

White Paper

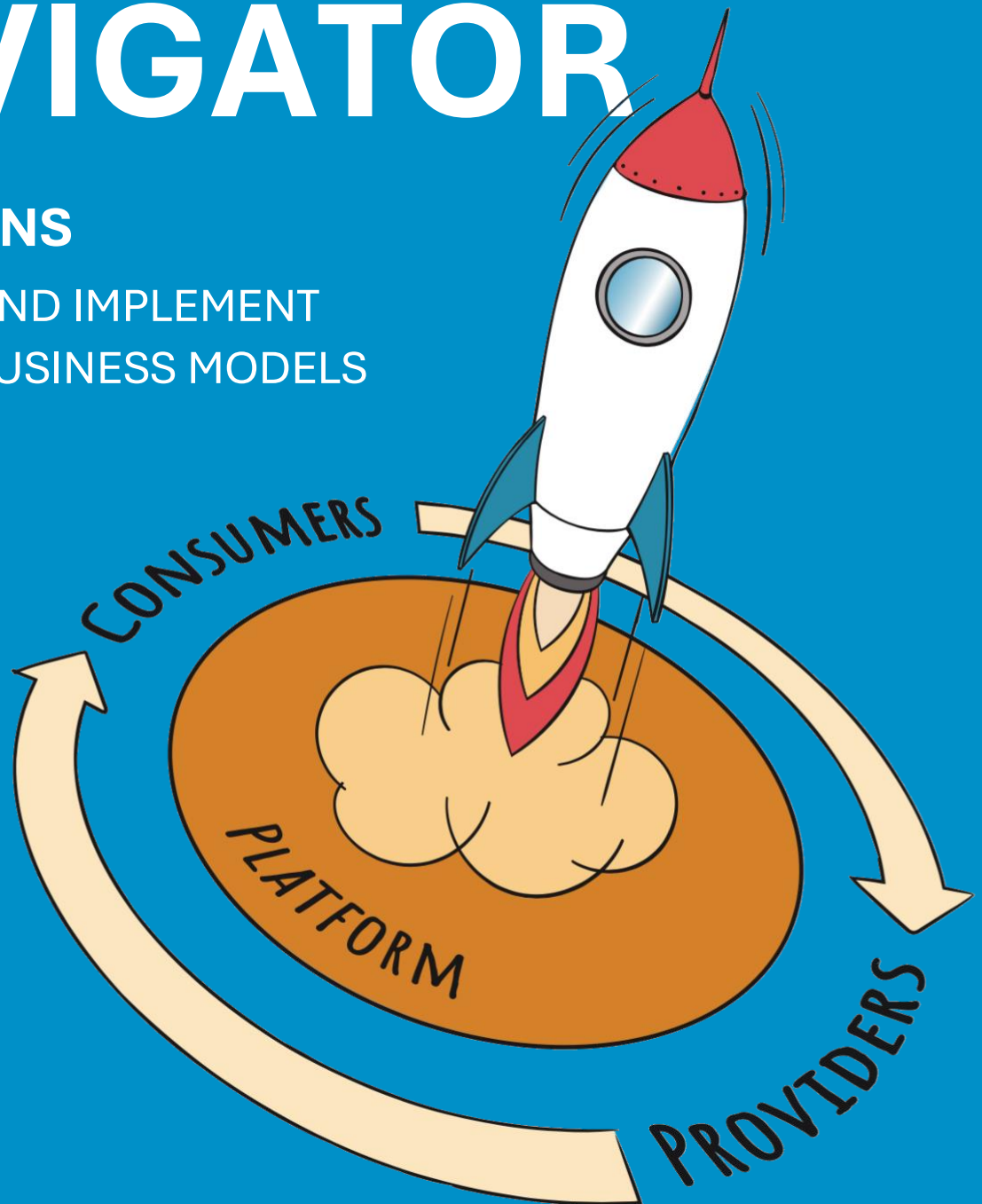


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THE PLATFORM NAVIGATOR

88 PATTERNS

TO DESIGN AND IMPLEMENT
PLATFORM BUSINESS MODELS



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(2022)



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The navigator in a nutshell

Platforms dominate our economy

Today, platform companies like *Amazon*, *Alibaba*, *Apple* or *Google* dominate our economy. In fact, seven out of the ten most valuable companies worldwide are built upon a platform business model (Newman et al., 2021). It is also evident that many more platforms are on the rise with the potential to disrupt entire industries, from retail, tourism, transportation to regulated industries such as healthcare. Platform companies were able to outperform traditional businesses over the last decades as they established themselves as digital intermediaries. *Amazon* and *Alibaba*, for example, facilitate transactions between sellers and buyers, *Apple* facilitates transactions between app developers and app users, and *Google* facilitates transactions between ordinary web users and advertisers.

However, it is not just about digital companies that have embarked on a platform journey. Established companies are just as affected by the shift to platform business models. Many companies have tried to extend their traditional business models and launched their own platform businesses. Looking at successful examples such as *LANXESS* with *CheMondis* (chemicals), *CLAAS* with *365FarmNet* (agriculture) or *Klöckner & Co* with *XOM Materials* (steel and materials) building and managing a platform business might not seem to be a challenging endeavour.

The need for a navigator

However, 80% of all platform initiatives fail and particularly traditional companies struggle

(Cusumano et al., 2019). One reason is that platform business models are just very different from traditional, so-called pipeline business models. Pipeline business models are characterized by a linear value chain with a well-directed value flow from suppliers to customers. In comparison, platforms are intermediaries that bring two or more sides of a market (customer groups) together. They provide the infrastructure and rules that facilitate transactions between the respective sides. More specifically, the success of every platform heavily depends on network effects, i.e., more users leading to more value. In the case of *Amazon*, for example, more buyers lead to more sellers (larger demand for sellers) and more sellers lead to more buyers (larger and more diverse supply). The re-enforcing dynamic of network effects, i.e., the flywheel effect of more users leading to more value for each user, which in turn leads to more users, is vital for all successful platform businesses. In addition, data network effects have recently become an essential ingredient for platform success. While the value from network effects is derived mainly from the interaction between the different platform users, the value from data network effects stems from user data, learning from it, and scaling it across all users on the platform (Gregory et. al, 2021). In essence, data network effects are about more users leading to more data, more data leading to better products and services, which ultimately attract more users.

“Large-scale platforms are not zero-sum – they create win-win situations and create significant value for developers, entrepreneurs, customers, authors, and readers.”¹ Jeff Bezos, Founder Amazon, on platform success

The five phases of platform development

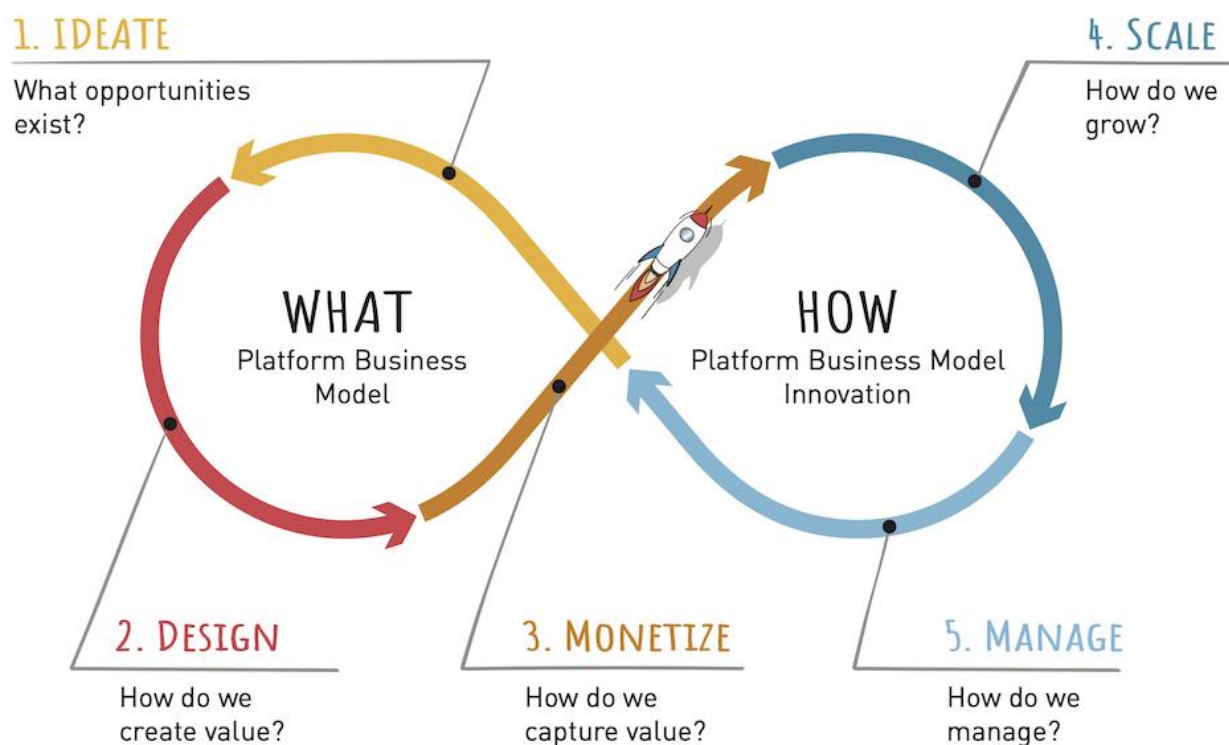


Latest research shows that many companies, in particular established pipeline businesses, struggle with this new notion of doing business. This evidence was the starting point to develop the Platform Navigator. Building upon the success of the Business Model Navigator, we developed a guide for the development and implementation of platform business models. Based on a literature review and an empirical study of more than 150 success stories, we derived 88 patterns across five phases (see Fig. 1):

I. Ideate: What opportunities exist? We often see that companies start to develop a platform business model but have not fully understood the platform concept – not only from a conceptual point of view but also from a practical point of view. In essence, they are not aware of the diverse nature and mechanics of existing platforms. Phase I is about addressing this issue. We present 21 patterns in seven distinct categories that illustrate how diverse the platform phenomenon is. Thereby,

phase I serves as an inspiration and starting point to identify opportunities for your own platform business model.

II. Design: How do we create value? When you embark on a platform journey, you need to understand that there are two fundamentally different types of platforms. On the one side, there are transaction platforms, also known as marketplaces, where you have buyers and sellers (e.g., *eBay*) or providers and consumers (e.g., *Airbnb*). On the other side, there are innovation platforms like *Microsoft Azure*. *Microsoft Azure* is a cloud platform that serves as a basis for others to develop applications (and innovate) on top. Designing transaction and innovation platforms requires different principles and choices. The design phase is about these principles and key decisions. We have collected 26 patterns and best practices for designing transaction and innovation platforms.



III. Monetize: How do we capture value? In the long run, every business needs a solid monetization strategy to capture value. Platform businesses often defer monetization as it can harm network effects. Examples like *YouTube* or *LinkedIn* illustrate that it can even take decades until monetization. Nevertheless, most platforms have a rigid long-term strategy for monetization from the beginning. The core of monetization is developing an effective revenue model. It can rely on direct monetization (e.g., users pay for apps) or indirect monetization (e.g., users watch videos for free but have to consume advertisements). Phase III is about addressing the challenge of designing and implementing these revenue models. We compiled 15 patterns that can be leveraged to successfully monetize a platform business.

IV. Scale: How do we grow? Every platform business faces the famous chicken-and-egg problem. In the case of a new marketplace, for instance, no sellers mean no supply and hence no customer demand. On the other hand, no customers mean no demand, and hence no seller will engage in such a marketplace. Platforms must overcome this deadlock situation and phase IV is exactly about how to tackle the deadlock. We compiled 14 patterns that successful platform companies have leveraged to kickstart network effects for their businesses.

V. Manage: How do we manage? Once you have your platform running and strong network effects are in place, new challenges will emerge. You must continue to innovate but also defend your platform core as other players will try to copy your successful business model. Moreover, you have to be careful and maintain quality. We identified 12 guidelines on how to tackle the challenges of a

maturing platform business. In addition, we provide insights on how to manage and monitor your platform endeavour.

Each of the patterns is depicted on a pattern card and illustrated using two successful and insightful platform cases (see Fig. 2). In addition to a platform canvas (see Appendix), at the end of each section, we provide a detailed guide on how to work with the different Platform Navigator phases.

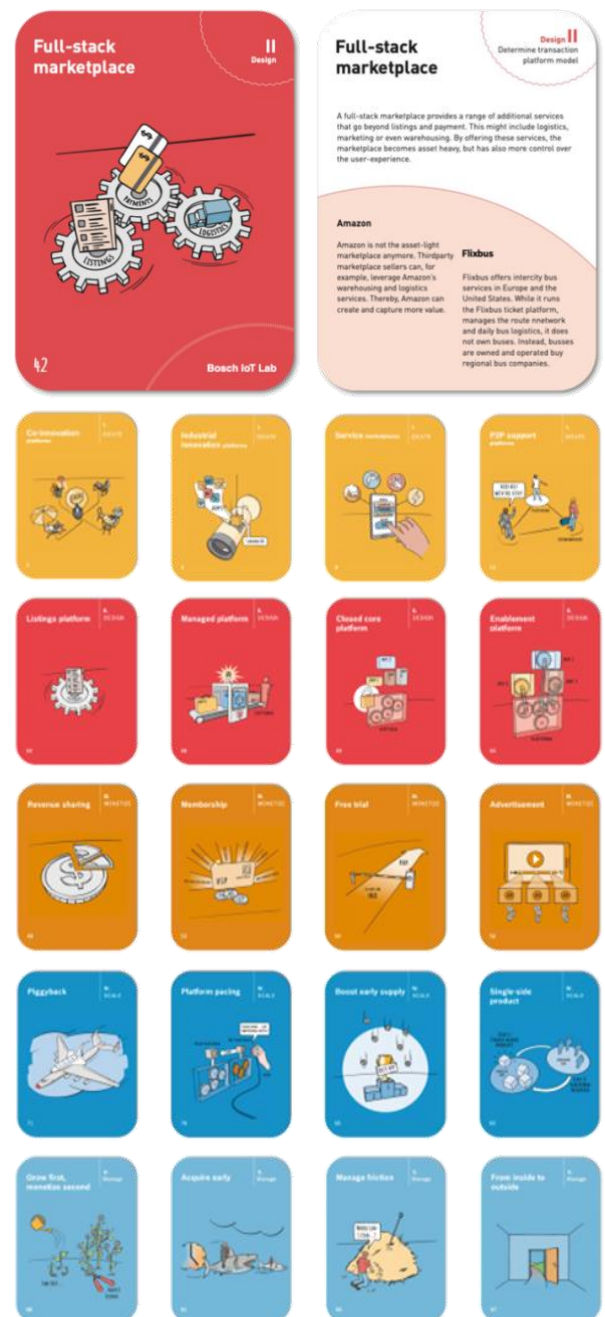


Fig. 2: The Platform Navigator pattern cards



I. Ideate

There is more than Amazon

Although a variety of successful platform business models have evolved over the past two decades, most people initially think only of the *Amazons*, *Alibabas* or *Airbnbs* of this world. However, the platform phenomenon is much more diverse. In order to illustrate the variety of platforms and the potential of the platform economy to affect everyone in the enterprise, we have developed a concise structure based on Porter's established concept of the value chain (Porter, 1985). According to Porter, two types of activities can be distinguished in any company. On the one hand, there are primary activities that are needed to run your core business. These activities range from innovation, development and operations of the product and service portfolio (value creation) to sales (value exchange), service and customer interaction. On the other hand, there are support activities that relate to cross-functional capabilities. Companies run an HR department to manage their

human resources and deal with core topics such as work and education. Finance activities are bundled within the CFO function and fundamental technology and data infrastructure is orchestrated by a technology department (i.e., office of the CTO or CIO). We leveraged this structure to provide you with easy access to 21 platform business models as an inspiration or starting point for your platform journey – be it as the platform owner, platform user, platform complementor or partner (see Fig. 3).

Platforms along the primary activities of a company

A. Innovation platforms: You are responsible for research and development in your company? What kind of innovation platforms should you know? First, you should be aware of **crowdfunding platforms (1)** like *Kickstarter*. Second, you should be aware of **open innovation platforms (2)** like *Innocentive* that bring external experts together with companies seeking help with their innovation challenges. There are also **co-innovation platforms (3)** that facilitate the cross-organizational development of innovation. For instance, *GitHub*

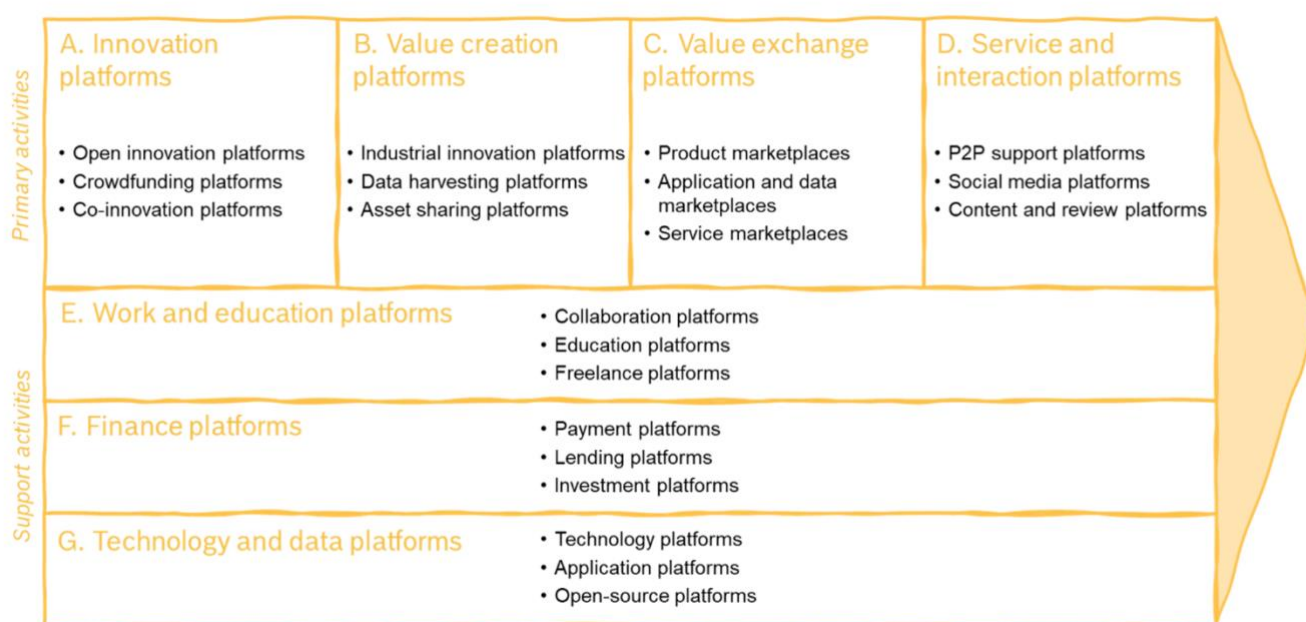


Fig. 3: The Platform Navigator – Phase I



has become the go-to platform for open-source and software projects.

B. Value creation platforms: If you are responsible for operations, what kind of platforms should you know? First, you might want to look at **industrial innovation platforms (4)** such as *Azena*. We all know the app store concept from *Apple iOS* as well as *Google Android* but operating an application platform and marketplace is also prevalent in the B2B industry domain. *Azena* is an operating system for security cameras with an app store where third-party providers can build and sell applications for security cameras. Second, there are **data harvesting platforms (5)** like *Waze*, a traffic and navigation app with a social community that serves as a viable data source for *Google Maps*. Also, **asset sharing platforms (6)** like *Airbnb* have become indispensable in many areas, especially in the consumer segment. However, many sharing platforms are emerging in other, more traditional segments, such as industrial machinery, as well.

C. Value exchange platforms: If we look at the market-related activities of the value chain such as value exchange, we primarily talk about marketplaces in the platform economy. Most prominent are **product marketplaces (7)** such as *Amazon* or *eBay* but there are also **application and data marketplaces (8)** like *Steam* where digital goods (computer games in the case of *Steam*) are traded.

Third, there are **service marketplaces (9)** ranging from logistic services on *InstaFreight* to mobility services on *Uber* to healthcare services on *Zeel*.

D. Service and interaction platforms: What kind of platforms are emerging in the realm of service

and customer interaction? First, we see innovative **P2P support platforms (10)** like Swiss-based *Mila* that can help increase your service field force by a factor of ten without any additional costs. *Mila* leverages the crowd, for example, to help individual consumers with their IT issues – think digital native neighbour helps digital immigrant neighbour. Second, **social media platforms (11)** like *Facebook* or *WhatsApp* have become indispensable if you want to communicate

with your customers.

Third, **content and review platforms (12)**

like *YouTube* are very important not only for marketing but

also for customer interaction, even if you are a traditional manufacturing company. Many great “how-to” videos on *YouTube* exist and first product companies start leveraging these ordinary videos by linking them so that consumers can easily share best practices and learn from other users.

“Touching on our experience at PayPal, we saw the power of simplifying processes and giving everybody a solution. Being the early employees at PayPal, we did that for payments. We saw the same opportunity in the video space.”² Chad Hurley, Co-Founder YouTube, on the power of learning from other platforms

Platforms along the support activities of a company

E. Work and education platforms: Are you responsible for HR in your company? What kind of work and education platforms should you know? In COVID-19 times it became very clear that **collaboration platforms (13)** like *Zoom* are of the highest importance for every company. Second, companies can also leverage **education platforms (14)** like *Udemy* and *Udacity* which can bring outstanding educational content in a very affordable way to their staff. There are also **freelance platforms (15)** like *Fiverr* and *Upwork*. Instead of committing to long-term contracts, freelance platforms make it easy to hire freelancers for one-time tasks, such as the development or the



design of logos and websites.

F. Finance platforms: Looking at the domain of finance, the platform economy has fundamentally changed the way we do finance. *PayPal* as a **payment platform (16)** is now the de facto payment standard worldwide. As of today, manufacturing companies such as automotive manufacturers provide leasing or financing to their customers through organisations such as *Volkswagen* or *Mercedes bank*. However, **lending platforms (17)** like *Lend* have emerged that directly connect lenders and borrowers, thereby, potentially challenging existing business models. Third, there are **investment platforms (18)** like *Republic* which are available for consumers and companies to invest money outside the stock market.

Working with the ideate patterns

Browse through the 21 patterns to identify opportunities for your own business. Previous workshops have shown that the examples on the cards are particularly valuable for ideation. Moreover, these examples often help to communicate your platform ideas effectively to stakeholders within your company. Write down your platform ideas immediately without judgment and only in the end, evaluate and shortlist one to three ideas. Also, leverage our value chain framework and broadly think opportunities across your whole company.

Looking at the specific examples mentioned on the pattern cards, you could ask yourself:

- How would platform X conduct our business?
- Can we transfer the business model of platform X into our industry?
- Should we build our own platform X or is it more feasible to become a complementor or user in an existing one?
- How can different groups within our company from research & development over sales and service to finance benefit from platform X?

G. Technology and data platforms: The last domain of secondary activities, technology and data, is becoming highly important for all companies in light of increasing digitization. First, there are **technology platforms (19)** like *Microsoft*

or *Amazon Web Services (AWS)*. The so-called hyperscalers offer a diverse set of fundamental cloud services for many applications and use cases. In addition, they also host marketplaces, where third parties can offer their solutions. Second, there are **application platforms (20)** like *iOS* and *Android*. These are operating systems that enable third parties to build applications on top. Today, a lot of software development is now done on the basis of **open-source platforms (21)**. A prominent example is *Linux*, but there are many more open-source platforms available for end-users, developers or companies.

Ideate in practice

The case of Amazon:

Amazon started as an online merchandiser selling books via an online shop and not as a platform business. Only after transforming the online store to an open marketplace where third-party vendors could join, *Amazon* became the thriving platform we know of today. In fact, today, it even runs different successful platform business models in parallel which also complement each other. For instance, *Amazon* has built a very successful **service marketplace (9)** called *MTurk*. Companies that want to outsource simple and repetitive tasks can get access to crowd workers via *MTurk*. As of today, its most profitable business is the **technology platform (19)** *Amazon Web Services (AWS)*. The most famous and prominent platform business is the *Amazon product marketplace (7)*. While it started with books and electronics only, it continuously opened up. Today, third parties can offer a wide range of products, from clothing, food to electronics.

The case of Android:

Android is an operating system (OS) for smartphones and thereby an **application platform (20)** that hosts an **application and data marketplace (8)**. Based on software development kits (SDKs) and coding guidelines, every developer can build applications (apps) on top of the OS. These apps can then be marketed and sold to consumers through the *Google Play Store* on *Android* supported devices.



II. Design

The two platform types

Two fundamental types of platforms can be distinguished (Cusumano et al., 2020). On the one hand, there are transaction platforms such as marketplaces. Like *Amazon*, *eBay*, *Airbnb* or *Uber*, they bring two sides of the market together and facilitate transactions between those market sides. On the other hand, there are innovation platforms like *Apple iOS*, *Google Android*, but also *Microsoft Xbox* or *Sony PlayStation*. Innovation platforms provide the infrastructure and basis for others to develop innovation on top – such as smartphone apps in the case of *Apple iOS* or video games in the case of *Microsoft Xbox*.

Although there are hybrid forms in practice, the design choices for transaction and innovation platforms fundamentally differ. Acknowledging this

difference, we present 26 design choices and norm strategies (see Fig. 4). Essentially, the purpose is to provide an overview of the core decisions when designing a transaction or innovation platform. In a first step, the core value proposition (A) of the platform must be developed. Like in every other business, a meaningful platform value proposition (for each side) is essential for sustainable success. Second, an ownership model needs to be defined (B). Third, the operating model (C and D) should be determined that outlines the core value creation activities of the platform orchestrator.

Designing platform fundamentals

A. Determine core value proposition: Given the diverse nature of transaction platforms, a variety of value propositions exists. In fact, platforms often combine them. One of the most prominent forms is to **aggregate demand and supply (22)** across multiple domains. For example, a product platform like the *Amazon* marketplace aggregates supply

Design platform fundamentals		Design operating model	
<p>A. Determine core value proposition</p> <p><i>Enable network effects</i></p> <ul style="list-style-type: none"> > Aggregate demand and supply > Generate trust <p><i>Democratize access</i></p> <ul style="list-style-type: none"> > Unlock latent supply > Unlock scarce supply <p><i>Establish ecosystems</i></p> <ul style="list-style-type: none"> > Create a complementor ecosystem > Open up the platform core <p><i>Facilitate disruptive interactions</i></p> <ul style="list-style-type: none"> > Establish a platform vertical > Facilitate local interactions > Enable an instant experience 	<p>B. Define ownership</p> <ul style="list-style-type: none"> > Single owner > Consortium > Peer-to-peer community 	<p>C. Determine transaction platform model</p> <p><i>Asset-light</i></p> <ul style="list-style-type: none"> > Listings platform > Light marketplace <p><i>Asset-heavy</i></p> <ul style="list-style-type: none"> > Full-stack marketplace > Market maker <p><i>Complementary models</i></p> <ul style="list-style-type: none"> > E-commerce > Direct to customer 	<p>D. Determine innovation platform model</p> <p><i>Platform development</i></p> <ul style="list-style-type: none"> > Closed core platform > Open core platform <p><i>Platform distribution</i></p> <ul style="list-style-type: none"> > Single-home platform > Multi-home platform <p><i>Complement development</i></p> <ul style="list-style-type: none"> > Integration platform > Enablement platform <p><i>Complement distribution</i></p> <ul style="list-style-type: none"> > Managed platform > Distribution platform

Fig. 4: The Platform Navigator – Phase II



across multiple domains. **Generating trust (23)** can be a vital value proposition for a platform to facilitate a new market. Measures such as rating scores and reviews have proven to be effective means to increase the confidence of providers and buyers. Marketplaces such as *eBay* would have never been possible without the trust generating power of ratings and reviews.

Another fundamental value proposition is to **unlock latent supply (24)**. *Airbnb* did exactly this by focusing on unutilized rooms and apartments. It provided insurance to hosts which took away much of the hosts' fear. This gave them the necessary confidence and security to offer their apartment on *Airbnb*, thereby opening a new market and unlocking latent supply. **Unlocking scarce supply (25)** can be another core value proposition of transaction platforms. There are certain domains such as software development where supply is very low and quality is particularly important. Platforms can democratize access to this scarce supply and provide better quality vetting mechanisms, e.g., with the help of a digital rating system.

By enabling complementors to extend the platform's basic capabilities and "innovate on top", platforms **create a complementor ecosystem (26)**. Third-party applications expanded *WeChat's* messaging services by adding flight or hotel bookings or product searches. Collaborative software development has proven to outcompete more proprietary ways of developing software. Thus, platforms **open up the platform core (27)** in order to increase the quality, speed and extent of innovation of their offering. The IoT platform *Bosch IoT Suite* for example is based on open-source

software and anyone can modify, extend and improve the platform's core.

At the same time, platforms can also focus on **establishing a vertical platform (28)**. Leveraging domain knowledge, such as technical or industry expertise, a vertical platform is active in a very specific niche. For instance, *CheMondis* has created a marketplace for chemicals building upon the knowledge of its mother company *LANXESS*, a leader in this industry. Many platforms aim for **facilitating local interactions (29)** such as *Uber* or *Deliveroo*. These platforms come with very specific challenges as they have to bring people physically together and create real-time interactions. **Enable an instant experience (30)** is another core value proposition. It is particularly relevant for industries with cumbersome and long transaction processes. On *Auto1*, consumers can sell and buy cars almost instantly. If you think about the real estate market, selling or buying a house takes typically many weeks. On the platform *Opendoor*, house owners can sell in five to ten days but at a discount. Backed by strong financials, the rationale is to speed up such a lengthy process to create an instant experience.

B. Define ownership: After developing the core value proposition, you need to think about how to set up platform ownership. While this might seem like an easy task, the right ownership model can heavily influence the future success of a platform. In many industries, platforms are confronted by the challenge that every company wants to build its own industry-leading platform. Instead of joining forces with each other to build one strong platform, every single platform fails in the end due to the lack of network effects and acceptance within the industry. The right ownership model, therefore, can be essential to tackle this challenge. Certainly, the



most common ownership model is **single owner (31)** like in the case of *Amazon* or the agricultural platform *365FarmNet* which is fully owned by *Claas*. However, a **consortium (32)** or a **peer-to-peer community (33)** can also own a platform business. A consortium model is particularly relevant in B2B where companies are often hesitant to join a competitor's platform and do not accept a strong marketplace that is owned by only one company. Peer-to-peer communities are very common in the blockchain and Web3 platform space.

Designing operating model

C. Determine transaction platform model: As a transaction platform, you must decide on the extent of value creation you want to realize (Dealroom.co, 2021; Hagiu, 2014). A platform's extent of value creation can vary substantially from very light to very comprehensive. First, there are asset-light platforms like **listing platforms (34)**. For example, *AutoScout24* in its basic version is only a listing of available second-hand cars. Buyers and sellers finalize the transaction offline, and the payment is done outside of the platform, e.g., via cash or bank transfer. This makes the platform very asset-light and the facilitated value creation is rather limited. Going a step further, there are **light marketplaces (35)** such as *eBay*. On *eBay*, the entire transaction process is controlled by the platform. In essence, it is a listings platform plus integrated payment.

When assuming more of the value creation, platforms start to become asset-heavy. *Amazon*, for instance, can be considered a **full-stack**

marketplace (36) as it provides a range of additional services which go beyond simple listings or integrated payments. It provides logistics services, has warehouses and manages the entire transaction process for the seller as well as the buyer. Also, the travel company *FlixBus* does not own buses itself but instead is a well-integrated platform with a strong logistics operation backbone. **Market maker platforms (37)** like *Auto1* and *Opendoor* go even one step further in the value creation. They even put assets on their balance sheet for a limited period. *Opendoor* acquires houses from sellers intending to sell them to buyers in a timely manner to achieve a corresponding margin.

In addition to asset-light and asset-heavy platforms, complementary models should not be neglected. Although they are not platform business models per se, they are often combined with the aforementioned platform models or result in one. **E-commerce (38)** is in essence an online store where products are commercially traded but without any third-party sellers involved. For instance, *Amazon* was an online store for books before it became a two-sided marketplace. The second complementary model is **direct to customer (39)**. More and more companies want to own the entire value chain from producing the product to selling it to the end customer. For instance, companies such as *Whirlpool* have built up their own online store to sell their products (e.g., a dedicated *KitchenAid* online store). While they are operating a direct to customer approach, they are not facilitating a multi-sided market.

D. Determine innovation platform model: Determining the right operating model for innovation platforms is all about deciding on how



much of the value creation you want to control respectively open up (Eisenmann et al., 2008; Hein et al., 2020). In essence, you need to define the scope of co-innovation with respect to (i) platform core (e.g., operating system) and (ii) platform complements (e.g., apps). First, on the platform core level, you must decide whether you will be the only one allowed to modify the core. There are **closed core platforms (40)** such as *Apple*. Nobody other than *Apple* is allowed to change or modify the operating system of the *iPhone* (iOS). On the other hand, there are **open core platforms (41)** such as *Linux*. These platforms are typically open-source and open to any kind of modification by third parties.

Besides modifying the core, you must think about the distribution of your platform core. There are **single-home platforms (42)** such as *Apple macOS*. The operating system only runs on *Apple* hardware and *Apple* is the only company distributing it. In contrast, there are also **multi-home platforms (43)** such as *Microsoft Windows* which is open for distribution as a lot of different companies can sell and integrate *Windows* into their hardware offering. Similar, *Android* is not coupled to one manufacturer. A lot of hardware manufacturers (e.g., *LG*, *Motorola*, *ZTE*, *Huawei*, *HTC*) distribute the *Android* system.

Working with the design patterns

Use the 26 patterns to design your platform or refine an existing idea. Identify the platform type (transaction vs. innovation) and browse through the respective patterns. Ask yourself what the overall value proposition of your intended platform should look like. Take all sides of the platform into consideration including yourself and your partners and discuss the feasibility of different operating models. Also, think about the advantages as well as disadvantages of different ownership models for your platform idea.

Use the patterns to answer questions such as:

- Can we establish our platform ambitions as a single company or do we have to establish a consortium?
- What is the operating model of our transaction platform? Are we going asset-light or asset-heavy?
- What is the operating model of our innovation platform? Do we allow others to develop, enhance and distribute our innovation platform? How do we assure quality and

Further, you must decide on how you enable others to innovate on top of your platform (complements such as apps). Companies can become an **integration platform (44)**. For instance, on the agricultural platform *365FarmNet*, third-party applications are partially required to be deeply integrated into the platform to create value, i.e., they are not stand-alone. Therefore, co-development and close collaboration between the platform owner and third-party application providers are necessary. In contrast, on an **enablement platform (45)** such as *Android*, everybody can independently develop applications without the need for co-development. Only in very exceptional cases, there is integration work done by *Google*. At the heart of enablement platforms is autonomous co-innovation, for example by providing “boundary resources” such as SDKs, APIs, as well as “how-to” instructions.

Finally, as an innovation platform, you need to decide if the quality of platform complements is validated by the platform owner (managed platform) and if the platform owner provides a distribution channel for the complements (distribution platform). For example, the *Apple iPhone* platform consisting of *iOS* and the app store can be considered both a **managed platform (46)** and a **distribution platform (47)**. In fact, developers cannot just develop any kind of app as there are strict rules which are enforced by *Apple*. For example, pornography and scam are strictly forbidden. Every app developed for *iOS* and compliant with *Apple*’s rules can leverage the distribution channel *Apple App Store*.



Design in practice

The case of Amazon:

The example of *Amazon*, a **single owner (31)** platform company, illustrates how platforms continuously need to reinvent themselves and re-start the (platform) business model innovation cycle again. In 1994, *Amazon* started as an **e-commerce (38)** company selling books via its online store – its slogan was “welcome to the earth’s biggest bookstore”. Four years later, it became a marketplace and changed its value proposition to **aggregate demand and supply (22)** across various categories. This was the start of the *Amazon* marketplace as we know it today. When it opened in 1998 to third-party sellers, it was only a **light marketplace (34)**. After introducing adjacent services such as logistics and warehousing, it integrated more of the value chain and became a **full-stack marketplace (35)**. Today, it has moved even further towards a **direct to customer (39)** model selling *Amazon Basics* products, in particular every-day electronics.

The case of Android:

Starting as a **consortium (32)**, the objective of the Android operating system was to establish a common standard for handsets. Looking at its operating model, it can be considered an **open core platform (41)** as its core is open source and others can use and modify it. Exempt from this is the *Play Store* which is fully controlled by *Google*. As a **multi-home platform (43)**, and in contrast to *Apple iOS*, *Android* runs on various hardware manufacturers. The development of complements (apps) can be performed independently without interacting with other Android stakeholders and hence Android can be considered an **enablement platform (45)**. Although there is less quality control than in the Apple ecosystem, distribution is enabled by *Google* via its *Play Store*. Therefore, while having an open core, *Google* can capture much value as a **distribution platform (47)**.



III. Monetize

Growth versus monetization

Once a platform and its network effects have been established, the focus must shift toward capturing value. In the long run, every business needs a solid monetization strategy to generate healthy income and profits. However, platform businesses often defer monetization as it can severely harm network effects. Examples like *YouTube* or *LinkedIn* illustrate that it can even take decades until monetization.

Developing monetization strategies early on is very important to determine the business potential of a platform. We present 15 monetization strategies in three fundamental areas (see Fig. 5). As a very first step, platforms need to determine their core revenue model. They can build upon direct (A) and indirect (B) monetization strategies. Furthermore, to foster monetization, platforms can leverage a set of well-established monetization tactics (C).

Determine the revenue model

Existing literature distinguishes between direct and indirect revenue models (Wirtz & Kleineicken, 2000). In the case of direct monetization, revenue is generated by directly charging the customer that is benefiting from the service or product. In the *Apple App Store*, for instance, buyers are directly charged when purchasing a product. In an indirect monetization strategy, revenue is generated by charging third parties and not the customer that is benefiting from the service or product. Many platforms leverage an indirect monetization strategy to keep user fees at a minimum and not harm network effects. *Facebook* revenue, for instance, comes mainly from advertisements, but users do not pay anything for using the platform. Since platform businesses build upon two or more market sides, e.g., sellers and buyers in the case of *eBay*, the appropriate revenue model must be evaluated for each of the sides. After all, one side might be more sensitive to paying money than the other or one side might be more important for building up strong network effects.

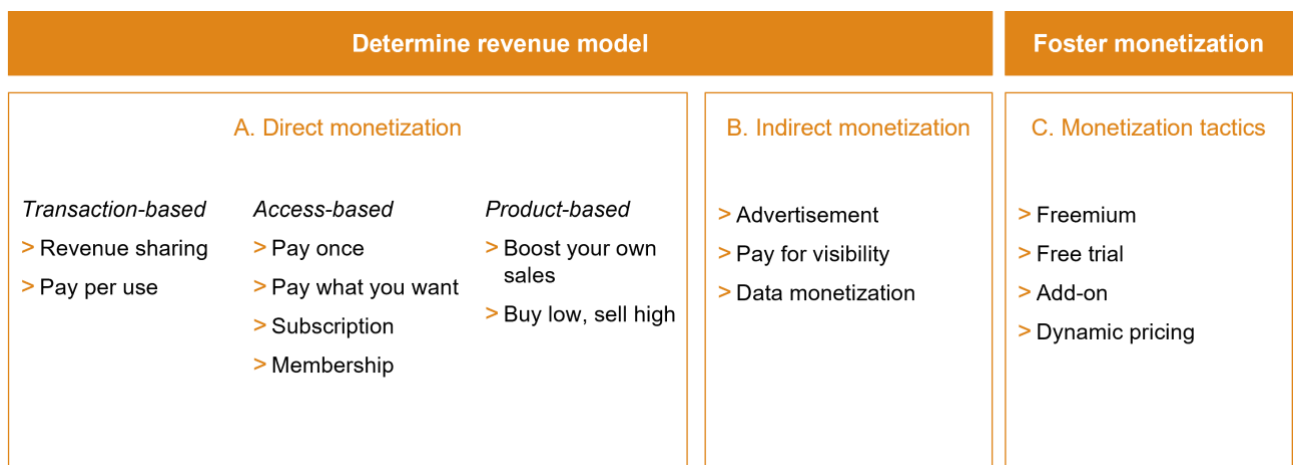


Fig. 5: The Platform Navigator – Phase III



A. Direct monetization: Companies often monetize transactions conducted on their platform. Most often, they rely on **revenue sharing** (48). For instance, in the *Apple App Store*, developers have to pay a certain percentage of their app sales to *Apple*. In this case, the revenue share is a percentage-based commission and can range from 15% to 30% depending on the overall revenue of the app provider. Other platforms monetize transactions through **pay per use** (49). On the Swiss marketplace for cars, *AutoScout24.ch*, for instance, sellers need to pay a certain fee for every car they offer on the platform (ranging from USD 62 to USD 416).

Direct monetization can also be access-based so that users pay a fee independent of the number of transactions conducted on the platform. This can be, for example, **pay once** (50) or **pay what you want** (51) in rare cases. For instance, until 2016, *WhatsApp* charged a small fee of EUR 0.89 for downloading the app and using the platform. In the case of *Wikipedia*, on the other hand, users can just pay what they want. The most common access-based pattern, however, is a **subscription** (52). On *LinkedIn*, for example, users can pay a recurring fee to access a certain set of premium capabilities such as enhanced messaging to third-degree connections. In the end, regardless of how often the platform

is used, the same monthly or yearly fee must be paid to *LinkedIn*. Similar to subscriptions,

“You look for a hotel in Boston and we had a list of hotels and for each hotel, we had some links to articles or some review. It was really much better than anything else you could find but there was no revenue model behind it. So how did we monetize the traffic? We said we'll put up a banner ad.”⁴
Stephen Kaufer, CEO TripAdvisor, on the challenge of monetization

marketplaces often use a **membership** (53) fee to directly monetize their users. For instance, as a member of *Amazon Prime*, you receive exclusive

access to features and services, such as faster and cheaper delivery. The payment is offered on a monthly or yearly basis.

In addition to a transaction- and access-based monetization, the platform revenue model can also be based on product sales. Although this might seem counterintuitive given that most platforms are only intermediaries, there are examples of platforms that leverage product-based monetization. Marketplaces like *Amazon* discovered that it is very profitable to expand their scope and offer their own products on their platform. Today, not all products offered on *Amazon* come from third-party suppliers, but a lot of products are produced and sold by *Amazon* itself. Thereby, *Amazon* exploits the existing marketplace as a sales channel for its *Amazon Basics* products. We call this strategy **boost your own sales** (54). Other platforms serve as an intermediary between buyers and sellers; however, they do not enable direct buyer-seller interaction. For instance, *Auto1*, Europe's largest online wholesale platform for used cars, buys and sells cars on its platform. *Auto1* tries to **buy low and sell high** (55) to achieve a significant margin.

B. Indirect monetization: A significant proportion of today's platforms apply indirect monetization. In an indirect revenue model, revenue is generated by charging third parties rather than end-customers or users. The most common form of indirect monetization is **advertisement** (56). For instance, users on *YouTube* do not have to pay if they watch videos. Instead, companies that want to advertise on *YouTube* pay for the placement of advertisements. Another indirect monetization strategy, similar to advertisement, is **pay for visibility** (57). On *Amazon* or *eBay Kleinanzeigen*, for example, product offerings can be placed in a



more prominent position that is advantageous for the sale of the product. Finally, **data monetization (58)** can be an effective indirect monetization strategy. For instance, *Oikotie.fi*, a Finnish job search platform, systematically collects recruiting data, such as search inquiries on its platform. This data is used for benchmark studies and, ultimately, monetized by selling it to third parties as a service or product.

Foster monetization

C. Monetization tactics: If you have decided on your core revenue model, you should think about monetization tactics. In fact, there are well-established approaches which can help accelerate revenue growth. The first monetization tactic is **freemium (59)**. In the freemium model, a platform can be accessed via a free and a premium version. For instance, *365FarmNet*, a leading innovation platform for the digitised farm, leverages this strategy. It offers a free version with basic functions, such as a field catalogue, cross-compliance documentation and a graphical farm map, while the premium version provides farmers access to an extended set of features, ranging from crop planning and fertiliser optimization to a profit manager. As a farmer, you might explore the offering with the free version and then pay to migrate to the premium version.

A **free trial (60)** can also help foster monetization and is an established tool for many platform types. Users on LinkedIn, for example, are offered a free trial of the *LinkedIn* Premium subscription that provides access to additional features, such as unlimited people browsing or video online courses. A free trial is always limited to a certain period before one has to pay, e.g., in the case of *LinkedIn*, the trial period runs for one month only. The **add-**

on strategy (61) is another very common tool to foster monetization. For example, a seller on *eBay* can upload products on *eBay* for free, but to improve the chances of a successful auction, additions, such as larger product photos and extended titles, can be purchased on top. Finally, **dynamic pricing (62)** can help to keep an equilibrium between platform demand and supply while fostering monetization. In this tactic, prices on the platform are adjusted based on actual demand and supply. In particular, mobility platforms have mastered this strategy to balance their fluctuating demand and supply.

Working with the monetize patterns

Go through the 15 patterns to discuss how you want to capture value. Browse through and discuss advantages and disadvantages, as well as feasibility of different monetization possibilities. Do not forget that you can also combine different patterns. In the end, you should answer core questions such as:

- Who respectively which sides of the platform will we charge?
- How will we charge the different sides of the platform?
- What direct and indirect revenue streams can be monetized?
- What monetization tactics can be utilized?



Monetize in practice

The case of Amazon:

Amazon's marketplace revenue model is primarily based on a direct monetization. In particular, *Amazon* relies on **revenue sharing (48)** as it receives a part of every merchant's sale on its platform. This monetization strategy has been implemented right from the start of the marketplace. Today, *Amazon* also leverages the **membership strategy (53)** and buyers can **subscribe (52)** to *Amazon Prime* for a monthly fee of EUR 7.99. They receive benefits such as free and faster shipping as well as access to *Amazon* video and music streaming. In addition, *Amazon* offers **free trials (60)** of seven days (in some cases one month) with full access to this membership. Typically, consumers get so used to the service that they continue using it after the trial ends. Last but not least, in its direct-to-customer operating model, *Amazon* also heavily promotes and highlights its own products, thereby, applying the **boost your own sales (54)** strategy. This includes *Amazon Basics* products (e.g., electronic accessories) as well as *Amazon Alexa* products.

The case of Android:

Google monetizes the *Android* platform in two fundamental ways. On the one hand, it leverages direct monetization in form of **revenue sharing (48)**. It receives a cut of every developer's sale on the *Google Play Store*. Starting in July 2021, *Google* started charging 15% with some deviation depending on the size of the developer. *Google* followed the example of *Apple* that previously announced to reduce its percentage cut from 30% to 15% on app sales. On the other hand, it leverages indirect monetization. With its *Google* search which is set as default for every *Android* supported smartphone, *Google* generates substantial **advertisement**



IV. Scale

The chicken-and-egg question

Every platform business must overcome the well-known chicken-and-egg problem. In the case of a product marketplace like *Amazon*, for example, you cannot attract sellers without buyers, and you cannot attract buyers without sellers. Scaling a platform is all about overcoming this deadlock situation and establishing strong network effects (Parker et al., 2016). Once network effects are kicking in, the different market sides on the platform naturally attract each other. So how can a platform be started, and network effects established? In the following, we present 14 scaling strategies in five domains (see Fig. 6) that help you systematically overcome the chicken-and-egg challenge. This includes traditional strategies focusing on one side only (A), attracting key users (B), leveraging existing assets (C), focusing on both sides simultaneously (D), but also opportunistic strategies (E).

Applying traditional strategies

A. Focus on one side: One way of systematically scaling your platform is to focus on one of the

market sides first before building up a two-sided market. This can be done by providing a [single-side product \(63\)](#). *OpenTable*, for example, developed management software for restaurants first. The software helped restaurants to run their business from taking reservations to invoicing customers. Only after they had a huge number of restaurants as a customer base, they opened up a marketplace where consumers can book a table via the *OpenTable* platform. They moved from a single-side product to a marketplace. As a critical mass of restaurants was already available through their restaurant software business, *OpenTable* was capable of establishing a marketplace and attracting the other side of the marketplace, namely the consumers.

The second strategy in this domain is the [Munchausen bootstrap \(64\)](#). In the famous fairy tale, Baron Munchausen got stuck in a swamp but was able to free himself – without external help – by grabbing the straps of his boots and pulling them up. Similar, *Quora*, the questions and answers platform, was experiencing difficulties to get its platform business started. Nobody was interested in answering questions and hence platform uptake was poor. To overcome this challenge, *Quora*

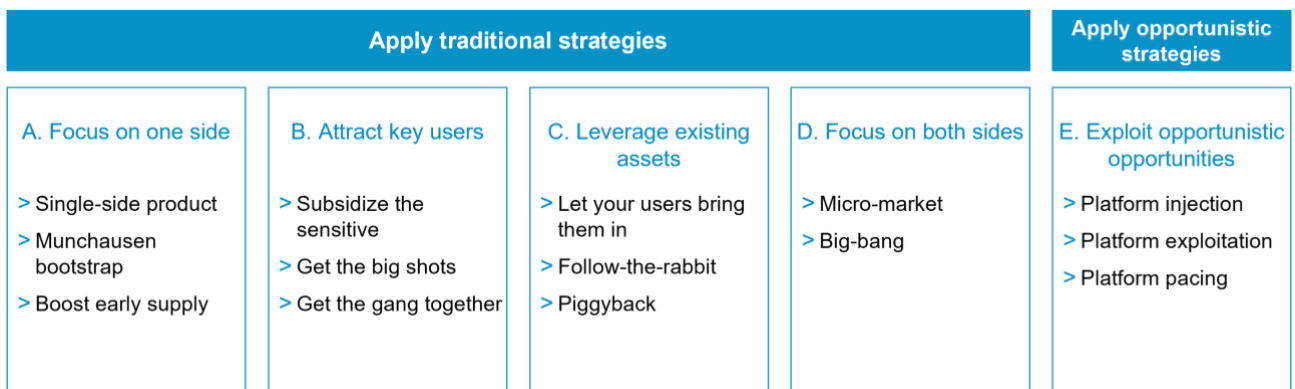


Fig. 6: The Platform Navigator – Phase IV



started by answering questions themselves. With a growing customer base, more and more people started answering questions and *Quora* could back off from this task. Munchhausen bootstrap is all about focusing on the supply side first and providing the initial supply on your own.

Another strategy that focuses on the supply side first is [boost early supply \(65\)](#). In this strategy, third parties are incentivized and motivated to provide the very first supply. It is about creating a high-quality supply early on that has the power to attract customers and consumers of the other side. A famous example of this strategy is the *Android Developer Challenge* in 2008 and 2009. Compared to the *Apple iPhone* which already had an app store with interesting apps at the time, *Google* was late in the game to create the *Android Play Store*. Developers were hesitant to move over to *Android* or develop apps for both the *Apple App Store* and the *Play Store*. The *Apple App Store* was just much more established and successful. To overcome this barrier, *Google* started the *Android Developer Challenge* distributing total prize money of USD 10 million to the best apps. The rationale for developers was clear. If you provide an app, you had the chance to win a substantial amount if ranked as one

of the top apps. This strong monetary incentive led to many high-quality *Android*

„We believe that the Android platform offers developers a unique opportunity to create truly innovative mobile software. We’re challenging developers to stretch their imaginations and skills to leverage the full capabilities of this new platform and to create something amazing.“⁵ Andy Rubin, Founder Android, on the reason why they started the Android developer challenge

apps. In turn, this attracted many users to purchase an *Android* smartphone and join or switch to the new platform.

B. Attract key users: A second way of systematically scaling your platform is to attract key users to your platform. This can be done by [subsidizing the sensitive \(66\)](#). *Facebook*, for instance, is free for consumers but advertisers are charged. *Facebook* realized that the average user is very sensitive to paying for access to its platform. Therefore, from the start of the platform, they systematically subsidized this user group. In turn, enterprises must pay for placing advertisements on the social media platform.

Attracting key users can also be achieved by applying [get the big shots \(67\)](#). The objective of this approach is to sign up a powerful user or supplier that brings an own network to the platform. For instance, the gaming platform *Microsoft Xbox* signed deals with large developments studios to get premium games, such as *Halo*, early or exclusively on *Xbox*. These games, in turn, brought a lot of consumers with them.

The third strategy in this domain is [get the gang together \(68\)](#). This scaling strategy is about getting critical players together to get the platform started. The *Android* platform, for instance, kicked off as an alliance of 34 companies that included software, hardware as well as telecommunication companies. Led by *Google*, the objective of the *Open Handset Alliance (OHA)* was to create a common standard for (smart)phones. It served as a basis to develop and market *Android* and the *Play Store*.

C. Leverage existing assets: A third way of systematically scaling your platform is to leverage existing assets. First, you can leverage your own platform assets. The strategy [let your users bring them in \(69\)](#) is about encouraging and incentivizing



your own users to bring additional users. The fundraising platform *Kickstarter*, for instance, is inherently designed to leverage its own users to accelerate network effects. If you want your *Kickstarter* campaign to be a success, you will do everything possible to ensure that your network is aware of your campaign and fund your project. In your own interest, you bring more users onto the *Kickstarter* platform.

Second, you can leverage existing, non-platform assets from your own company. The [follow-the-rabbit \(70\)](#) strategy builds upon a famous analogy from *Alice in Wonderland* (Parker et al., 2016). In the well-known novel, sparked by her curiosity, the main character Alice runs after a white rabbit in search of a new and exciting endeavour. In the end, by following the rabbit down a hole into the ground, she discovers a new world and ultimately finds her true destiny. Similar, companies can explore and go beyond what they originally intended (established business model). For instance, *Amazon* started as an online bookstore, i.e., an eCommerce business. After they built up a critical mass of customers for their bookstore, they opened up to a marketplace allowing third parties to sell their products on *Amazon*. The core idea of this strategy is to start with a non-platform business (like the online bookstore in *Amazon's* case), built up a strong customer base and then turn the business into something bigger (platform business).

With the [piggyback \(71\)](#) strategy, you leverage another platform's assets in a collaborative and symbiotic way. Most often, you connect with another platform's user base. For instance, *PayPal* piggybacked on the *eBay* platform. At the time *PayPal* was getting started with its P2P payment

platform, *eBay* already had built up a flourishing second-hand marketplace. In 2002, *PayPal* got integrated into *eBay* and it was about getting the best payment experience for the users. *PayPal* quickly gained new users from *eBay* while *eBay* benefited from the fact that its users enjoyed an outstanding payment experience.

D. Focus on both sides: A fourth way of systematically scaling your platform is focusing on both sides of the platform simultaneously. One of the respective strategies is [micro-market \(72\)](#). *Facebook*, for example, started at Harvard University. Only after it had traction at Harvard, it rolled out to other Ivy League universities. After a critical mass of interactions was reached in the second stage, the social media platform expanded further to other universities, to high schools and only then it became a global platform. In this strategy, platforms focus on small and defined markets (e.g., with respect to geography or product) and then try to drive them forward – market by market.

A second strategy that focuses on both sides is the [big-bang \(73\)](#) approach, which most often can be considered a capital-intensive push marketing strategy. More specifically, platforms can invest in advertisement campaigns that try to penetrate both sides of the market. The objective is to create strong momentum in a very short time frame. In Germany, for example, *Auto1*, Europe's largest wholesale platform for used cars, invested heavily in advertising to attract sellers (ordinary car owners) and buyers (professional dealers).



Applying opportunistic strategies

E. Exploit opportunistic opportunities: In addition to traditional scaling strategies, there are also opportunistic strategies that try to leverage existing platforms (Karhu & Ritala, 2020). The first of these strategies is [platform injection \(74\)](#). Certainly, platforms are very sensitive to competing platforms that compromise their business model. For instance, *Apple* does not want third parties to bypass their revenue sharing-based app, music, game or bookstores and directly sell to customers. However, *Amazon* does exactly this with its *Kindle* platform which brings book providers and book readers together. Everyone can download the *Kindle* app from the *Apple App Store* today which directly links to an external marketplace controlled by *Amazon*. In contrast to the *Apple App Store*, if you buy a book on *Amazon* and read it on your iPhone, *Apple* gets no commission or revenue share. In essence, *Amazon* injected *Amazon Kindle* into the iPhone ecosystem. *Amazon* leverages the *App Store* community, but at the same time, *Apple* was successfully cut out of value capturing by *Amazon*.

[Platform exploitation \(75\)](#) is about copying the core of an open-source platform for the benefit of your own platform. *Amazon*, for instance, has developed an operating system for their Fire tablet. However, instead of developing the platform from scratch, *Amazon* just copied the open-source operating system *Android* from *Google*. This saved development costs and allowed *Amazon* to catch up with the competition very quickly.

A third opportunistic strategy is [platform pacing \(76\)](#). As with platform exploitation, this strategy is about using the assets of another platform to one's own advantage. In contrast to platform exploitation, platform pacing is about copying boundary resources (such as interfaces) of well-established platforms. The goal is to make it as easy as possible for customers and complementors to switch to one's own platform. Imagine keeping the same power socket but replacing the energy supply system behind it. The strategy is most often applied in the domain of open-source software platforms. *MongoDB*, for example, is the most popular NoSQL database as of today. To grow its cloud platform *Azure*, *Microsoft* decided to offer a database service (*Cosmos DB*) that has the same interface as *MongoDB*. Hence, while communication and control "feels" like *MongoDB*, *Cosmos DB* is actually a *Microsoft Azure* product.

Working with the scale patterns

Use the 14 patterns to explore how you can overcome your chicken-and-egg problem. For sure, not all strategies will work equally well. A good starting point is, therefore, to analyze what strengths and assets you currently have available. Ultimately, you should address core questions like:

- Which market sides (platform players) are difficult to attract, which are easy to attract?
- Can we get access to one or more market sides by providing a product or service that provides standalone value?
- Which one to three growth strategies can be applied to address the chicken-and-egg problem?



Scale in practice

The case of Amazon:

In respect to *Amazon*, one can identify two fundamental scaling strategies that were of particular importance for *Amazon*. By opening its bookstore to third-party sellers, *Amazon* transformed itself into a two-sided platform. In line with the [follow-the-rabbit strategy \(70\)](#), it systematically leveraged its non-platform assets to quickly realize strong network effects. More specifically, *Amazon* leveraged its existing user base but also the expertise and knowledge of how to run a digital business. With its marketplace and e-commerce offering, *Amazon* also relied on the [micro-market strategy \(72\)](#). It stepwise expanded its product categories: from books, electronics, clothing to even food.

The case of Android:

In 2007, *Google* joined forces with 34 key partners. The objective was to develop a standard for smartphone operating systems, and this was not possible without key partners from software, hardware as well as telecommunications. Each of them had vested interests in the mobile industry and there was little incentive to work together. Thus, [getting the gang together \(68\)](#) was a means to kick-off this platform with few partners and bilateral contracts. It slowly convinced additional partners to join and really transformed into a strong innovation platform. To [boost early supply \(65\)](#) and to catch up with *Apple iOS* – which was far ahead at the time – *Google* launched a competition with USD 10 million of prize money to be distributed to the Top 10 apps.



V. Manage

Creating a sustainable business

After successfully scaling the platform and gaining a critical mass of users, the focus must shift to establishing the platform as a sustainable business. Although viable network effects are present, the growth momentum must be maintained as positive network effects can easily turn into negative ones and competitive pressure in the platform economy is very high. Even being the first mover does not guarantee long-term success as many examples show. Although *Billpoint* and *Sidecar* entered their markets very early, they were overtaken by *PayPal*, respectively *Uber*. We, therefore, present 12 guidelines and best practices on how to stay competitive and become a sustainable platform business (see Fig. 7).

On the one hand, platforms must further grow their platform business through continuous innovation (A) while protecting the platform (B). On the other hand, platforms must maintain network effects (C) and manage platform performance (D) which requires different approaches and tools compared to traditional, pipeline businesses.

Innovate and defend the platform

A. Innovate the platform: Even though a large and active user base may already exist, platforms need to keep innovating. The first opportunity lies in [improving the customer journey](#) (77). Platforms like *Airbnb* have been very successful in this endeavour as they added services like insurance or cleaning service to their portfolio to satisfy adjacent customers' needs across the customer journey. The second

possibility is to [imitate to innovate](#) (78). By closely observing platforms with a similar user base, one can identify successful features that should also be implemented at your end. While this may seem trivial, many established companies in traditional industries struggle with the idea of imitation.

„We are proud that CheMondis is number one already in the Western world. But if we don't continuously improve, someone else will take over as number one. So there needs to be a constant push to change and to optimize.“⁶ Joerg Hellwig, CDO Lanxess, on the need for continuous innovation

After an initial phase of growth, platforms, in particular transaction platforms, often [open for co-innovation](#) (79). A prominent example is *Facebook* which opened up to external developers after building a strong network of users in order to continue growing. Today, third-party companies can leverage *Facebook* APIs to build applications

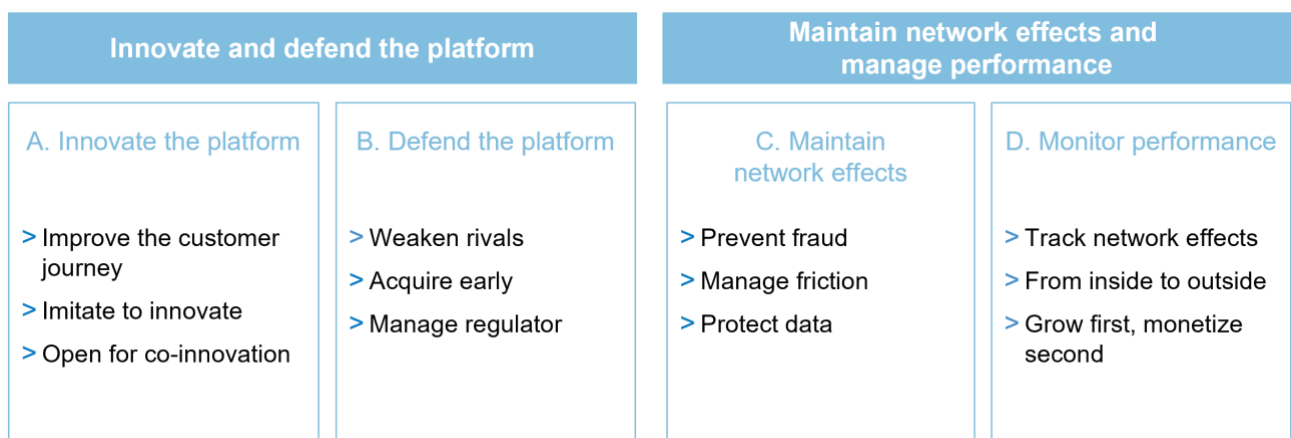


Fig. 7: The Platform Navigator – Phase V



and games. Also, *Airbnb* opened up for developers as well as content producers so that they can enrich the service offering of their core marketplace.

B. Defend the platform: Following the pattern [weaken rivals \(80\)](#), many platforms fight their existing or rising competitors to protect their own core. For instance, by integrating features of emerging competitors into its platform, *Amazon Web Services* made niche players obsolete and defended its position (Eisenmann et al., 2011; Gawer, 2020). [Acquire early \(81\)](#) is another pattern that can be recognized when looking at today's most successful platforms like *Facebook* or *Google*. *Facebook* was very successful in acquiring *Instagram* and *WhatsApp* very early. Early mergers and acquisitions play an important role in the development of platforms, especially if the acquired platform has a similar user base. By their very nature, platforms have the potential to develop into monopolies or oligopolies. As this may call authorities to intervene, it is important to [manage the regulator \(82\)](#). By engaging early in discussions with regulators and local authorities, platforms can mitigate potential future conflicts (Trischler et al., 2021).

Maintain network effects and manage performance

C. Maintain network effects: To maintain positive network effects, it is core to [prevent fraud \(83\)](#). As a platform becomes successful, fraud can become a real problem that must be dealt with. Whether it's *PayPal* or *Amazon*, there is hardly any successful platform that has not had to deal with fraud. With more than 350 million active users, *PayPal*, for instance, has been a popular target for fraud attacks. *PayPal* users frequently receive fake e-

mails asking for their user credentials to log in. Therefore, *PayPal* invested significantly in fraud prevention and improved transactions' security.

Mature platforms must also carefully [manage friction \(84\)](#). While the *Amazon* marketplace

benefits from the *„We believe privacy is a fundamental human right, and the best technology is one that people can trust. At Apple, we're constantly innovating to give our users more control over how their data is used and the choice with whom to share it.”*⁷ *Tim Cook, CEO Apple, on the strategic importance of trust*

become increasingly difficult for users to find the desired product. Too much choice and growing intransparency can make users switch to other platforms. *Amazon* has invested heavily to ensure consistent product labelling and enable easy product comparisons. Platforms also need to continuously [protect data \(85\)](#). This may seem trivial at first glance, but the *Cambridge Analytica* scandal surrounding *Facebook* shows that trust can be very fragile and user data must be protected.

D. Monitor performance: When developing a platform business, many companies struggle with establishing the right key performance indicators (KPIs). Platform businesses are different from pipeline businesses and hence need specific KPIs. First, platforms need to [track network effects \(86\)](#), for example by looking at the number and the quality of successful transactions. The platform's user growth and the ratio of producers to customers are further important indicators of platform performance. Second, platforms are about [from inside to outside \(87\)](#). Platform's value creation heavily depends on external resources. The strategic focus must, therefore, be on orchestrating these external resources in the most effective and efficient way. In the case of *Apple* and its iOS ecosystem, for example, core questions



are: How fast and easy can external developers (complementors) develop and update apps? How much time do they need to learn the necessary program language (Swift)? How long do they need to make an app available through the app store? Instead of measuring internal productivity, platforms focus on the productivity of their complementors. As network effects are essential, platforms most often follow the credo [grow first, monetize second \(88\)](#). While you should think about monetization opportunities early on, the priority at the very beginning is to kick off network effects successfully. Monetizing too early typically prevents platforms from scaling successfully.

„The driver is probably the most important element of the actual consumer experience: If you got happy drivers, then consumers in cars are treated well etc. We have been on a program to consistently improve the drivers' experience. We introduced tipping [...], changed how much drivers get paid for wait times [...] we adjusted the cancellation fee.”⁸ Dara Khosrowshahi, CEO Uber, on managing complementor relations

Working with the patterns

Browse through the 12 pattern cards to early on understand what will become important in your future platform journey. Besides concrete strategies, this phase includes many universal guidelines that are important to consider and refine. We, therefore, recommend picking three to five patterns that you think to be most relevant for your case. Brainstorm concrete idea to answer questions such as:

- Which key performance indicators are core to managing our platform journey effectively?
- How can we defend our platform business against existing or emerging rivals?
- What measures do we have in place to mitigate fraud and maintain trust?
- Do we need to engage with regulators or authorities early on to mitigate potential conflicts?

Manage in practice

The case of Amazon:

It took almost 20 years for *Amazon* to make profits, but this was not because they did not have a profitable business per se, but rather because they focused on [growth first, monetize second \(88\)](#). For example, they accepted losses when they introduced 1-day delivery to increase customer satisfaction. *Amazon* has also made numerous strategic acquisitions. Many of these acquisitions have contributed significantly to today's success. For instance, *Amazon* [acquired \(81\)](#) *Audible* to build an audiobook platform, *LoveFilm* to grow its video streaming platform, *Ring* to complement its *Alexa* smart home platform, as well as *Twitch* to establish its own video life streaming platform. At the same time, *Amazon's* rapid growth made it vulnerable to fraud and quality problems. Today, the large number of products and suppliers make it increasingly difficult for users to find the right product and many reviews are being faked. *Amazon*, therefore, heavily invested into [managing friction \(85\)](#) on its marketplace. On the one hand, it introduced the *Amazon* Standard Identification Number (ASIN) for categorizing products, thereby reducing duplicates and making it easier to find products. On the other hand, it created a sophisticated prevention system to reduce scam.

The case of Android:

To complement and expand its platform, *Google* also made various key acquisitions. For instance, they [acquired \(81\)](#) *Motorola Mobility* in 2011, *Nest* in 2014 as well as *Waze* in 2013. Although both *Google* and *Apple* have a similar set of rules on its app marketplace, *Google* was not as strict as *Apple*. This practice made *Android* vulnerable to fraud, e.g., fake apps. [Preventing fraud \(83\)](#) has, therefore, become a strategic priority. To manage its platform ecosystem and foster growth, *Google* pays close attention on productivity of external producers, [from inside to outside \(87\)](#). This is also the reason why it decided to build upon the existing programming language *Java*. *Google* wanted to make it as easy as possible for developers to join the *Android* platform ecosystem.



Working with the navigator

Organize a creative workshop

To get the most out of the Platform Navigator, we recommend to use the physical 88 pattern cards in a workshop setting. Divide larger groups into smaller groups. A diverse group of three to five participants is ideal. These smaller groups can then go through the phases independently with the objective to compare the results at the end (option 1). If a basic platform business model is already sketched out, smaller groups can also deal with selective phases of the navigator with the objective to integrate the results into one coherent overall picture (option 2).

Create the right atmosphere

Select participants from a wide range of backgrounds to boost creativity and outside-the-box thinking. Take care that people are open-minded and creative. Write down your platform ideas immediately without judgment. Only in the end, evaluate and shortlist one to three ideas. A devil's advocate is only helpful after initial results have been derived. Ideally, every participant also familiarizes himself/herself with some platform basics beforehand.

Pick your playing field

We recommend thinking through all five phases at once. However, feel free to adjust the overall process to your specific setting and requirements. The Platform Navigator is designed so that you can take out only those sections that are most important for you. If you have had few touchpoints with platform business models so far, you could focus only on the ideate phase. If your platform

activities are more mature, you could jump directly into the design or scale phase to refine and challenge an existing idea. If you already know that a transaction platform will be most suitable for you, you can discard the innovation platform patterns.

Think beyond the navigator

Feel free to adjust the overall process to your specific setting and requirements. You can also combine different pattern cards if you find it useful. You should also be aware that not all patterns are equal. While some provide a very concrete strategy (e.g., piggyback), some are more general and only provide guidance in form of a principle (e.g., grow first, monetize second). This means that some pattern cards will be more, less or not relevant for your business or setting. However, for a holistic view on platforms, we believe they are all important to know for a (future) platform manager.

Acknowledge the iterative nature

Platform business models are not static and implementing one is a continuous journey. It can take time and require multiple iterations through our five phases. The examples of *Amazon* and *Android* illustrate well how platform companies keep moving through this cycle again and again.

Leverage the platform canvas

As a supplement to the pattern cards, the platform canvas (see QR-code) can be used to capture the platform idea in a clear and structured manner. It has proven to be very helpful in starting a platform project. The canvas builds upon traditional business model building blocks, such as value proposition (What do we offer?), value creation (How do we create value?) and value capturing (How do we monetize and capture value?), but also integrates platform-specific components such as



value flow, the chicken-and-egg problem and platform management.

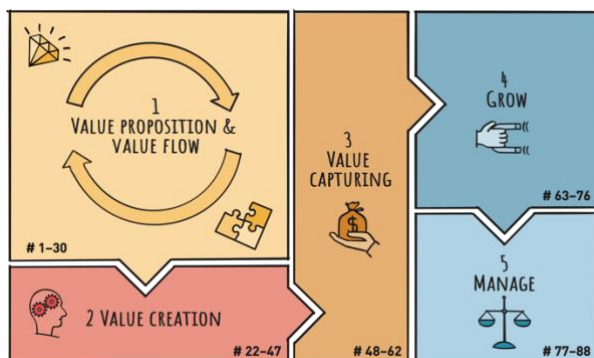


Fig. 7: The Platform Canvas

At the heart of any platform business model are the transactions between the different market sides (customer groups). Therefore, start by writing down the core participants and sketch core transactions and the value flow between the market sides (see example in the Appendix). Continue to fill out the other building blocks, from value creation, value capturing to grow and manage. The pattern cards will help to fill out the canvas.

We believe it is important to highlight the key findings from your workshop and document them in a clear and digestible way, e.g., based on our concise canvas. This will not only support communication with your stakeholders but also helps discussing, testing, and refining the platform idea further, for example, with your customers and partners.

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Appendix: The platform canvas in action

1.A VALUE PROPOSITION & VALUE FLOW

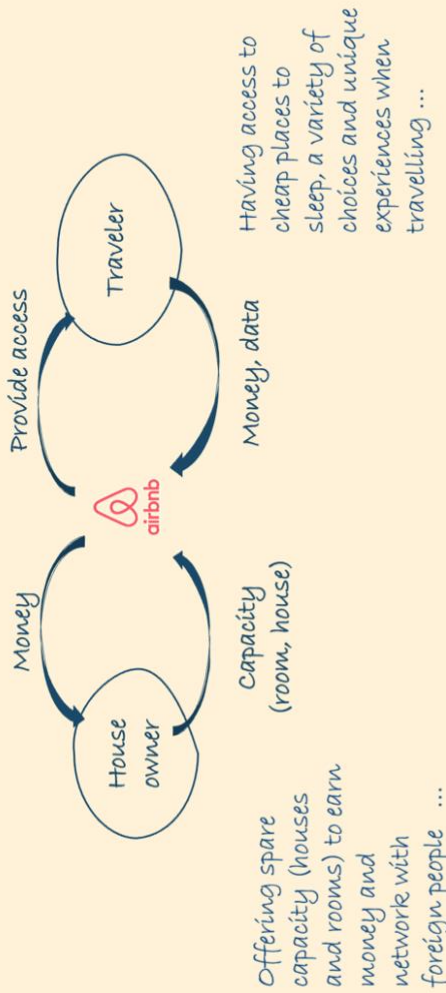
- > Which different market sides (platform players) does the platform bring together?
- > What are the core interactions and value flows between the different platform players?
- > What is the core value proposition and mission of the platform?

Mission: "Becoming the global platform for

unique, authentic places to stay and things to do"

Core value: free room, house

Core interaction: matching latent supply and demand (pattern #22) and asset sharing (pattern #6) of underutilized rooms and houses



2 VALUE CREATION

- > How is the platform value proposition being implemented?
- > What is the operating model of the platform and the extent of the platform value creation?
- > What is the ownership model of the platform?

- Airbnb focuses on underutilized apartments, thereby, unblocking latent supply (pattern #24)
- Airbnb generates trust (pattern #23) and gives hosts the necessary confidence and security to offer their apartment online to strangers
- The light marketplace (pattern #35) curates its offering closely, offers insurances and the payment is settled via the platform

1.B PLATFORM ECOSYSTEM

- > Which different platform players exist?
- > What is their motivation to join the platform ecosystem?
- > What is their contribution to the platform ecosystem?



3 VALUE CAPTURING

- > What direct revenue streams can be captured?
- > What indirect revenue streams can be captured?
- > What monetization tactics can be utilized?

- Revenue sharing (pattern #48) based on (a) booking value: Traveler pays 6-12% and house owner 3% based on (b) partners offering, such as insurance, travel recommendations and cleaning
- Hosts can also pay for better visibility (pattern #57)
- No subsidization, but indirect monetization via advertisements (pattern #56) (e.g., local companies)
- ...

4 GROW

- > How can the chicken-and-egg problem be overcome?
- > What growth strategies can be applied to foster network effects?
- > Should the growth strategies be applied simultaneously or in a specific order?

- Micro-market strategy (pattern #72): Starting in a local market (San Francisco) and expanding further once critical mass/reputation was reached
- Big bang (pattern #73) with strong marketing efforts to attract both sides of the market: Social media (Facebook), personalized ads
- Platform injection (pattern #74) on Craigslist
- ...

63-76

5 MANAGE

- > Which KPIs should be leveraged to manage platform performance?
- > How can the platform core be innovated and defended?
- > What are essential tactics to foster and maintain platform quality and trust?

- Airbnb closely tracks the side-switching rate (pattern #87): How many travelers also start offering apartments on Airbnb – vice versa?
- Airbnb has continuously expanded its offerings (pattern #77) across the provider and consumer journey, from photo services to price optimization for the house owner
- Airbnb engages with city authorities (pattern #82) around the world to ensure that its rentals do not conflict with local housing laws and regulations

77-88

48-62

22-47

1-30



Literature and further reading

The navigator in a nutshell

- Gassmann, O., Frankenberger, K., & Csik, M. (2014). *The Business Model Navigator: 55 Models that will revolutionise your business*. Harlow: Pearson.
- Gregory, R. W., Henfridsson, O., Kaganer, E., and Kyriakou, H. (2021). The Role of Artificial Intelligence and Data Network Effects for Creating User Value. *Academy of Management Review*, 46 (3), 534-551.
- Evans, P. C., & Gawer, A. (2016). The Rise of the Platform Enterprise: A Global Survey <https://openresearch.surrey.ac.uk/esploro/outputs/report/The-Rise-of-the-Platform-Enterprise-A-Global-Survey/99516671002346>
- Hodapp, D., Hawlitschek, F., Wortmann, F., Lang, M., & Gassmann, O., Key Lessons from Bosch for Incumbent Firms Entering the Platform Economy, *MIS Quarterly Executive*, (forthcoming).
- Parker, G., Van Alstyne, M., & Choudary, S. (2016). *Platform Revolution: How networked markets are transforming the economy and how to make them work for you*. New York: W. W. Norton & Company, Chapter 1-2.
- Newman, S., Bellin, M., Liu, K., Picard, N., Ethridge, D., & Wisson, M. (2021). Global Top 100 Companies by Market Capitalisation. <https://www.pwc.com/gx/en/services/audit-assurance/publications/global-top-100-companies.html>
- Reeves, M., Lotan, H., Legrand, J., & Jacobides, M. (2019). How Business Ecosystems Rise (and Often Fall). *MIT Sloan Management Review*, 60(4), 1–6.
- Van Alstyne, M., Parker, G., & Choudary, S. (2016). 6 Reasons Platforms Fail. *Harvard Business Review*, 31(6).
- Van Alstyne, M., Parker, G., & Choudary, S. (2016). Pipelines, Platforms, and the New Rules of Strategy. *Harvard Business Review*, 94(4), 54–62.
- Zhu, F., & Iansiti, M. (2019). Why some platforms thrive and others don't. *Harvard Business Review*, 97(1), 118–125.

Ideate and Design

- Cusumano, M., Gawer, A., & Yoffie, D. (2019). *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power*. New York: HarperCollins.
- Cusumano, M., Gawer, A., & Yoffie, D. (2020). The Future of Platforms. *MIT Sloan Management Review*, 61(3), 46–54.
- Dealroom.co (2020). *Online marketplaces entering the next phase*. <https://dealroom.co/uploaded/2020/06/Marketplaces-2020-vFINAL.pdf>
- Eisenmann, T., Parker, G., & Van Alstyne, M. (2008). Opening Platforms: How, When and Why? *HBS Working Paper 09-030*.
- Eisenmann, T., Parker, G., & Van Alstyne, M. (2006). Strategies for two-sided markets. *Harvard Business Review*.
- Flint, P. (2019). *The Next Crop of Billion Dollar Companies Will Be FinTech Enabled Marketplaces* [YouTube video]. <https://www.youtube.com/watch?v=a0nagJHt3NA>
- Gawer, A. (2020). Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces. *Long Range Planning*, 54(5), 102045.
- Hagiu, A. (2014). Decision for Multisided Platforms. *MIT Sloan Management Review*, 55 (2), 71-80.
- Hein, A., Schreieck, M., Riasanow, T., Setzke, D. S., Wiesche, M., Böhm, M., & Krcmar, H. (2020). Digital platform ecosystems. *Electronic Markets*, 30(1), 87-98.
- Karhu, K., Gustafsson, R., Eaton, B., Henfridsson, O., & Sørensen, C. (2020). Four Tactics for Implementing a Balanced Digital Platform Strategy. *MIS Quarterly Executive*.
- Porter, M. (1985). *Competitive Advantage*. New York: The Free Press.
- Tiwana, A. (2014). *Platform Ecosystems: Aligning Architecture, Governance, and Strategy*. Amsterdam: Morgan Kaufmann.

Monetize

- Gassmann, O., Frankenberger, K., & Csik, M. (2014). *The Business Model Navigator: 55 Models that will revolutionise your business*. Harlow: Pearson.
- Meier, P. (2019). *How do digital platforms make their money?* Alexander von Humboldt Institute for Internet and Society. <https://www.hiig.de/en/how-do-digital-platforms-make-their-money/>
- Parker, G., Van Alstyne, M., & Choudary, S. (2016). *Platform Revolution: How networked markets are transforming the economy and how to make them work for you*. New York: W. W. Norton & Company, Chapter 6.
- Schreieck, M., Kolbe, F., Pflügler, C., Wiesche, M., Krcmar, H. (2018). Monetarisierungsstrategien für Mobilitätsplattformen. In: Wiesche, M., Sauer, P., Krimmling, J., Krcmar, H. (ed.) *Management digitaler Plattformen*. Springer Gabler: Wiesbaden.
- Wirtz, B., & Kleineicken, A. (2000). Geschäftsmodelltypologien im Internet. *WiSt-Wirtschaftswissenschaftliches Studium*, 29(22), 628-635.

Scale

- Büge M., & Ozcan, P. (2021). Platform Scaling, Fast and Slow. *MIT Sloan Management Review*, 62(3), 40-46.
- Dou Y., & Wu, D. J. (2018). Platform Competition under Network Effects: Piggybacking and Optimal Subsidization, *Information Systems Research*, 32(3), 820-835.
- Eisenmann, T., Parker, G., Van Alstyne, M. (2006). Strategies for two-sided markets. *Harvard Business Review*.
- Karhu, K., & Ritala, P. (2021). Slicing the cake without baking it: Opportunistic platform entry strategies in digital markets. *Long Range Planning*, 54(5), 1-18.
- Parker, G., Van Alstyne, M., & Choudary, S. (2016). *Platform Revolution: How networked markets are transforming the economy and how to make them work for you*. New York: W. W. Norton & Company, Chapter 5.
- Veisdal, J. (2020). The dynamics of entry for digital platforms in two-sided markets: a multi-case study. *Electronic Markets*.
- Zhu, F., & Iansiti, M. (2019). Why some platforms thrive and others don't. *Harvard Business Review*, 97(1), 118–125.

Manage

- Eisenmann, T., Parker, G., & Van Alstyne, M. (2011). Platform envelopment. *Strategic Management Journal*, 32(12), 1270–1285.
- Gawer, A. (2020). Digital platforms' boundaries: The interplay of firm scope, platform sides, and digital interfaces. *Long Range Planning*, 54(5), 102045.
- Karhu, K., Gustafsson, R., & Lyytinen, K. (2018). Exploiting and defending open digital platforms with boundary resources: Android's five platform forks. *Information Systems Research*, 29(2), 479–497.
- Pidun, U., Reeves, M., & Edzard Wessel. (2021). How healthy is your business ecosystem? *MIT Sloan Management Review*, Special Issue, 9–16.
- Rietveld, J., & Schilling, M. A. (2020). Platform Competition: A Systematic and Interdisciplinary Review of the Literature. *Journal of Management*, 47(6), 1528–1563.
- Trischler, M., Meier, P., & Trabucchi, D. (2021). Digital Platform Tactics: How to Implement Platform Strategy over Time. *Journal of Business Models*, 9(1), 67-76.
- Zhu, F., & Liu, Q. (2018). Competing with complementors: An empirical look at Amazon.com. *Strategic Management Journal*, 39(10), 2618–2642.

Quotes

- https://s2.q4cdn.com/299287126/files/doc_financials/annual/letter.PDF
- <https://www.youtube.com/watch?v=7E6E9q8Jebw>
- <https://skift.com/2016/01/31/airbnb-cto-and-3-tech-ceos-discuss-the-digital-platform-economy-at-davos/>
- <https://www.youtube.com/watch?v=5Jba9ZH1i1M>
- http://googlepress.blogspot.com/2007/11/google-announces-10-million-android_12.html
- <https://innovator.news/interview-of-the-week-joerg-hellwig-26637edb59a3>
- https://twitter.com/tim_cook/status/1487100529251520512
- <https://www.youtube.com/watch?v=Mo2-4sXYZxU>

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Please cite as:

Wortmann, F., Jung, S., Bronner, W., & Gassmann, O. (2022). *The Platform Navigator: 88 pattern cards to design and implement platform business models*. White Paper of the Institute of Technology Management, University of St. Gallen.



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