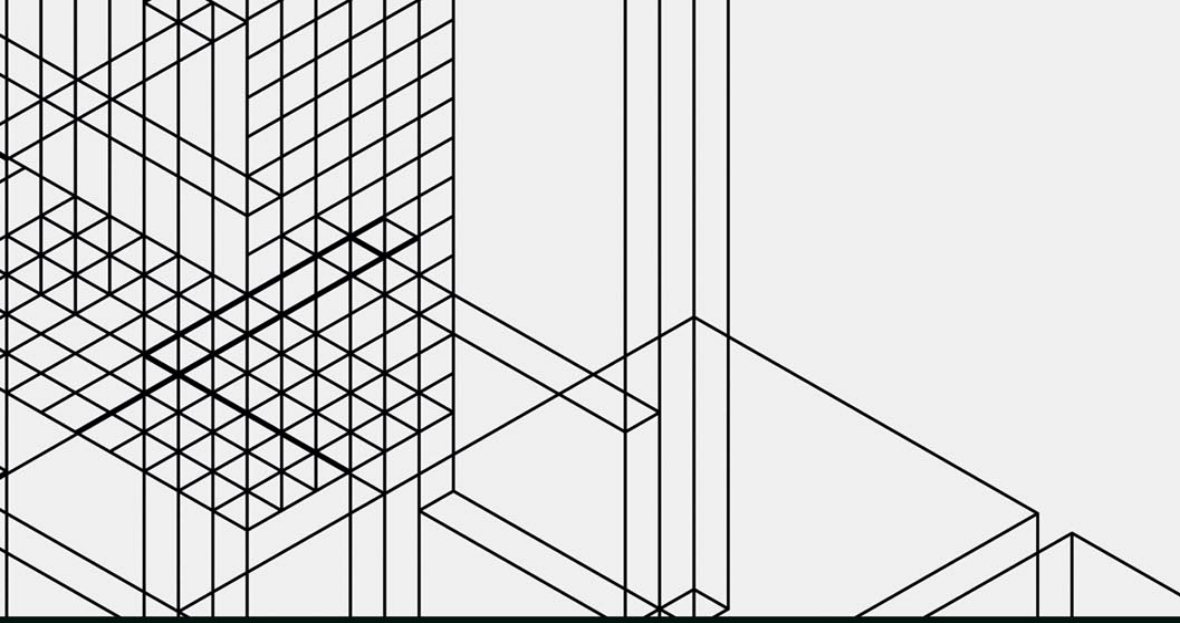
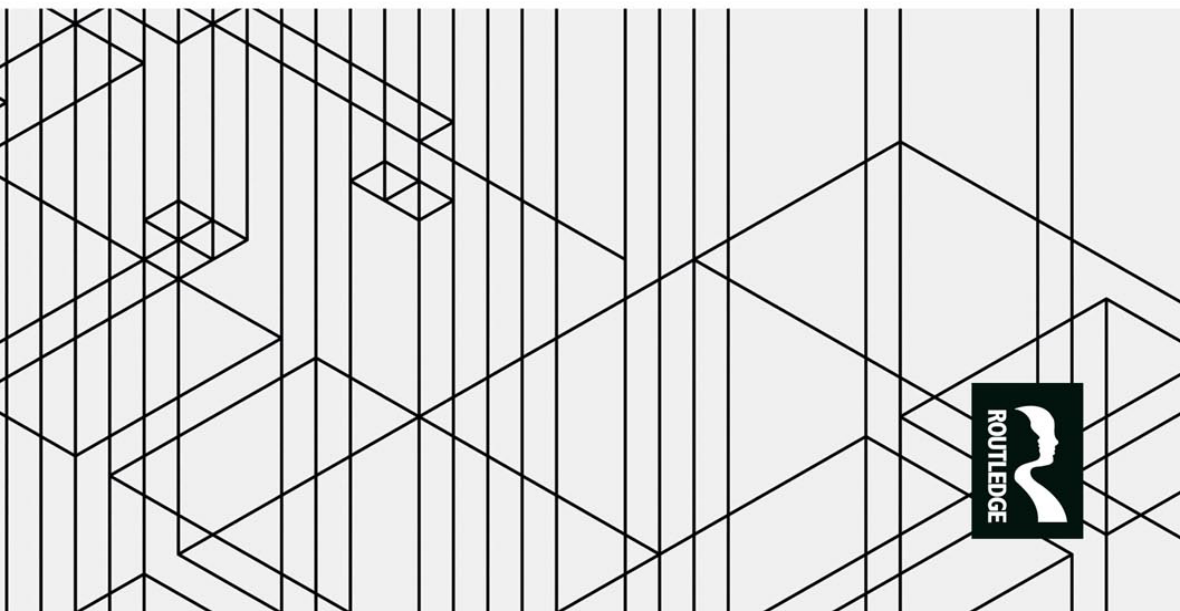


Routledge Studies in Innovation, Organizations and Technology

DISRUPTIVE PLATFORMS

MARKETS, ECOSYSTEMS, AND MONOPOLISTS

Edited by
Tymoteusz Doligalski, Michał Goliński,
and Krzysztof Kozłowski



Disruptive Platforms

It has taken platforms only twenty years to become digital economy hubs. They have changed markets, enterprises, and society. They have expedited communication, collaboration, and trade for consumers, winning their attention and collecting their data. In doing so, they have made processes, products, and industries obsolete, and disrupted the expectations and behaviours of market players. This raises the question, are digital platforms global innovators or disruptive monopolists? Are they a solution to problems of the past or emissaries of a problematic future?

This book provides a multi-faceted approach to platforms and their profound impact on markets and ecosystems. Economic, managerial, social, and political aspects are analysed, and the differentiation of platforms and their disruptive potential is reviewed. The book also examines the mechanism of achieving a monopolistic position, including in the international supply chain, and the greater influence of platforms on political activity and contemporary democracy. With examples from Poland, USA, and China, the contributions offer an international evaluation of disruptive platforms across a multitude of industries.

The edited collection, prepared by scholars from the SGH Warsaw School of Economics, will be valuable to researchers and academics across the fields of strategic management, marketing, innovations, international business, and the digital economy.

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Edited by Tymoteusz Doligalski, Michał Goliński, and Krzysztof Kozłowski

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Preface

The characters from Michel Houellebecq's 2001 novel "Platform" believe that they are perfectly adapted to the information era. They achieve business objectives by using the brand, integrated distribution channels, and printed catalogues. If "Platform" were to be written today, the characters would use digital platforms, and seek visibility for their offerings and positive user reviews. In the actual book, they distance themselves from the industrial era, yet do not expect the business mechanisms that they apply to be disrupted any time soon by digital platforms, which are the topic of this volume.

Disruption is defined here as a fundamental change in the behaviour and expectations of market players, as well as in metrics that measure the market's functioning. Such an understanding of disruption is a synthesis of many approaches, both academic (Christensen, 1997; Danneels, 2004; Nagy, Schuessler, & Dubinsky, 2016) and practical (Gartner, 2021). Digital disruption is a contemporary, IT driven, "turbo" equivalent of Schumpeter's "creative destruction", a mechanism that was described as early as 1942 as being the main catalyst behind the development of capitalism (Schumpeter, 2003). Digital platforms fit squarely within this phenomenon.

It has taken platforms only 20 years to become digital economy hubs. They have changed markets, enterprises, and society. They have expedited communication, collaboration, and trade for users all over the world and provided tools facilitating work and offering entertainment. They have offered an increasingly broad range of services to their users, while grabbing their attention and collecting their data. But they have also rendered many processes, products, and industries obsolete. Companies from various industries have been downgraded to platforms' suppliers and, consequently, have become subordinate to them. Platforms have provided opportunities not only for innovation but also for market capture. And they reach beyond economy itself. They have made autocrats' dreams come true by providing unparalleled opportunities for development of a surveillance state. Therefore, the question of whether digital platforms are global innovators or disruptive monopolists seems valid. Are we witnessing the new era of genuine innovation or an Orwellian, dystopian vision coming true? Are digital platforms the solution to the problems of the past or emissaries of a problematic future?

Platforms have established their position, which broadens our experience, which is neatly described by the statement that "platforms are eating the world" (Parker, Van Alstyne, & Choudary, 2016, p. 77). Mark Zuckerberg's claim that "In a lot of ways Facebook is more like a government than a traditional company" (Farrell, Levi, & O'Reilly, 2018) can alternatively be interpreted as a sign of his arrogance or as a cold assessment of the situation. Rules, set by platforms and encoded in their applications – "computer code is law" (Lessig, 1999, p. 6) – have become models for cooperation and competition for billions of users and millions of companies. The platform becomes both sovereign, and administrator – the main legislator of the ecosystem. This is why platforms and their administrators are ripe for the multidisciplinary approach that the book's authors adopted.

Platforms which fuel surveillance capitalism have an impact on practically all elements of our lives: society, politics, or everyday habits. But they are also dangerous because they often strive towards a monopolist position in a way not apparent to the final recipient of the content that they deliver. This is consistent with a brutal statement from Peter Thiel, a libertarian and PayPal co-founder: "Competition is for losers. If you want to create and capture lasting value, look to build a monopoly" (Barwise & Watkins, 2018, p. 21).

All of this is the result of the progressing digitisation process, triggered by economy servitisation preached by the far-sighted commentators over a decade ago, such as Marc Andreessen (2011) who said: "Software is eating the world." Since this has come to be, a new slogan has appeared: "Software is eating the world, but services are eating software" (Bendor-Samuel, 2019). Services are intangible, but they bring tangible results. Digital platforms have mastered the process, striving for the AaaS model (All as a Service). This model not only makes it possible to reap huge benefits from their activities thus far, but is also a path to subordination of many new fields of economy, politics, and culture.

This monograph presents platforms as focal points of the digital economy. Its major objective is to describe the operating mechanisms of platforms and their disruptive consequences for other market players, the economy, and society as a whole. The secondary objective is to determine whether platforms are a source of innovation or a real threat to capitalism founded on competition and liberal democracy.

The monograph's structure is consistent with these objectives: the narrative begins with the description of the platform business model in a canvas view and its consequences in terms of disruption and monopolisation. The next chapter examines the causes, extent, and effects of the dominant position and disruptive character of GAFA, which has come to increasingly influence our reality in a more and more problematic way. Chapter 3 indicates the potential place of a digital platform within supply chain management. Chapter 4 explores the disruptive nature of digital platforms' internationalisation. The issue of the emergence of monopolist structures on platforms, and to be more precise, on the biggest Polish marketplace, is presented in Chapter 5, whilst Chapter 6 deals with analytics platforms and their disruptive impact on analytical processes. Chapter 7 presents

major trends in consumer shopping behaviours resulting from the rapid expansion of disruptive digital platforms. Chapter 8 argues that the short supply of human attention may seriously impair the platform economy. The penultimate chapter (Chapter 9) analyses the transformation of web platforms used for political fundraising within the context of the 2020 US elections. While in the case of Western digital platforms one may notice their pressure on the state, the closing chapter (Chapter10) reverses this perspective by exploring how the Peoples' Republic of China colonises the nascent digital reality.

The publication has been prepared and written by researchers from the SGH Warsaw School of Economics and is a synthesis of a number of long-term studies. We would like to extend our gratitude to our reviewer, Professor Anna Visvizi from The American College of Greece, the three anonymous reviewers, and our editors at Routledge. Their comments have made it possible to complete the publication. Even more than this, though, this publication would not be possible without long discussions with our students, who have contributed to the development of many concepts. For this, we thank you. We would also like to thank our University for its financial support.

We realise that the topic is a complex and important one, which makes it impossible to describe it fully in one publication, so please feel free to contact us with any questions, comments or polemic.

Tymoteusz Doligalski, Michał Goliński,
and Krzysztof Kozłowski

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1 Platform canvas

Does the platform business model imply disruption and monopolisation?

Tymoteusz Doligalski

Introduction

Out of all online business models, it is perhaps platforms that have attracted the greatest amount of research attention. They are believed to significantly affect economics, society, and our everyday lives. Platforms had functioned in traditional economies, i.e. in the form of open space markets, but their role has increased considerably in the digital economy. It is now easier to aggregate sellers and buyers, creators and recipients, or people with the same interests, identities, problems, etc.

A platform is defined here as a business model that matches independent agents and facilitates their interactions. The aim of the chapter is to explain the platform business model as a canvas and discuss whether it leads to disruption and monopolisation. By analysing the business model, the chapter tries to holistically depict how a platform does business, as opposed to what exactly it does, and when or where it does it (Amit & Zott, 2010). For the purposes of the analysis, we try to capture the properties of various ventures of one-sided and two-sided digital platforms.

Platform business model as a canvas

The chapter describes the platform business model as a canvas. The Business Model Canvas was originally created and popularised by Osterwalder and Pigneur (2010), since which it has been recognised by practitioners and modified multiple times (e.g. lean canvas by Maurya (2012)), including for the purposes of platforms (Choudary, 2015; Sorri et al., 2019; Allweins, Proesch, & Ladd, 2020). Canvas models present the most important elements of the system as a graphic structure. At least in their basic versions, they do not depict relations between the elements, nor the consequences of emerging phenomena.

The centre of the proposed canvas-based platform business model consists of objects – i.e. goods that customers want to obtain or their presentation (Table 1.1.). Some other publications also mention the core interaction (Choudary, 2015), which applies to objects, but it is omitted in this chapter. Groups of customers are described as either object makers (i.e. creators, providers) or object takers (consumers, recipients).

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Table 1.1 Canvas-based platform business model

		Reputation system **Matchmaking mechanism**		
Object makers • creators • providers	**Value for object makers** • network values • non-network values • incurred costs	**Objects and other resources** **Institutions and interventions** **Value capture**	**Value for object takers** • network values • non-network values • incurred costs	**Object takers** • consumers • recipients

Source: own elaboration

Before describing the model elements, its limits should be highlighted. The model does not present the brand, costs, employees, data, or IT, although these elements clearly constitute important elements of the platform. Additionally, the classification is not completely consistent; for example, the reputation system and the matchmaking mechanism can count as institutions but are presented separately.

Groups of customers

Platforms enable their users to interact with other users, or at least have access to the objects that they make available. Platforms are often believed to connect two complementary groups of customers (Filistrucchi & van Damme, 2013), but the distinction is sometimes difficult to make. The group of users may be relatively homogenic, and whether they are an object maker or taker depends on the context (e.g. on the same auction platform, the person might be a seller or a buyer). Sometimes, however, users are assigned to one group permanently (for example tourists and hotels on a multi-sided platform for booking, or gamers and game production companies).

Platforms produce a network effect (Parker, Alstyne, & Choudary, 2016). This means that value for a customer depends on the number of customers (users). Usually, when the number of customers rises, the value for a customer generally increases, although sometimes, as will be described later, it may also go down. In the case of discussion groups and communities where the role of an object maker or taker is contextual, the direct network effect prevails. This means that value for a customer depends on the size of the group of customers. If two roles are of a permanent nature, the network effect is indirect. In this case, the more customers in one group, the higher the value for a customer from the second group (Cusumano, Gawer, & Yoffie, 2019).

In both cases, a platform servicing a small number of customers will most probably be much less attractive for potential users than a larger-scale platform. Moreover, a platform without object creators and thus without objects themselves is like a shop with empty shelves. What is critical for the platform's development is obtaining its first users and then reaching a critical mass, a situation in which the user networks are expanded to such an extent that joining it becomes attractive for potential users.

Value for platform customers

Platforms provide network and non-network values to customers. The former result from an interaction with other users or using available objects, whilst the latter are benefits resulting from the platform's activity, without direct engagement of other customers (Srinivasan et al., 2004).

The source of network values for object takers on the platform are published objects, accompanying comments and reviews, being part of the user's community and, in the case of transaction platforms, also purchasing products. Non-network values for object takers are, among others, a set of functions that increase information transparency and facilitate the use of objects (e.g. enabling a purchase), an algorithmic content curation and customer service.

Network values for object makers result from their offer reaching potential recipients, often a big audience, attracting their attention, and possibly effecting a transaction with them. The sources of non-network values are functions for managing objects on the platform or technical assistance.

The value for the customer is the difference between the benefit that the customer obtains from the company and the costs that they have to incur to access the benefits (Doligalski, 2015). The cost of using the platform encompasses risks related to the platform collecting data on users, exposure to commercials, and an obligation to pay fees. Additionally, object makers have to invest to enter the platform (e.g. work on their reputation), after which they may become subsequently dependent on the platform and exposed to high switching costs.

Objects and other resources

Objects that are made available on the platform by its users are an important component of any platform. Objects are the goods that customers look for on the platform (e.g. content, software) or presentations of them (descriptions of products, persons, institutions). Other resources include evaluations and reviews, as well as entries on fora and thematic groups.

Some objects representing goods are deleted from the platform shortly after the desired event has occurred, e.g. classified ads about the sale of a used product, whilst other resources, such as descriptions of products that are offered continuously can be displayed for a long time. Information objects, which can nonetheless be understood as products, are equally diverse in their permanence. Some content quickly becomes out of date and so the value for the recipient is short-term. One

example of such a resource is content on social media feeds. Another category is objects that do not lose value over time, such as recipes, book reviews, and advice. These resources bring benefits that almost look like a perpetual rent, because they generate revenue for a long time.

Platforms want to achieve economies of scope with their offers, i.e. they want to have a broad scope of objects (Gawer, 2014), along with economies of scale, i.e. a deep range of objects on offer. However, in some cases, too large a collection of objects can have adverse effects.

Matchmaking mechanism

One of the most important components of the platform business model is the matchmaking mechanism, which determines the accessibility of the objects, and thus impacting the selection of users for interaction. There are two contradictory approaches to this mechanism.

The first is enabling users to search, filter, and browse through all objects available on the platform, without offering algorithmically curated content. This is what usually occurs on fora and some e-commerce platforms, etc. The platform does not suggest any objects to users (i.e. only on the home page, etc.) and instead the collection of objects is ordered according to their basic parameters (name, theme, time of adding, price). In this case, matchmaking mechanisms increase information transparency.

The second approach consists of using the algorithmically curated content, through which users receive a personalised collection of objects. This is how social networking platforms usually work. Such platforms often display only the content that they do select from the followed users or institutions, which is a different approach to displaying a chronological stream of all content published by the followed sources.

Some dating services work in a similar way (eHarmony, 2021; eDarling, 2021) in that they provide users with just a handful of profiles with whom they can make contact. On the other hand, on other platforms users can view profiles of all registered persons. In the case of free access to profiles, attractive people are believed to receive too many queries, so they leave many of them unanswered. Less attractive people not only do not receive queries, but also do not even receive a reply when they try to make contact (Halaburda, Piskorski, & Yıldırım, 2018). Restricted contact possibilities can, paradoxically, increase the number of desired interactions (e.g. struck up conversations).

Another example of matchmaking using algorithmically curated content is Amazon's Buy Box. The customer places a product offered by many sellers in their basket, and subsequently normally buys it from the seller who wins the competition for this transaction. The customer may not even analyse the list of all offers, as they are presented on the next page. Parameters such as price, delivery, customer service quality, and stock availability determine which seller "wins" the transaction. Interestingly, Buy Box is not always awarded to the seller with the lowest price

(Amazon, 2021). Uber does impose the interaction partner though, as passengers cannot search, filter, browse through, or choose drivers. Drivers also have limited information about the passenger and they cannot see the final destination (Uber, 2021).

Platforms can also apply multiple matchmaking mechanisms to various resources. In the case of LinkedIn, these resources include users' profiles, their posts, and thematically grouped comments. Searching them, filtering, and browsing takes place using other mechanisms and depends on meeting specific conditions.

All of these examples indicate that objects makers need to understand the matchmaking mechanisms that drive the platform and invest in making their objects available through this mechanism. The consequences of platforms' matchmaking go far beyond the object makers and may concern the whole society. Applebaum and Pomerantsev (2021) claim that large platforms may even sway a democratic election. Although they are not to be liable for each tiny piece of content, they do have legal responsibility for how they organise, target, and magnify other people's content and data.

Reputation system

Reputation systems are a key feature of many platforms. They give information on one's past actions within the context of a specific community, presented in a manner that can help other community members make decisions with respect to whether and how to relate to that individual (Dellacoras, 2010). Reputation systems can use content presented by users themselves (e.g. user profile), raw activity statistics (e.g. number of posts), subjective elements (comments on the user's contribution), and concise measures taking into account all relevant input variables and weighting them accordingly (e.g. ranks, distinctions) (Dellacoras, 2010; Ziaje, & Krcmar, 2012).

Reputation systems cover many objects (contents, goods, sellers' profiles) which remain on the platform for a long time. They are less often used in the case of platforms offering unique or time limited resources (e.g. job offers, classified ads). In the case of many evaluation criteria for objects or presented products, evaluations can refer to specific dimensions. This is how hotels at booking.com are evaluated, using seven dimensions in addition to the type of the evaluator (single traveller, couple, family) (Booking.com, 2021). In the case of Stack Overflow, a programmers' community, the reputation system presents users' competences divided into various programming technologies (Stack Overflow, 2021).

A well-developed reputation system, very often based on tens of thousands of customer reviews, makes it easier for buyers to make a purchase decision and thus increases the platform's attractiveness. It also constitutes a significant barrier for the seller to exit the platform, because the earned reputation is difficult to transfer to a different market. Information platforms (e.g. social networking services) often do not have a reputation system, but instead credibility can be validated by the number of followers.

Institutions and interventions

Institutions are systems of established and embedded social rules that structure social interactions (Hodgson, 2006). The matchmaking mechanism and the reputation system are prominent examples of institutions, along with rules of gatekeeping and norms regulating interactions on the platform. Interventions are ad hoc actions that aim at correcting the way the platform functions.

Institutions and interventions usually bring more order to the platform, and in doing so improve its efficiency and security. Using terms from network theory, it could be said that they aim at shaping the user's network, that is, taking care of the right number of nodes (users), the network's density (number of interactions between them), quality of connections (interactions), and the network's stability. For this purpose, the platform has to ensure the right number of users for both sides, which might be especially difficult at the beginning when the platform itself is an information system devoid of content, and is thus worthless for potential users. In such a situation it is recommended to intervene by first obtaining object makers and then attracting objects takers to the platform and maintaining the right balance between them in the long term.

Institutions and interventions include also curation, i.e. the platform filters, controls, limits the access of users to the platform, the activities they participate in, and the connections they form with other users (Parker, Alstyne, & Choudary, 2016). As already mentioned, this broad term covers, on the one hand, users' selection, kind of a gatekeeping, or even censorship of some objects, and on the other hand, algorithmic content curation, which shows users objects that they might potentially be interested in.

Value capture

The revenue model is determined by the source of revenue (e.g. customers, advertisers) and the event generating it (e.g. products sale, commercials) (Doligalski, 2018). Commercials, commission on the transaction, fees for additional functions, and inserting or promoting announcements are all commonly used revenue models on platforms. Platform revenue models are very often asymmetric. In the case of transaction platforms, it is usually sellers that are charged commissions on transactions, and buyers do not have to pay the commission.

Except for the actions resulting from a specific revenue model, transaction platforms often use their strong position to unfairly take over additional values at the cost of sellers. Indeed, transaction platforms weaken sellers' position. Hagiu and Wright (2021) claim that platforms change their recommendation algorithms to put more emphasis on price and restrict the prices sellers can set elsewhere, as well as change their rules and designs in ways that weaken sellers' relationships with customers. Weakened relations between objects makers and takers have also been observed on Facebook, where the reach of organic posts is limited (Quesenberry & Coolsen, 2019), which made objects makers, especially companies, buy paid functions (i.e. paid reach, ads).

Transaction platforms often use their knowledge about buyers to offer their own products, which are similar to bestsellers being offered by sellers. They increase the visibility of their own products in curated content, e.g. in search results, home page, recommendation mechanisms. Platforms, then, play a double role – as an ally that enables the seller to access buyers in a friendly environment, and as a competitor who offers similar products and enjoys a privileged position.

Such a phenomenon can be observed in pyszne.pl, the Polish food ordering and delivery platform (literally the company's name means "delicious.pl"). The platform has a contractual right to set up virtual restaurants. Such an entity will probably have an offer created on the basis of the most popular dishes on the platform, will be promoted on the platform free of charge, and will outsource the preparation of food to the restaurant that will be paid less than if they serviced the customers directly (Kopańko, 2018). Pyszne.pl's expansion goes beyond the platform itself. The company registered dozens of domains similar to those of existing restaurants in order to compete with the restaurants for customers on Google searches (Wątor, 2021). In this case, the point is to attract customers to the platform's website and encourage them to order via the platform and not the actual restaurant's website that can be found outside the platform. The restaurant loses out, because it has to give the platform a commission of 25–30% (Pallus, 2020).

Similar tactics are used on the Allegro.pl platform, which dominates the Polish e-commerce market, accounting for around half of all transactions. In 2017, the Office of Competition and Consumer Protection and the police searched Allegro .pl's headquarters three times. The Office says that it "has received numerous complaints in which various undertakings pointed out the changes made by the Company to its allegro.pl sales platform. The changes in question allegedly resulted in the products sold on this platform by the Allegro online store always being listed as 'best match' in search results" (UOKiK, 2017). The platform's CEO replied that the company takes the protection of fair competition very seriously and that the Allegro shop itself constitutes less than 1% of all sales made on the platform and that it supplements gaps in sellers' offers (Mazurkiewicz, 2019).

Platforms diversity

A platform-based business model can take on various forms, some of which are presented below. Cusumano, Yoffie, and Gawer (2019) distinguished three types of platforms: innovation platforms (facilitating development of new, complementary products such as software), transaction platforms (marketplaces enabling the exchange of goods and services or information), and hybrid platforms (combining both previous types).

Platforms can be also divided into virtual communities and multi-sided platforms, and although they differ significantly it is sometimes difficult to clearly assign a platform to one of these two business models. Community users are a relatively homogenic group, sharing needs, identities, interests, or problems. Users cooperate with each other, mainly through discussions, but they also organise

themselves, create software or content. The users of a multi-sided platform are more diverse. As already mentioned, the division of users into groups can be permanent or depend on the context. On multi-sided platforms, the point is to compete for interaction with users who are on the other side.

In a more detailed typology there are four ideal types distinguished; two assigned to virtual communities and two to multi-sided platforms (Doligalski, 2021). A problem-oriented community is simply a discussion group, where comments are related to each other and often constitute a narrative. By contrast, in an object-oriented community users post objects and comment on them. Objects are contents with various forms, such as pictures, memes, recipes, or homework assignments. Comments refer to particular objects rather than other comments. An object market is a multi-sided platform on which one group of users publishes objects intended for another group. This is how classified ad boards, job, and dating sites operate. The objects offered are usually temporal and users cannot rate them. Lastly, a reputation market is a platform that typically connects consumers and sellers. The users' roles are permanently assigned. The offered products are repeatable and reviewed by consumers. Reputation markets can be either of a general nature or thematic sellers' aggregators (e.g. tourism, insurance, travel, online-to-offline services).

Platform diversity can also be presented using the centralisation criterion, in which two extreme ideal types can be distinguished. A decentralised platform is accessible to everyone, it has no elaborate matchmaking mechanism (except for searching, sorting, browsing through collected objects), it does not service transactions, it has no trust signal system, nor cooperation mechanisms between users. In contrast, a centralised platform selects its users and imposes partners for interaction; it services transactions between them, has an elaborate trust signal system, and offers many functions for cooperation between users (Sutherland, Jarrahi, 2018). These two are extremes on a continuum, and the majority of platforms can be placed in-between. The centralisation criterion is cognitively interesting, because it shows, on the one hand, that some platforms can take on a form of a laissez faire or even anarchist forum, whereas others are specialised and effective mechanisms of matchmaking potential partners.

Operational systems are platforms that differ due to the level of centralisation. Microsoft Windows is less centralised than operational systems for mobile devices. The system does not have its own, popular platform that would aggregate users and software creators, as in the case of AppStore and Google Play. Matchmaking users with the software takes place without the owners of the operational system, outside of their venues. Interestingly, the additional Apple platform AppStore can be viewed either as a platform itself or as iOS's matchmaking system.

Platforms versus other business models for online companies

As already mentioned, the platform matches independent agents and facilitates their interactions. In this light, the customer is somehow obliged to interact with

other subjects to use the platform's potential. This definition differs from an IT approach, where a product platform is a set of parts, subsystems, interfaces, and manufacturing processes that are shared among a set of products (Meyer & Lehnerd, 1997). Here, the customer can use the existing technology to create a product for themselves, without interacting with others.

In practice, the term "platform" is unfairly extended to cover other business models. Online shops are often counted as platforms. The purchaser can indeed buy the same product on a multi-sided platform and on an online shop. The difference is that on the platform, the customer buys the product not from the platform itself, but from the seller, who functions within the platform's ecosystem. In an online shop, the customer purchases the product directly from the shop. The situation is similar in the case of traditional businesses: a grocery store and an open space market where various sellers gather. The shop offers a product and the market offers interaction with the seller, which might lead to a transaction.

The relationship between platforms and content providers is similar. Some platforms make it possible for their users to publish content, such as texts, graphics, videos, sounds. Such platforms that offer, for example, films, memes, recipes, and homework with the answer key are quite popular. Content providers often offer similar content and they make content available that they either created themselves or bought. The difference between these two business models lies in where the content originates: users, who are more or less involved with the company, or the company itself.

The difference between platforms and e-services providers is less clear. E-services are understood as automatic services provided on the internet, which require self-service and do not require the direct engagement of the service provider's employees (Doligalski, 2018). These are online tools that the users use themselves. Examples of e-services include emails, internet banking, cloud storage, online text, or graphic editors, etc. There are two types of e-services. In the case of tools that the users use mostly themselves (e.g. for editing photos) there is no problem with distinguishing them from platforms, which are used to interact with other people.

However, some e-services can be used for interactions between many people (e.g. MS Teams, Slack, email). The difference between them and a platform is that platforms matchmake their own users for interaction. In the case of e-services, users use them because they facilitate interaction in their group and thus there is no matchmaking component. In this understanding, Instagram is a platform, because it enables users to reach both friends and strangers with their posts (e.g. via tags). By comparison, a typical cloud storage as an e-service enables users to only show photos to some people that are granted access to the content.

The distinction is even more difficult, because start-ups usually use one business model, but mature companies are often based on many business models. For example, at the beginning Facebook was a community but later, fan pages of institutions were added, which gave it components of a platform with external network effects between users and institutions. Offering Messenger meant that Facebook also started offering an e-service, etc. Amazon.com, on the other hand, started off

as an online shop, but today it functions as a community (for product reviews), a multi-sided platform (making it possible for others to sell on their website), content provider (offers e-books for Kindle and video on demand), and an e-services provider (cloud computing) (Aversa et al., 2020).

Are platforms disruptive?

Once critical mass is achieved, platforms attract users, who subsequently often need to invest to get the most out of the platform which, in turn, leads to them becoming dependent on it. The process is described in detail below.

Platforms are attractive for object makers because they enable them to reach an interested audience with their objects, sometimes without high initial costs, such as investment in online presence (i.e. shops, websites, and galleries). Object makers join platforms because there is a demand from object takers, who have a certain need and who often do not require investment in changing their preferecences. Furthermore, platforms make it possible for objects makers to reach recipients located far away from where the stock is held, something that was previously impossible. It is especially visible in the case of sellers' international expansion, who often offer universal products, devoid of cultural references. For example, electronic accessories, second-hand books in English, clothing, or cosmetics.

In order to benefit from the stream of attention, clicks, orders, or money, object creators need to stand out from a crowd of similar providers. They need a certain reputation, which, in the case of transaction platforms, is based on hundreds or thousands of positive opinions. Good reputation increases the probability of sale, and sometimes makes it possible to set a higher price. Elsewhere, on social platforms, object makers have to either attract a number of followers, or else incur promotion costs. This is how they increase their chances of a favourable position in the matchmaking mechanism, and thus chances of interactions with object takers.

It is therefore becoming less important for companies to invest in an integrated supply chain or a website (including its usability, content, community, and visibility in internet search engines). Instead, the battle for interaction with object takers has moved to platforms, where availability in matchmaking mechanisms counts, as does earned reputation. This distorts the competition, especially by limiting it to the dimensions that can be found in the platform's matchmaking mechanism.

The scenario might seem interesting for a potential object maker, who, instead of investing in a website, mobile app, recognisable brand, or availability in search results, decides to function on a platform, where they gain access to object takers who are willing to interact. Of course, they need to invest in their presence on the platform, but the costs can be lower than investments in the presence on other channels (building a website, mobile app, etc.).

On the other hand, they become dependent on the platform, which might have a dominant position on the market, in which case problems might occur. Transaction platforms sometimes go beyond their role as providers of competitive

markets. Due to their competitive power, there is a temptation of value capture at the cost of sellers, who are in fact clients and long-term allies of the platform. As already mentioned, platforms take over the value, at the cost of their object makers, especially by offering similar products and increasing their visibility in key places, and by increasing price competition and weakening sellers' relations with customers (Hagiu & Wright, 2021).

As argued above, platforms are attractive for object takers because of a broad range of resources, encompassing objects themselves, along with the reviews made by other users. Online shops or content providers often offer similar objects, but the aggregation of objects and providers in one place enables users to compare the offer and to easily switch to another provider. What is more, transaction platforms increase their bargaining power for object takers, who might get better quality services (e.g. the delivery time is shorter). The reason for that is that customers might publish a negative review of the product or provider. Of course, there are online review aggregators which make it possible to voice an opinion about entities which are not present on platforms, but they are often separated from their offers, and thus their influence might be weaker. Additionally, platforms themselves often limit the risk of object takers, by selecting object makers, executing the transaction, giving warranties, etc.

What is more, social platforms have taken over discussions about the content published on other websites. This is especially visible in the case of blogs and online versions of newspapers. Discussions about their content take place, to a large extent, on social platforms. Thus, it is the platform and not the content provider that monetises the engagement of commenting people by displaying commercials to them. For the above-mentioned reasons, platforms can take away object takers (i.e. buyers, recipients) from companies with different business models, such as online shops or content providers.

In addition, object takers (consumers, recipients) might be aware of the switching costs which make it more difficult for them to resign from the platform. This might be the result of the platform's practice – which knows how to provide stimuli to the user – by encouraging them to engage in more interactions. Additionally, the more the user uses the platform and the more the platform can build up a profile of them, the more personalised the objects are that are displayed. Lastly, other factors which make it more difficult to leave a platform are installed and configured applications, and fees paid in advance for a long time.

To sum up, it can be said that platforms:

- attract object makers (producers, creators) by offering demand for their objects,
- push object takers (consumers, recipients) away from the companies that used to meet their needs in the past,
- lock object takers in by limiting transaction costs (i.e. offering comfort of use, aggregation of objects and providers in one place, lower risk of an interaction),

- change competition rules by implementing their own matchmaking mechanisms,
- make object makers invest in their presence on the platform and not in their online assets outside of the platform (website, mobile app),
- use their competitive position to make object makers dependent and take over the value at the cost of object makers,
- and, hence, turn their users, especially object makers, into subcontractors who are easily replaceable.

This is how platforms are fundamentally changing the behaviour and expectations of market players, as well as the metrics that measure the market functioning. In other words, they disrupt the market (Nagy, Schuessler, & Dubinsky, 2016; Danneels, 2004).

Are platforms potential monopolies?

Practice shows that some platforms become monopolies, and in some cases oligopolies. Some factors which have an influence on the market concentration are described below, as well as factors which hamper market monopolisation.

The driving force behind platforms is the network effect. To put it simply, this pertains to the fact that the higher the number of customers, the more benefits for the customer. A large number of users enables platforms to shape the portfolio of their objects in accordance with the economies of scope (Gawer, 2014), i.e. the diversity of the offered objects, goods, or content is supposed to speak to the platform's attractiveness. Sometimes this kind of offering is described as a long tail. Economies of scale are also possible; an abundance of objects of the same type increases competition, which in the case of transaction services can lower the price, and lead to more information in feedback-based reputation systems. Platforms, therefore, compete in terms of an accumulated set of their objects, with both the benefits of economies of scale and scope. This is an argument which shows that the emergence of monopolies is possible ("the winner takes all"), or at least market concentration.

After some time, the network effect can, however, have detrimental effects (Parker et al., 2016; Wirtz et al., 2019). For users, at some point value might diminish due to infrastructural problems, new users who reduce the quality of interactions, lower quality of published content, or higher search costs (Doligalski, 2021). In order to avoid this, platforms limit access for some users or make it impossible to promote on them. Platforms often compete with a broad range of objects of a specific quality and move away from weaker resources on purpose. Naturally, this does not reduce their capability to strengthen their competitive position, but it does show that it is not always done by means of maximising the collection of offered objects.

As well as the quality of offered objects, transaction costs for the customer should also be taken into account. On e-commerce platforms, multiple offers of a common product create economies of scale. A consumer who can choose from

among two platforms with a higher or lower number of sellers of the same product will most probably choose the bigger one, because it is most likely the one that is able to offer the product at a slightly lower price. The homogeneity of offered products and making the competition about two factors (i.e. price and seller's reputation) increases economies of scale, or to be more precise the benefits of the network effect. Thus, the risk of concentration increases.

But objects on the platform are not always homogenous. In the case of heterogeneous goods, evaluated with a number of criteria, platforms do not usually have the matchmaking mechanism which would make it possible for the customer to choose the entity at the top of the ranking automatically, which would significantly reduce transaction costs. This is what happens with dating portals, job intermediaries, or buying second-hand or complex products (e.g. real estate, trips). Users incur high costs of browsing, selecting, and communicating with potential partners. Transaction costs are so high that an average user can only analyse a small proportion of the offers. Value differences between big and small platforms shrink for the customer, which in turn reduces the risk of monopolisation. What is more, in the case of a high risk of an interaction, users can ignore offers from the long tail and choose from among a small number of entities with the best reputation (Taeuscher, 2019). This also diminishes the risk of monopolisation.

The right matchmaking mechanism allows platforms to offer high quality for the user even if there are fewer objects. The mechanism can take on the form of a system automatically suggesting objects, a better search engine, systems of recommendation, or human-made object selection. If the user spends little time on analysing objects (e.g. restaurants, memes), then the curated collection of objects might be more precious than a collection with a lot of objects. User costs (e.g. low commission), a platform's positioning (e.g. the thematic profile), and its local nature are additional factors that can impact the platform's ability to grow. This results from managerial decisions rather than a developed network of users.

Surprisingly, the platform's strength might deter object makers from using its service. If the market is dominated by only one or two highly centralised platforms, with huge competitive pressure, then potential object makers might want to reach customers through other channels. Dominant platforms usually have effective matchmaking mechanisms, but they require object makers to make significant investments in reputation and visibility in curated content. This might discourage object makers which are short-term oriented and lead them to choose other channels to reach customers, for example, marginal, non-centralised platforms, such as local discussion groups, where the demand is much lower, but interaction with potential customers comes usually at a lower price.

Object makers can also try to encourage object takers to change the marketing channel after the first interaction on the platform. This might be because they do not want to pay commission on the subsequent transactions or because their objects are not easily available in the curated content. One example is a guesthouse owner who prompts guests to make the next booking privately, rather than via the platform, a platform vendor who grants coupons to redeem in their store outside the platform or an entity that encourages their followers on the social

platform to subscribe to a newsletter, which is a communication tool without the limits imposed by the platform. This is how object makers can defend themselves against too much value capture by platforms. The object makers use the platform to acquire customers and then develop relationships with them outside of the platform.

To sum up the above, the following factors have a positive impact on the degree of market concentration by the platform:

- the network effect, which increases the value for the user when the number of users increases and which often results in a large collection of objects and other resources accumulated by the platform (e.g. customer reviews),
- homogeneity of the offered objects and a reduction of the competition's dimensions.

The following factors hamper market monopolisation by platforms:

- disadvantages of the network effect,
- object heterogeneity,
- an effective matchmaking mechanism that enables delivery of competitive value for object takers when the number of objects is smaller,
- necessity for potential object makers to make significant investments when entering the dominant platform, which leads them to use other channels,
- object makers using platforms exclusively to acquire customers and subsequently developing relations with them outside of the platform.

Summary

This chapter has attempted to offer a detailed explanation of the platform business model. Companies which use this model match independent agents and facilitate their interactions. Users can be divided into object makers (creators, providers) and object takers (buyers, recipients) and they both assume their roles either permanently or depending on the context. The dynamics of customer relationships are strengthened by the network effect. As a consequence, the value for the customer depends on the number of users, with it especially increasing when there are more customers. Objects are an important element of the model as they are the resources made available by creators that takers look for on the platform. Object takers gain access to the resource in accordance with the matchmaking mechanism. Sometimes they have access to all objects, and sometimes only to those selected via algorithmic curation. The selection of a specific object for consumption is often determined by information contained in the reputation system, which are summaries of the activities that the creator has undertaken on the platform so far. Object makers' and takers' behaviours are also shaped by institutions present on the platform, and sometimes also by direct interventions. Platforms often have an asymmetric revenue model, which means that both sides participate in revenue generation to a different degree.

Moreover, platforms often make an attempt to take over more value at the cost of their users.

Platforms have become hubs in the digital economy, they continue to change expectations and behaviours of market participants, and thus they disrupt. They attract and bind both object takers and makers, who invest in the platforms' efficient functioning. This is especially demanding in the case of object makers who need to make their objects available in matchmaking mechanisms. More interaction on the platform means that channels outside of it become less important and underinvested in.

Platforms also lead to market concentration and often create monopolistic or oligopolistic structures. The network effect is the driving force behind the business and, as a result, object takers (buyers, recipients) often join bigger platforms, where they can get more value. The effect is especially visible in the case of homogenic objects evaluated with a small number of criteria (i.e. price, seller's reputation). In such situations, the risk of monopolisation is higher. A heterogeneity of goods or the platforms themselves (including their local nature), as well as the importance of non-network values – that is, of values created by the platform (resulting for example from the matchmaking mechanism) – do not necessarily make the platform with the highest number of objects the most attractive for their takers. Additionally, the dominant force of platforms might lead object makers to use them only to acquire customers and then service them externally from the platform or look for customers on small, decentralised platforms that do not require big investments.

The main limitations of the chapter stem from the attempt to explain the business model of a wide range of platforms. This type of approach is burdened with the risk of over-generalisation. Moreover, the chosen canvas approach concentrates on system elements but in doing so omits both the interrelations between them and emerging properties. The latter may appear at certain stages of platform development, such as market dominance. They will, however, be addressed in Chapter 2 (Goliński, 2021).

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