Rank	Company	Founded	USBn	Rank	Company	Founded	USBn
1	Apple*	1976	890	1	PetroChina	1999	728
2	Google*	1998	768	2	Exon	1870	492
3	Microsoft*	1975	680	3	General Electic	1892	358
4	Amazon*	1994	592	4	China Mobile	1997	344
5	Facebook*	2004	545	5	ICBC	1984	336
6	Tencent*	1998	526	6	Gazprom	1989	332
7	Berkshire Hathaway	1955	496	7	Microsoft	1975	313
8	Alibaba*	1999	488	8	Shell	1907	266
9	Johnson & Johnson	1886	380	9	Sinopec	2000	257
10	JP Morgan	1871	375	10	AT&T	1885	238
*Companies based on a platform model							

Figure 3-A: Most Valuable Companies 2018 vs. 2008.
(Source: Bloomberg, Google)

A large proportion of platforms are US or China-based, and none are European. Fast-growing companies, including 60% of the "unicorns", are platform-based businesses.

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Today, digital platforms are an integral part of our user experience (UX). These platforms are utilised to connect with others and gain information (e.g., Facebook, Google, LinkedIn, Twitter and Instagram), purchase goods (Amazon, Alibaba and Etsy), book accommodations (Airbnb, booking.com and TripAdvisor), consume cultural goods (Spotify, Netflix and YouTube), access services on demand (Deliveroo and Uber) and load our digital devices with apps (Google Play and Apple Application Store).

Platforms revolutionise industries and organisational practices. LinkedIn, for example, not only connects professionals but also acts as an HR hub, wherein companies can post job vacancies, market their employee brands and recruit new staff. In terms of revenue, the HR hub function fetches more revenue for LinkedIn than its freemium subscription model for individuals. Google Nest creates a passive network of devices by connecting heating systems and thermostats to optimise energy consumption in our homes.

As discussed earlier, platforms act as facilitators between two or more sides at a micro-level and create value from those interactions. For the major players mentioned above, it is necessary to adopt a macro-perspective to explain their market dominance. Major platform players do not act as traditional actors in their respective industries. Usually, their dominance and ability to match any user with any supplier imply that they eventually control access to the market. They act as the ultimate intermediary between suppliers and potential users.

The market for the hotel industry is composed of mainly Internet users since a large majority of hotel rooms are booked online. Most online bookings are conducted via Online Travel Agents (OTAs) or third-party booking websites, such as Booking.com and Expedia, which offer travellers an easy-to-search database. According to PhoCusWright data from 2018, OTAs accounted for 51% of US hotel and lodging online gross bookings. According to Apptopia, Booking.com had more than 41 million downloads and 14.5 million average monthly active users, which can be easily classified as a vast market reach. On the producer/supply side, Airbnb and Booking.com can each boast more than 5 million reported listings of hotels and/or private accommodations.

Third-party bookings websites and app giants have placed themselves at the top of a market in which they do not directly take part. Neither Airbnb and Bookings.com nor Expedia own properties. Yet, they are amongst the largest short-term rental providers in the world. These apps are, in fact, giant, algorithmic, matchmaking, user-friendly and ultimate intermediaries that have displaced an entire sector to the position of a commodity supplier. Third-party booking websites are intermediaries that control access to more than 50% of the market. Hence, traditional bricks-and-mortar hotel chains, as well as independent boutique hotels, have all been displaced. They may access the market consisting of the internet/mobile phone users but only if they accept to become commodity suppliers on such platforms (e.g., provide “a place to stay” in a specific location). This enables them to compete with private homeowners for prices and reviews on those platforms since hotels do not enjoy direct digital access to the market.

We can illustrate this further at the micro-level of an individual user. When in need of a place to stay, users may initially search Google. For example, a search on Google with the keyword "Hotel in Dublin" returns top paid results (ad at the top) for Booking.com and organic results from Booking.com, Expedia, trivago, lastminute, Hotels.com, and KAYAK. None of them owns any hotel; however, all of them combined are able to control the access to supply (hotels in Dublin) and, reciprocally, the demand (or market) – i.e., the millions of individual internet users looking for a hotel room online. Eventually, internet users may skip the Google stage and directly perform the same search on booking.com or any of the other platforms. Either way, the result is the same for hotels – i.e., for the suppliers, in order to survive and attract potential internet users, they must accept the conditions of the platforms (a 15% commission in the case of booking.com) and compete on prices and ratings head-on with all the other room suppliers for a specific location.

However, the success of digital platforms may also inspire traditional businesses. Traditional businesses are increasingly aware of the potential of platform-based models, especially when required to compete against digital rivals. Therefore, a traditional hotel chain battling with Airbnb for holiday rentals might benefit from becoming a platform that offers conference organisation services or rents out unoccupied rooms as co-working spaces. They may also contract local providers, such as dry cleaners, to provide additional services in their hotels or offer these to nearby businesses. Although there is potential for traditional businesses to become platforms, unlike a digital business, there are considerably fewer opportunities for them to scale, since their physical location limits expansion.

So, What Are Platforms?

Platforms are not exclusive to digital businesses as they also exist in the traditional commercial landscape, although less frequently. Examples include recruitment agencies connecting employers with suitable candidates; auction houses connecting buyers and sellers of antiques and collectables; or the media industry where broadcasters serve as platforms for content producers, advertisers, and consumers.

Traditionally, goods and services were delivered from A to B through a "pipeline" approach. Companies with specific assets and competencies create value by transforming products or services. This customary method was initially described by Porter (1985) in *Competitive Advantage: Creating and Sustaining Superior Performance*. The process can be summarised in three steps (Figure 3-B). A company adds value through its supply chain management activities (inbound logistics), the transformation of material/products acquired from suppliers (operations), and finally, its distribution (outbound logistics), marketing, and customer services activities are performed.

The "platform" concept in strategy refers to a more complex and open configuration where conditions to create, deliver and capture value are not standardised

Figure 3-B: Value Chain of Traditional Businesses.
(Adapted from Porter, 1985).

and where value is created and exchanged through interactions between multiple stockholders.

Digital technology has profoundly lowered the barriers to transactions among a variety of participants by abolishing the need for physical assets. A digital platform business model creates value by facilitating exchanges between two or more interdependent groups (Figure 3-C), usually consumers and producers.

Figure 3-C: Value Chain of Two-Sided Digital Platform.

Sangeet Paul Choudary on the Tech blog "Platform Thinking Lab" defines a platform as:

> A plug-and-play business model that allows multiple participants (producers and consumers) to connect to it, interact with each other, and create and exchange value.

The goal of a platform is to propose approaches to remove the friction in the process of connecting two external but interlinked sides, typically providers/producers and users/consumers. Therefore, digital platforms often serve as UX specialists. The ease of adopting ("plug") and using ("play") is instrumental to the success of the platforms, particularly on the user side. The ability to connect the producers to the right consumers in a trusted environment and vice versa through algorithmic matchmaking capabilities is also a key feature of digital platforms.

For example, at Uber, technology acts as an "invisible hand" linking drivers with potential passengers. By sharing the location of each cab, providing an easy and secure payment mechanism, and publishing onsite reviews, trustworthy bonds

are built amongst all stakeholders. Therefore, Uber becomes the custodian of that trusted connection and continuously monitors service quality.

Additionally, digital platforms can generate connectors as incentives for more than two sides to be connected. For example, the App Economy and Google Play Business Model serve as multi-sided platforms (MSPs): consumers buy devices (smartphones and tablets) that run an operating system (Android OS), which allows third-party developers to develop and present their applications on a store (Google Play). Accordingly, it acts as an MSP where the Google Play technology infrastructure is supported by the Google Play Business Model acting as a plug-and-play between end customers, editors and manufacturers, and for which Google Play must define and settle conditions to deliver a specific bundle of value propositions and ease and remove the friction in their interactions.

One of the key differences between physical and digital platforms is the simpler and cheaper conditions for scaling. A business model may be termed scalable if it is capable of coping with growth and dissociates revenues from cost-to-serve – i.e., when it can maintain its fixed costs while revenue grows in proportion to the number of new customers.

For example, it only took Airbnb four years to amass 650,000 rooms around the world (in 192 countries). However, Marriott – a traditional player in the hotel industry – took around 90 years to record 697,000 rooms in 80 countries. This demonstrates that the platform-based model of Airbnb scaled much more rapidly. Although both companies are part of the same accommodation industry, they occupy very different places in the industry eco-system.

> Platform-based businesses have radically disrupted the traditional business landscape. Not only by displacing some of the world's biggest firms, but also by transforming familiar business processes, consumer behaviour and value creation, and altering the structure of major industries. (Peter Fisk, 2019, on his personal website)

The Network Effects Behind Platforms

Enhancing interactions between (at least) two independent but interlinked sides (producers and consumers) relies on tapping into the benefits of the so-called ***network effects*** (Figure 3-D).

To enable these exchanges, platforms harness and create large, scalable networks of users and resources accessible on demand. Platforms develop communities and markets with network features, which allow users to interact and transact.

Network effects have previously been observed in non-digital contexts. For example, it is not worth owning a phone if none of your friends and connections do. The value of a phone increases dramatically as more and more of your friends own one.

Similarly, the more participants (peers) on Skype, Facebook or WhatsApp, the more valuable it is for any potential user to join a social network platform. A ***same-side network effect*** occurs when the value of a product or service grows according to the number of others using it. Economists name them as *direct positive network effects* (or *demand-side economies of scale*). Sometimes, the same-side network effects can be negative. For example, the more the users connect from the same location to book an Uber taxi, the lesser the cars available and the higher the price due to Uber's "Surge Pricing Strategies".

For digital platforms connecting at least two different sides, network effects may be described as *indirect network effects* (or ***cross-side network effects*)** since the value of a platform for one side (consumers or producers) is based on the number of participants from the other side (consumers or producers). For example, the more sellers you have on Amazon, the more attractive it is for end customers to shop there. Reciprocally, the more the potential buyers on Amazon, the more attractive it is for sellers to join it and advertise their goods. The same reasoning can be extended to travellers and hosts on Airbnb, drivers passengers on BlaBlaCar, etc.

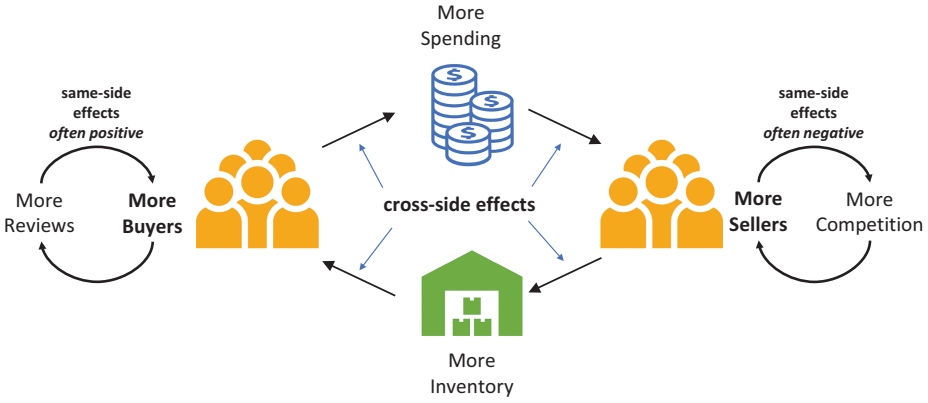

Figure 3-D: Illustration of Same-Side and Cross-Side Network Effect.

Considering platform-based business models as the rationale through which the platform-owner (also called "the matchmaker" by Evans and Schmalensee[1]) removes friction in the process of connecting, creating and exchanging value and thus enabling interactions between at least two external but interlinked sides is equivalent to mastering the network effects at work through the permitted interactions.

1 Evans, D. S. & Schmalensee, R. (2016). Matchmakers: The New Economics of Multisided Platforms. Harvard Business Review Press.

Information and digital technologies eliminate friction and facilitate low-cost interactions on a large scale. Mastering network effects lead to new strategic horizons. For several years, we considered that the first to enter an industry would benefit from this speed advantage in the long run and attain a monopoly position. This may not always be the case. Digital ventures demonstrate that dominant positions emerge from abilities to manage (create and extend) network effects among participants of all sides and capture part of the value generated in the process.

Network effects come into play at each layer of a platform (value creation, connection, and exchange) and at each stage of development of a platform (from ignition to maturity). As we will demonstrate, platforms and markets must satisfy some conditions, which change and differ over time and depend on the scalability of digital platforms.

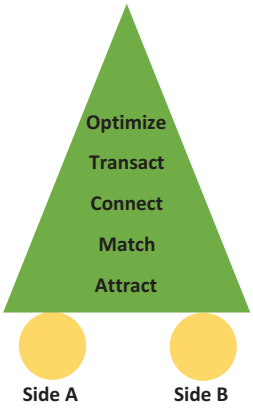

Figure 3-E: Platform Launch Rocket.
(Source: adapted from *Launchworks*)

Launchworks illustrate how companies may create network strategies using the analogy of launching a rocket (Figure 3-E). Immense energy is required to lift the rocket off the ground by attracting both sides of the market on the platform. The core jobs of the platform are then to match, connect and entice transactions between those two sides, which will interactively optimise the process of transaction development, leading to the analysis of accumulated data. Essential conditions are observed for the two sides to easily connect (plug) and begin interacting or transacting (play).

3.2 Creating Conditions for Plug and Play

Adopting a platform-based business model is difficult. Start-ups, for which the value proposition is intrinsically dependent on the participation of multiple sides, will often struggle to develop the perfect matchmaking mechanisms along the development path.

Facebook provides an interesting example of the network effects for both the same-side and cross-side. The same-side effect was evident at the foundation of Facebook. It began as a social network involving peer-to-peer connections with users creating content (posts) that were consumed by friends who read, viewed, "liked", shared or commented on. This agglomeration of family, friends and groups formed a network: the peers' side. The initial goal was to reach a critical mass of peers and end-users.

The Facebook website was launched on February 4, 2004, from a dorm room at Harvard College in Boston. At the time, sign-up was limited to Harvard students, catering to a very small and specialised market (as a proof of concept). The website was a simple online website application of a "face book", which is a directory consisting of individuals' photographs and names. Face books are traditionally distributed by some American universities – albeit at the time not in Harvard – at the start of the academic year, to help students know each other better.

Facebook, the website, became popular amongst students across several campuses and rapidly opened to the public in 2006. Henceforth, anyone 13 years or older was able to sign up for its member page. Since its beginning, it remained free for peers to log in, create and exchange with others. "Free" was a huge accelerator for adoption and a way to eradicate frictions and enhance the same-side network effects. Several factors contributed to Facebook's mastery of the network effect. The same-side effect was visible in the form of viral lifts. Friends felt peer pressure to connect to the platform to avoid becoming the only member of their group unconnected to Facebook. Facebook also employed engagement triggers, suggesting potential friends or pages to "like" based on a user's interests, something determined by an algorithm that examined how they had interacted with the platform over time. Non-pricing mechanisms were powerful enough to establish a base of about 2 billion active members by 2017.

The cross-side network effect was based on the number of users on the platform and their level of activity. Offering the service for free ensured the highest adoption rate with the launch of Facebook. The more time users spend on the platform, the more the value accrued to the advertisers; therefore, gaining a critical mass of users first was essential. By October 2007, Facebook already had 50 million active users, five times the number of users in the year before. It was only then that Facebook introduced a large-scale official ads program to the platform. Advertisers are essential to Facebook's business model since advertising revenues enable the platform to remain free for users. In turn, users accept that their data may be used commercially to present them with relevant adverts. In other words, Facebook users exchange their data as "virtual currency" to freely access Facebook.

Its 2019, Facebook's revenue accounted for $70.7 billion, of which $18.5 billion was the net income. However, it took around eight years since Facebook's inception to generate a positive net income. It was at that price to establish a dominant social network and capture value from generated network effects. Since it was free to use,

it was a necessity to connect other sides to the platform to generate a sustainable business model in the end.

In order to create and nurture strong network effects, digital ventures must pay attention to the consistency of the "Five Ps" (analogous to the 4 Ps of Marketing) as outlined by Accenture[2] (2016).

Proposition

A platform should be able to offer a dedicated value proposition for each side. For instance, YouTube facilitates interactions between three key stakeholders or sides (content creators, users and advertisers). These stakeholders benefit from each other's presence while also being attracted to the platform through varying value propositions. YouTube presents a highly visible hosting platform (with an earning potential) to the content creator. It provides end users (largely) free access to unlimited content deemed relevant to them. It also offers an unmatchable reach to potential customers and advertisers.

Personalisation

A successful platform should value data and offer personalised user journeys based on customer type and usage history while respecting the privacy laws of the market. We are familiar with Netflix recommendations based on our watch history and content localisation as well as Facebook's or YouTube's specific recommendations of content according to our browsing history and digital footprint within, or even outside, the platform. These mass customisations are possible at a large scale based on cookies, users' data and metadata, which activate algorithms to conjure the feeling of a personalised experience. These tailored experiences increase the participants' willingness to transact and ultimately lock themselves into the platform.

Pricing

Pricing mechanisms remain significant as they condition the value captured by the platform owner and can enhance or inhibit friction to connect, create, and transact. Smart platforms make use of dynamic pricing based on user characteristics, product/service experience and market context.

A large majority of transaction platforms prefer to charge a small fee on each transaction to capture the value permitted by the platform. These pricing mechanisms

2 Accenture Report. (2016). "Five ways to win with digital platforms".

directly flow from the ease of interactions; however, the transaction fee characteristics can vary according to the structure and governance of exchanges. For example, Airbnb eases the booking of a stay for a specific period, but each transaction is different (traveller, host, period and product characteristics). Since the traveller will experience the goods later, Airbnb secures the conditions of the transaction by collecting the payment from the traveller and releasing the payment to the host 24 hours after the beginning of the stay. Airbnb charges fees on both sides: service fees on the "travellers' side" that varies across countries according to local taxes and fees on the "host side" that are justified by the transaction enhanced (as a real estate agent) and the security on payments. Hosts are free to determine the price of their rentals according to seasonality and personal considerations; however, Airbnb makes use of its data analytics and predicts the occupancy rates according to pricing adopted by the hosts to offer them suggestions (smart pricing). In another context, Uber adopts similar mechanisms for pricing and collecting a fee on each transaction. However, it imposes the pricing for each ride based on their algorithms. This pricing is continuously revised according to laws of demand and offer in the local area (surge pricing), which benefits Uber as well as its drivers.

Other kinds of platforms that release digital content (Netflix and Spotify) generally adopt subscription-based pricing mechanisms to transform the products-as-a-service (as we will describe in Chapter 5) and charge for network access. To ease adoption and remove frictions behind network effects, a few other services provided by a platform prefer subsidising the service for one side by another side (third-party subsidy as we will describe in Chapter 4). Examples include YouTube, Google SEO, Facebook and so on.

The pricing mechanisms are significant and require chirurgical attention to not inhibit network effects or jeopardise the sustainability of the platform owner. Platforms often struggle to fine-tune the pricing of their services and adjust it regularly.

Protection

Platforms combine a multitude of participants, propositions, and pricing mechanisms. This heterogeneity poses inherent uncertainties and challenges for interaction between participants. Hence, platforms must build strong trust mechanisms to secure participation in this ecosystem. Trust mechanisms can take the form of user authentication (e-mail, phone number, Facebook profile, etc.), payment security, a rating system of the participants or the conditions of exchange (shipping and quality of the goods). This latest feature serves as a proxy for positive word of mouth, thereby becoming essential for the sustainability of a trust-based ecosystem. It positively influences prospective users and entices future transactions.

Partners

Compared to traditional business organisations, platform-based businesses develop more pervasive architectures of value. Focused on a core set of activities and competencies on the inside, they interconnect their technological architectures with the main companies (e.g., Amazon for data storage, Google and Facebook for login and SEO, and banking APIs to ease payment proceedings). They further extend their ecosystems by interlinking their value with complementors. A smart platform builds an architecture that allows it to interact with each partner in a smooth manner.

3.3 Platform Development Stages

Multi-sided platforms (MSPs) face different challenges at various stages of their development.

Typically, four main stages in the development of platforms can be identified, with specific strategic questions to address regarding the deployment of their business model. We will investigate each of these stages and offer some insights and key tactics to navigate along the way.

Embryonic Stage

In this stage, the founders and platform owners must focus on the design of the platform as the core product and the architecture of the service. As previously mentioned, the consistency of the 5 Ps (Proposition, Personalisation, Pricing, Protection and Partners) must be addressed with a focus on the value proposition and value architecture (core activities, technologies, and business partners). A minimum value proposition can be designed and tested with real participants. It can be a "smaller world" or a one-side service subsidising the other sides and acting as a pipeline.

At this stage, the objective is to achieve a proof of concept of the adoption of the value proposition and the unique selling proposition with the proper technology architecture to ease transactions and service, such as when Airbnb was launched only in San Francisco or when Facebook was launched as a closed service for Harvard College peers.

Emergent Stage

This stage involves the demonstration of the product-market fit, where the product is the platform. Hence, the focus shifts to the recruitment of participants on both sides (producers and consumers). This stage also debuts the first major challenge of

achieving network effects, known as the "chicken-and-egg problem". It derives its name from that age-old question: "Which came first, the chicken or the egg?" Who should platform startups attract first? The producers or the consumers? This is a difficult question to answer as each is motivated by the presence of the other side.

Entrepreneurs will be required to demonstrate their ability to attract participants on both sides. Their ability to raise funds to scale and grow (next stage) is dependent on their success in this stage. The chicken and eggs and associated issues are covered in the next section of this chapter.

Growth Stage

Once the platform gains a critical mass of end-users, the focus shifts towards the monetisation and monitoring of trust and loyalty issues.

In this scaling phase, the platform must scale the number of transactions and ensure that they capture sufficient value to be sustainable and produce a return on investment for their first investors. The focus is no more on the product-market fit but the efficiency of customer-transaction fit.

Fortunately, as the business grows, the expansion accelerates and streamlines. It took Uber approximately 18 months to expand into a second country, but then only 60 days to open in the next. This occurred due to the streamlined legal and marketing process, which helped them to become faster in their establishments. However, as a business scales up, it must ensure not only that it has enough funding but also that it is continuing to build enough trust and loyalty so that customers return and competitors are repelled. It must also raise the volume of transactions. Hence, a company such as Airbnb with an average stay of $70 per night for three nights should attempt to attract more premium customers or increase the average stay length.

Monitoring customer acquisition costs and the lifetime value of the customers is crucial. The platform must become a one-stop shop for travelling (Airbnb), for shopping everything (Amazon) and searching for videos (YouTube), etc.

As the volume of transactions increases rapidly in this stage, trust issues may develop. Therefore, protection mechanisms must be reactive to avoid a backfire.

Maturity Stage

At this stage, the focus is on the optimisation of the offerings to create maximum value, embracing the maximum number of participants/sides, and diversifying the services and monetisation. Google and Facebook as well as Amazon and Apple offering various advertising tools on their platforms reflect this stage of the diversification of their offerings. The strategic focus is on defending the platform ecosystem against other giant ecosystems, and in doing so, the platform owner must act as a

keystone (a value dominator) of an ecosystem where they aggregate the innovations from other complementors (by buying/authorising innovations) and defending their dominant position with the landlords (lead participants) with whom they have developed strong ties.

The main challenge at this stage is to continue to grow the business and defend its position against potential disruptors.

3.4 Facing the Chicken-and-Egg Issues

As stated earlier, platforms work once they have managed to trigger a network effect – i.e., when the value of using the platforms increases with the number of participants.

For the cross-side effect, MSPs must attract at least two mutually interdependent users. Yet, each side has an incentive to come on board once the other side exists; hence, it presents the metaphysical "chicken-and-egg question". It is a complex issue with several underlying challenges. As seen earlier with the rocket launch analogy, this ability to attract both sides (e.g., buyers and sellers) and run development and marketing for them requires significant energy.

The challenges relate to participants and the tricks to attract them. For a platform to work, both producers and consumers must be on board. Consumers act as bait to lure the producers and vice versa. This is known as the ***mutual-baiting problem***. However, how do you attract buyers to a platform when you have no sellers, and how to attract sellers when you have no buyers? How do you seed the platform with users on both sides and spark interactions? At least one side of the platform should be present to act as bait for the other.

A related set of issues pertains to the level of exchanges between sides. It is called ***the ghost-town problem***, similar to an old-style Western movie, wherein a cowboy rides into town and finds the streets empty. Imagine that you can attract participants, but no activity/transaction is performed. Generating trust and confidence is a major issue, and this is an indicator of low motivation to exchange and transact for participants.

Several solutions exist to overcome the challenges outlined above and reach critical mass on both sides of the platform. Here are a few tactics and strategies successfully employed by many platforms over the last 20 years.

Concentrate on Users Who Can Belong to Both Sides

One solution to overcome the mutual-baiting challenge is to target a very specific group of users who can fit on both sides of the network, such as those who could serve as both chicken and egg, depending on the time and the situation.

For example, eBay did this when it launched as a platform by focusing on attracting collectors, specifically those who collected watches and clocks as collectors' markets are composed of people who may both buy and sell such objects. It then focused on other types of collector markets, from where it flourished.

A variant of this technique that may be used at a later stage of development is known as side switching. This tactic is to incentivise users to switch sides. For example, once a user has finished the booking process on Airbnb, they are immediately incentivised to become a host. After all, the user's residence will be empty while they are travelling; hence, the value proposition is obvious: why not earn some money while you are away (to finance your vacation)? This is an amazing marketing trick since it not only solves the mutual-baiting problem, but also enhances the traveller experience and ensures that hosts deliver the best experience to travellers.

Subsidise One Side (or Even Both)

Providing bait to whichever side is the most difficult to possibly seed through price discount is one option. Seeding can also be accomplished by other techniques.

For example, dating websites work when they have a male and a female audience. Attracting males is usually not too difficult. For females, it is far more complicated. Dating websites are typical of asymmetrical markets with one side harder to attract (the "hard" side) and the other, which is relatively easier to obtain traction on (the "easy" side). To solve this issue, monetary incentives can be offered to the hard side. Similar to how nightclubs often host a weekly "Ladies Night" where women receive free entry and/or free drinks, dating websites can offer free membership and a better experience for women. This model is inherently typical of most platforms, which would have a "subsidy side" that allows the use of the platform with discounts or even for free, and a "monetary side" that is charged for participation or transactions.

Platforms may choose to go even further to attain a critical size by subsidising both sides at least until a certain point. YouTube, which was established in February 2005, allowed both viewers and content creators, including companies, to use the platform for free. However, it did not entice companies to advertise on its website before November 2009. YouTube analytics was only launched in 2011.

Similarly, Facebook also encouraged both users and companies to join the platform. Individual users enjoyed a same-side effect and were happy to communicate with each other for free. In order to attract businesses, Facebook launched fan pages in 2007; companies were initially invited to create pages to freely engage with fans. In the very early days, most fans would see the posts generated by the brand, which would not cost the fan page owner any money. Gradually, businesses started to realise the benefits associated with this emerging media. The number of businesses present on the platform grew exponentially, and so did their willingness to pay. It was

time for Facebook to begin capturing the value it created. By 2012, organic reach (the % of people who see a business page post without paid distribution) had already fallen to 16% and declined further to 6.5% in 2014. Many observers believe that it is now lower than 2% on average. This means that companies almost systematically pay Facebook to reach and engage with their targeted audience.

Platform Staging

By default, platforms do not have any standalone value. Yet, to overcome the mutual baiting challenge, companies might first develop a one-sided value proposition that can be embraced without network effect. This tactic is part of a platform staging strategy. The platform may initially not serve as a double-sided market; however, it would act as a single-side service to attract the side which is most difficult to seed. OpenTable allows individual users to book a restaurant table with ease and for any occasion. To draw restaurants onboard, OpenTable first helped them to manage their booking online. It provided restaurants with an application that allowed them to manage the relationship with their customer base via their website. This facilitated the work of restaurants and was an attractive solution for restaurant owners, regardless of a network effect. Yet, the network effect was easily achieved, as once the solution was adopted, it was de facto linked to the B2C OpenTable website, where individual users of the platform could also book a table.

Similarly, the taxi-booking app, Hailo (now called FREE NOW), managed to rapidly secure the participation of most black cabs in London by initially providing only mobile payment and real-time traffic. Those essential features are valuable regardless of the participation of users on the other side of the network. The possibility of gaining new customers via the app was a bonus that quickly became the main feature of the app once adoption by passengers skyrocketed.

A variation of this strategy is to alternate or stage its communication to one side and then the other. For example, the car-sharing platform BlaBlaCar used the notorious French railway strike to recruit users. In October 2007, it used the opportunity to send a press release to "own the moment". The news of such a useful website implied that during the strike, the platform was featured in over 500 newspaper articles and received massive attention on TV and radio. Yet, during strikes, it is relatively easy for BlaBlaCar to recruit stranded passengers looking for a ride. Hence, for the subsequent (and frequent) railway strikes, BlablaCar now has solely focused its PR campaign on attracting drivers by appealing to their sense of solidarity.

Platform Envelopment

This partnering strategy relies on leveraging the shared relationships with (other) established platforms and their networks to strive and combine value propositions and benefit from a multi-platform bundle that leverages shared user relationships. For example, millions of users rapidly adopted Spotify since it was initially integrated into mobile operators' plans.

There is no "one best way" to overcome the chicken-and-egg problem. In several cases, a challenge faced by platform start-ups is to present enough choices to meet demand. As the number of choices corresponds to the number of search results on a page, if the first page of a platform search displays nine results, users will expect to see nine options. Meeting this demand is a serious challenge, particularly in the early stages. However, this is just the start of the journey for platforms. They must cultivate a long-term perspective to sustain their competitive advantage.

Table 3-A presents a set of tactics to overcome the chicken and egg dilemma.

Table 3-A: Tackling the "Chicken-and-Egg Problem".

Tactics	Definitions	Impacts On
Single Target Group e.g., Uber setting up in a specific city to replicate and scale globally after.	It consists of reducing the total market size and the required critical user mass. Fewer resources and less time are required to reach the critical inflexion point from which the MSP can grow to other market segments.	Mutual-Baiting Problem Ghost-Town Problem
Platform Staging e.g., Amazon for bestseller books, OpenTable with a B2B value proposition	It consists of evolving in two distinct steps: from a traditional vendor-based (pipeline) business model in the first stage to a platform-mediation business model in the second stage after reaching the critical user mass.	Mutual-Baiting Problem Double Company
Subsidising e.g., YouTube	It typically consists of a subsidy side that allows the use of the platform with discounts or even for free, and a monetary side that is charged for participation or transactions.	Mutual-Baiting Problem
Platform Envelopment e.g., Spotify integrated into mobile operators' plans, Internet Explorer embedded in Microsoft OS	This partnering strategy relies on leveraging the shared relationships with (other) established platforms and their networks to strive to combine value propositions and benefit from a multi-platform bundle that leverages shared user relationships.	Mutual-Baiting Problem

Table 3-A (continued)

Tactics	Definitions	Impacts On
Side Switching e.g., eBay with collectors; Airbnb where (with incentives) travellers can become hosts	This involves making a two-sided platform one-sided by finding a platform design that allows users to fill both market sides of the MSP simultaneously.	Mutual-Baiting Problem Ghost-Town Problem

(Adapted from Stummers et al., 2018).[3]

3.5 Key Takeaways and Further Considerations

1. Platforms adopt plug-and-play business models that allow multiple participants to connect to them, interact with each other, and create and exchange value.
2. Platforms must act as matchmakers and master network effects that condition their existence and sustainability.
3. Platforms face several challenges at different stages and must remain agile in their developments, which requires several resources and staging development tactics.

"The Eyes Can Only See What the Mind Is Ready to Understand"

As designed by Osterwalder et al. (2014), the original Value Proposition Canvas is best suited to traditional corporations with a pipeline strategy, where producers are seated at one end and consumers at the other. However, with platforms, both producers and consumers can be customers of the business. Thus, we must adapt it to account for at least two-sided platforms.

In Figure 3-F, the adapted and revised Value Proposition Canvas demonstrates the pains and gains of producers and consumers and the distinct, non-related value propositions the company requires for each side. For instance, the value of Facebook's advertising platform originates from the gain advertisers achieve from being able to micro-target audiences. However, if consumers do not prefer targeted advertising, they will classify it as a pain. Alternatively, if they appreciate personalised suggestions for products on their news feed, they will consider this a gain.

3 Stummer, C., Kundisch, D., & Decker, R. (2018). Platform Launch Strategies. Business & Information Systems Engineering, 60(2), 167–173.

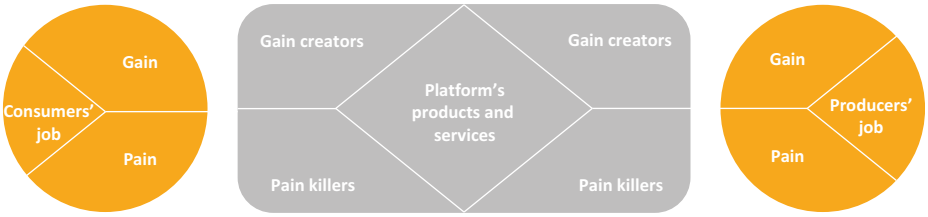

Figure 3-F: A Two-Sided Value Proposition Canvas.
(Adapted from Osterwalder et al. 2010)

Alternatively, many consulting companies presented Digital Platform Canvas as an alternative to the Value Proposition Canvas with Core Interaction at its centre (Figure 3-G). For instance, the core interaction for YouTube would be the sharing of videos with an audience, which can be enhanced by facilitators (the rules and the types of content allowed), tools and services (search engines and toolkits for uploading videos to the site), filters (keywords associated with a video) and potential partners (those who deepen the interaction through the development of applications).

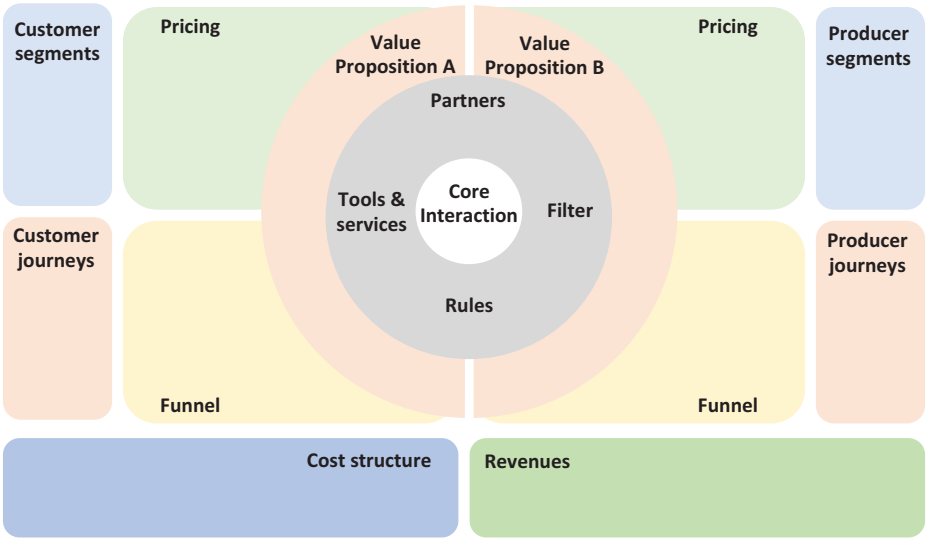

Figure 3-G: An Alternative Digital Platform Canvas.

As with other versions of the Canvas, the producer and customer are on the opposite sides, along with their respective value propositions. Since adoption is generally the key challenge for a company, traditionally, the value propositions are customer-oriented. In contrast, this Canvas accommodates journeys for customers and producers as well as the channels (funnels) and pricing for each side. Finally, cost structure and

revenue are examined, which might also differ for each side. This reinvented Canvas enables companies envision key elements for both sides and helps them illustrate the value proposition for consumers and producers.

The Evolving Nature of Platforms' Value Propositions

The value proposition(s) and the business model must not be necessarily static. In fact, they should change and evolve according to value appropriation and sustainability and scale of value captured.

Many platforms fail to adjust them, resulting in stagnation. This is particularly true for traditional businesses attempting to survive in an increasingly digital business atmosphere. Nearly 90% of start-ups fail within the first five years of business, a key reason being their inability to adapt to their business model. Of those that do survive, 60% no longer operate according to their original value proposition. For instance, newspapers' primary source of revenue has always been the sale of advertising space on their pages. However, to survive and stay relevant in a world where more people seek news online, they now offer online versions and sell digital advertising space using tools such as Google Display Network. Thus, it should be considered that business models are not static, and the platforms should be willing to revise their value proposition(s) in changing circumstances.