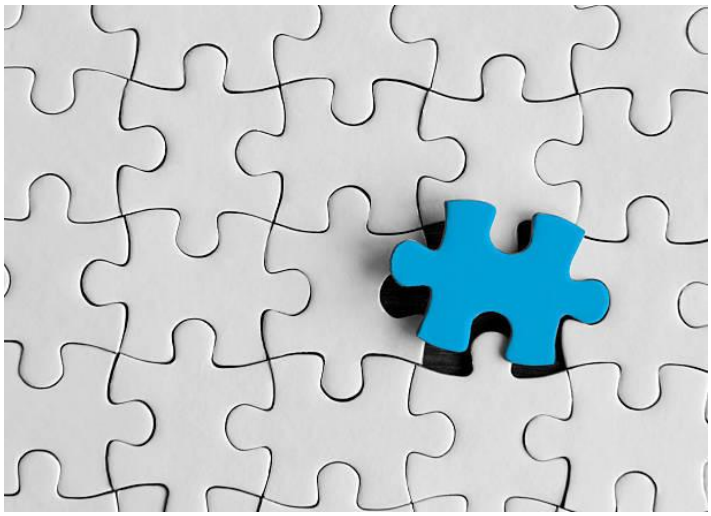
Master Thesis

Solving the platform puzzle

A QUALITATIVE MULTIPLE CASE STUDY



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Abstract

Platform organizations or platform-based business models are becoming increasingly dominant in today's economy. Many organizations try to start a platform, but somehow most fail to succeed. Building a successful platform seems a challenging puzzle to solve. This research aims to create insight into the strategic decisions of platform organizations, by looking at six Dutch auction platform organizations in a qualitative multiple case study. Four of these platforms have managed to solve the puzzle, one almost did and one failed to solve it.

A conceptual model is developed based on the most important success and fail factors of platform organizations. The model follows the platforms through two maturity stages of an organization's life cycle (introduction and growth stages), and it observes different pricing and governance strategies used.

The results present a wide variety of strategic decisions made in many different situations and contexts. Aside from all strategic decisions, this study found out that contextual factors proved to be very important for the platforms' success. Many platforms enjoyed some sort of advantage of being part of a larger organization. Examples are increased competitive advantage through the parent organizations' network, reputation, marketing capabilities or simply by having financial backup which allowed them to take greater risks.

This study gives a practical contribution by presenting a guideline checklist to help or inspire starting or existing platform organizations with the formulation of their platform strategy. It contributes to theory by providing more empirical evidence of strategic decision making in various contexts. It also contributes by proposing four propositions for future research and three theoretical extensions of existing literature.

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1. Description of situation and complication

Traditional pipeline business models are being replaced by platform business models (((Bonchek & Choudary, 2013); (Tiwana, 2014); (Van Alstyne, Parker, & Choudary, 2016b)). Many organizations try to start a platform organization as well, but often fail to succeed due to the difficulty and complexity of platform markets ((Evans & Gawer, 2016); (Van Alstyne, Parker, & Choudary , 2016a); (Yoffie, Gawer, & Cusumano, 2019)). A lot of studies emphasize the importance of individual elements as network effects, a balanced pricing strategy and a successful platform governance strategy. Empirical evidence is available, but is usually based on large, mature, and well-known platforms as AirBNB, Uber, eBay and Google. Still, many organizations seem to suffer with any of these aspects, which assumes a need for deeper understanding of these mechanics in different contexts. The difficulty of strategy formulation and the high rates of failure among platform organizations may well be caused by the complexity of platform markets and a wide diversity of contexts. Having the best technology does not necessarily ensure that the platform becomes the most dominant, so each situation is different (Van Alstyne et al., 2016a). More empirical evidence, in different contexts and environments can therefore prove a welcome contribution to literature and help to understand why some platforms are successful and others not.

The main problem that this study addresses, is a research gap in platform literature. There is a need for more practical examples in various contexts to further explain platform dynamics. This is also supported by the failure study of Yoffie et. al (2019) that explains that 5 out of 6 platforms fail. This high failure rate assumes that the platform puzzle to success has not yet been solved completely. Success in this context follows the common definition of fulfilling its aim or purpose, which would for platforms mean facilitating a satisfactory number of transactions. The definition of 'satisfactory' is different per platform, market and maturity stage, so therefore it may be fitting to phrase it as a 'promising outlook for the future'. As solution, this study aims to achieve a deeper understanding by providing more empirical examples in different contexts. A conceptual model is developed that contains the four most important factors for success and failure of platform organizations. These factors are the critical mass problem, the growth stage, the pricing strategy, and governance strategy. To limit its scope and to ensure a contribution to the literature, this research looks beyond the usual suspects and focuses on transaction platforms that are active in the Netherlands.

But first, why are traditional pipeline business models threatened by platforms? A pipeline business model is characterized by the development, production and delivery of products and services (Van Alstyne et al., 2016b). Value is added to the chain by answering a demand from their customers. Competitive advantage is gained through pricing (higher efficiency and lower costs) and/or quality (Porter, 1979). Examples are manufacturers of cars, televisions, computers and household equipment. Monetization is straight forward as consumers are charged for the value that is delivered.

Platform business models are characterized by a centralized entity (the platform) that connects buyers and sellers by facilitating interaction and value exchange (Evans & Gawer, 2016). A platform environment is often referred to as two-sided or multisided market (((Rochet & Tirole, 2005); (Eisenmann, Parker, & Van Alstyne, 2006)). As a two-sided market needs both complementors (sellers) and end-users (buyers), start-up platforms first need to overcome the chicken-and-the-egg problem (Choudary, 2015). Without sellers, there will be no buyers and without buyers there will be no sellers. As soon as both sides are attracted though, the platform can benefit from the most critical factor for its success, which is called network effects (Eisenmann et al., 2006). A network effect is the phenomenon whereby a product or service gains additional value as more people use it (Banton, 2019). Competitive advantage and platform value are therefore largely based on the size of the platform and the number of interactions it generates. Examples of successful platforms are Airbnb, Amazon, and eBay. Platform monetization is less straight forward, as platform owners do not deliver any value by themselves, but they facilitate value exchange. They can therefore either choose to charge the buyer or the seller.

The shift from pipeline business models to platform business models is driven by new information technology systems as mobile, cloud and social media technologies (Bonchek & Choudary, 2013). Earlier research has shown that new technological developments lead to changes in the business landscape and offer opportunity to alternative organization forms (Davis G. , 2016). The introduction of the internet enabled web shops and ecommerce organizations, which heavily changed the retail business. Platform organizations are an example of these new alternative forms and a direct result of digitalization of products, services and business processes (Evans & Gawer, 2016). Examples show that platforms as Uber and Airbnb disrupt markets in three ways. Their presence led to changes in existing markets, the creation of new markets and to intended and unintended consequences to the economy and society (Mair & Reischauer, 2017). Airbnb became a competitor for hotels as tourists/travelers were offered an alternative. A new marketplace was created where house owners offered their house for rent. Unintended was the effect on the housing market, as many investors recognized the potential of purchase and renting, which raised the demand and price of houses. Uber became a competitor for taxi companies and disrupts this market through aggressive undercutting of the offered price. They can take huge losses as they have substantial financial backups that local competitors have not. By the time that all locals were forced to leave the market, Uber enjoys a monopoly position and can raise prices to a profitable level. Platform organizations are therefore a big threat for many pipeline organizations in any existing market.

From a platform owners' perspective, the benefits are very clear. Platforms typically enjoy high profits, low costs and high competitive advantage compared to existing businesses in the market (Evans & Gawer, 2016). Airbnb can compete globally with hotel chains, without the need to invest in physical assets (hotels) or personnel. The platform business is therefore very lucrative and holds huge potential, but it is also a very risky market to compete in. Platform markets are characterized as a 'winner takes all' or 'winner takes most' market, which means that there is limited room for only one or in some cases a few dominant players (Eisenmann et al., 2006). As soon as one platform achieves total dominance, it becomes very difficult to catch up for the competition and they will often drop out of the market.

Starting a platform seems like a good idea, but in practice this seems quite a challenge to achieve this successfully. As mentioned above, platform organizations hold many advantages over traditional pipeline organizations and in order to stay competitive and to ensure long term continuity, many organizations try to adopt platform technology in their business model (Evans & Gawer, 2016). Most organizations however have difficulties in successfully achieving this. For example, in the United States, 209 out of 252 public listed platforms have failed in the last 20 years (Yoffie et al., 2019). They often do not know where to start, make wrong strategic decisions or simply fail to see the platform play at all (Van Alstyne et al., 2016a). For example, Hewlett Packard has been very successful product producer for calculators, but failed to see the platform potential. Nowadays, these functions have fully been adopted by the Platforms of Google and Apple. Other platforms fail due to an incorrect pricing strategy or by bad governance (Yoffie et al., 2019). As many platforms fail and only a few manage to survive, it is important to not just look at elements that are important for success, but also at elements that have proven to be the cause of failure.

The research goal of this study is to create more insight into platform strategy theory by providing more empirical evidence of strategic choices made by platforms in different contexts. Existing literature describes the core elements, but there is a need for more empirical evidence in different contexts. This research presents a model that combines various elements of platform theory, tests how platform organizations score on each of these elements and so create more insight into this topic. Insight is created by looking at strategic decisions and trade-offs that platform organizations make in various maturity levels of their existence. Additional knowledge is gained when analyzed cases operated in similar contexts, which enables comparison.

2. Focus of central research question

The research follows the four-component design of Verschuren & Doorewaard (2014) that consists out of a theoretical, empirical, analytical and conclusion section (see figure 1). Based on the problem statement and research objectives, the following main research question is formulated: "How do transaction platform organizations that operate in the Netherlands, solve the challenges of starting, growing, and governing their platform?".

The main question is answered through nine different sub questions, that all describe one step from the research process. The first two research questions are theoretical and focus on the creation of a conceptual model. The next five questions are empirical and test the conceptual model in practice. The last two questions are analytical and compare theory and practice. The conclusion section sums up all research findings and will answer the main research question.

Table 1. Problem statement and research questions.

Number	Section	Description
P1	Problem statement	There is a research gap in platform literature. Many organizations start a platform, but most fail to succeed. Context is a very important factor for strategies to succeed. More empirical evidence is needed to get a better understanding of platform mechanics in different contexts.
M1	Main research question	How do transaction platform organizations that operate in the Netherlands, solve the challenges of starting, growing and governing their platform?
Title	**Type of research question**	**Description**
S1	Theoretical	What are the critical success factors for a platform organization?
S2	Theoretical	What are the most common reasons for failure of a platform organization?
S3	Empirical	In what context doest the platform operate?
S4	Empirical	How do platform organizations solve the critical mass problem?
S5	Empirical	How do platforms attract, bind, facilitate and connect its participants?
S6	Empirical	What is the platforms' pricing strategy?
S7	Empirical	How do platforms manage their ecosystem?
S8	Analytical	How does each individual case deal with their strategic challenges?
S9	Analytical	Which trends can be found by comparing cases that share the same context?

3. Theory

This section aims to answer the two theoretical research questions mentioned above, with as outcome the conceptual model. The goal of the literature study is to find all relevant factors that influence success and/or failure of a platform organization. The literature search has been conducted by searching for keywords 'platform strategy', 'platform ecosystems' and 'platform failure' in search databases Scopus, Web of Science and Google Scholar. Search results have been sorted by the highest citations and the titles, key words and abstracts were analyzed for relevancy. As the search words are quite general and widely applicable in various research fields, most results were also not related to platform organization theory. However, some did, and they have been analyzed thoroughly. Narrowing down to only business-related articles by applying filters on "Web of science' category" and "Scopus Subject Area" helped to find relevant studies. As many highly cited articles were published in the Harvard Business Review, more searches have been performed within this magazine. Lastly, a search has been conducted for the keywords + 'book' with google, which resulted in the find of some works that summarize various aspects of platform theory.

Results from the literature study that focuses on platform success can be found in table 2. The goal was to identify all critical success factors of a platform organization. of a fail factor will lead to success. Twelve sources have been selected that specifically focus on platform success factors. The sources point out various variables that can be logically grouped into four specific topics: Launch strategies, Growth strategies, Governance strategies and Pricing strategies.

Table 2. Platform strategy articles

			Title	Platform Strategy	Platform competitio n: strategic...	Platform Scale: How an emerging	Two-Sided Markets	Pipelines, Platforms and the New	Three Elements of a Successful	Perceived usefulness	On Influencers and their	A Study of More Than 250	Platform Ecosystems, Aligning	Opening Platforms: How, when	Platforms, Markets and Innovation.
			Type	Article	Article	Book	Article	Article	Article	Article	Article	Article	Book	Article	Book
Stage	Shared topic	Description	Author	Parker and Van Alstyne (2016)	Cennamo and Santalo	Choudary (2015)	Rochet & Tirole, 2005	Van Alstyne et al. (2016b)	Bonchek & Choudary (2013)	Davis F., 1989	Sanchez-Cartas & Leon (2018)	Yoffie, Gawer, & Cusumano, (2019)	Tiwana, 2014	Eisenmann et al. (2009)	Gawer (2009b)
Launch strategy	Network effects	Platforms typically launch with complements that give their interactions value.		x											
Launch strategy	Network effects	Launch to a small community in order to generate strong, albeit bounded, network effects.		x											
Launch strategy	Network effects	Small companies that lack a user base of their own may seek to borrow users from another network.		x											
Launch strategy	Network effects	Chicken-and-the-egg problem				x									
Launch strategy	Network effects	Strategy to attract end-users				x									
Launch strategy	Network effects	Strategy to attract complementors				x									
Pricing	Pricing	Platforms with substantial resources can entice users via subsidy to join the platform		x											
Pricing	Pricing	Money side vs subsidy side strategies.					x								
Pricing	Pricing	Achieve critical mass before revenue priorization						x							
Growth strategy	Facilitation	Toolbox - Actions to facilitate complementors							x						
Growth strategy	Facilitation	Magnet - Actions to attract and bind end-users							x						
Growth strategy	Facilitation	Matchmaker - Actions to connect end-users and complementors							x						
Growth strategy	Facilitation	Ease of use								x					
Growth strategy	Facilitation	Use of ambassadors									x				
Growth strategy	Trust	Actions to build trust and ensure security to the platform participants										x			
Governance	Competition	Competition between platforms tends towards winner-take-all concentration		x											
Governance	Competition	Competition occurs at three levels of a platform ecosystem. It exists from one platform to another, between a platform and its partners and among partners each vying for position within a focal platform, as in the case of two games reaching for the same consumers		x											
Governance	Competition	Promote competition among complementors			x										
Governance	Competition	Outcompeting rivals for exclusive platform applications			x										
Governance	Competition	Distinctive positioning			x										
Governance	Competition	Does the platform compete with complementors?													x
Governance	Control	The need for regulation arises from the fact that platforms facilitate exchange.		x											
Governance	Control	Gatekeeping mechanisms to control entrants											x		
Governance	Control	Behavioral mechanisms to control behavior											x		
Governance	Openess	Sharing intellectual property and opening its systems to external firms and individuals		x											
Governance	Openess	Level of platform openess												x	

Results from the literature study that focuses on failure can be found in table 3. The goal was to find the criteria that often seem to lead to failure of a platform organization. Three articles have been selected that specifically focus on platform failure. They typically point out that platforms are vulnerable while applying launch strategies, but also through incorrect governance. Pricing errors have also been mentioned as common reason for failure.

Table 3. Platform failure articles

			Title	6 Reasons Platforms Fail	A Study of More Than 250 Platforms Reveals Why Most Fail	Failure to Launch: Critical Mass in Platform Businesses
			Type	Article	Article	Article
Stage	Shared topic	Description	Author	Van Alstyne, Parker, and Choudary	Yoffie, Gawer, Casumano	Evans and Schmalensee
Launch strategy	Network effects	Failure to engage developers.		X		
Launch strategy	Network effects	Failure to launch the right side.		X		
Launch strategy	Pricing	Failure to put critical mass ahead of money.		X		
Launch strategy	Pricing	Mispricing on one side of the market.			X	
Launch strategy	Trust	Failure to develop trust with users and partners.			X	
Launch strategy	Entering	Entering too late.			X	
Launch strategy	Network effects	Failure to achieve critical mass.				X
Pricing	Pricing	Failure to share the surplus.		X		
Governance	Openess	Failure to optimize “openness”.		X		
Governance	Competition	Prematurely dismissing the competition.			X	
Governance	Competition	Distinctive positioning.			X	
General	General stratedy	Failure of imagination.		X		

Framework structure

By analyzing all collected factors that can lead to platform success and/or failure, it became clear that all topics can be grouped into four groups. These groups are the Launch strategies, Growth Strategies, Pricing Strategies and Governance Strategies. Launch and growth strategies seem to point towards the early maturity stages of the organization's life cycle. Governance and pricing strategies are more conditional and contextual and can differ per product or per the different maturity stages of the platform. To find out if success or failure is more or less likely in different stages of an organization's lifetime, various theories about this topic are studied.

Organization life cycle theory describes that an organization typically goes through various phases in its lifetime. Just as with a human being, an organization has a life cycle, as it's life has a beginning and an end (Daft, 2006). Lester, Parnell and Carraher (2003) created a 5-stage empirical scale of maturity stages of stages an organizations progresses through as they develop. The first stage, 'Existence', also known as the birth, formation, or introduction stage, focuses on existence of the organization. It simply aims to become a viable entity that delivers value and serves a few customers. During the second stage, 'Survival', an organization aims to generate enough revenue and profit to continue further operations, to finance growth initiatives to stay competitive on the long term. Organizations can do this by establishing their own unique distinctive competencies. The third stage, 'Success', also known as the maturity stage, describes an organization that has passed the survival test and that has grown to a point where it may want to protect what they have gained instead of pursuing further growth. These organizations are usually characterized as formalized entities with a lot of bureaucracy. The fourth stage, 'Renewal', occurs when the organization has a desire to return to a more flexible environment that encourages creativity and innovation. It tries leave the bureaucratical structure behind by sometimes moving towards a matrix structure and it places the customer demand above that of the organization. The fifth and final stage, 'Decline', is the last stage in an organization's life cycle where the organization no longer makes enough profit or when it has lost substantial market share. Usually this stage is characterized by a struggle for power and internal politics in which the personal goals outweigh the organization goals. An organization eventually risks losing its viability and its existence may come to an end.

The stages of the organization life cycle theory are very similar to the stages of the product life cycle theory. The PLC theory described by Levitt (1965) consists out of four stages, the Market Introduction Stage, the Growth Stage, the Maturity Stage and the Decline Stage. The Market Introduction Stage occurs when a new product is launched before there is any demand for it and technological proof of that it works. Sales and demand are very low and slow at this stage. The Growth Stage occurs when the market size expands, and demand rapidly grows. When growth levels off, a product moves to the Maturity Stage. This is when demand saturates and where most customers already own the product. The Decline Stage is the last stage of the product life cycle, in which market demand declined and supply has reached overcapacity because many substitutes. Prices and margins often drop to a minimum, which is when only few products will remain active in the market.

Both life cycle theories seem to share the same pattern of startup, growth, maturity, and decline stages. The variables selected in the platform framework, mostly seem to point at the early stages of these cycles (introduction and growth strategies). This suggests that that the early stages of a lifetime are very important for failure or success. This idea is backed by the research of Akbar, Akbar, Tang & Qureshi (2019) that suggests that corporations have a significantly higher bankruptcy risk during the introduction, growth and decline stages of an organization's life cycle. They explain that the difference is mainly caused by financial vulnerability in these stages, while the organization is much more stable in the other stages (maturity and revival). Levitt (1965) also stated that risk is higher in the introduction stage of product life cycles, due to trial and error. Therefore, is does seem to make sense that the early stages of an organization's lifetime are very important.

Based on the variables found, it is likely that platform success and/or failure is very much decided during the introduction and growth stages of the organization's life cycle. Pricing and governance strategies play a very important role as well but cannot be fixed into one specific stage. Pricing and governance decisions occur in all stages of an organizations lifetime and decisions may vary on different conditions and contexts. For example, during the growth stage, product pricing needs to be reviewed regularly and perhaps even adjusted. Due to increased competition, competitors may undercut prices to capture market share or simply offer cheaper alternatives while offering the same technological level (Levitt, 1965).
Therefore, this framework focuses on the introduction and growth stages of the organization's life cycle. Launch strategy theories are categorized under the 'Introduction stage' and growth strategy theories under the 'Growth stage'. In addition, 'Pricing' and 'Governance' strategies are monitored separately.

Context

Aside from the core variables that each will be explained in detail, it is also relevant to describe the context in which a platform operates. Platforms exist in different environments, with different purposes and different goals. A strategy that fits one situation may not be suitable for another. The context consists of the type of platform, the goal of the platform and the market in which it operates (Yin, 2003). Grouping platforms in different types, goals and markets helps with creating context and it will also allow comparative analysis.
First, a distinction of the different type of platforms that exist is made. Srnicek (2017) has grouped platforms in five different types; Advertising platforms, Lean platforms, Cloud platforms, Product platforms and Industrial platforms. Gawer and Evans (2016) used a different method and classified them in four groups; transaction platforms, innovation platforms, integrated platforms and investment platforms. In 2019 they decreased it further and only the innovation platforms and transaction platforms remained (Yoffie et al., 2019). They define innovation platforms and transaction platforms as: "Innovation platforms enable third-party firms to add complementary products and services to a core product or technology". "Transaction platforms enable the exchange of information, goods, or services". To limit the scope of this research, the focus is placed on transaction marketplaces only. The researched platform should therefore meet the definition of a transaction platform.
Second, the platforms' year of establishment is written down. For context purposes and possible later comparative analysis, it is also important that comparable cases operate in the same time. Different times may involve different environmental conditions and circumstances (for example, economical or technological). Additionally, platforms that fail do not seem to enjoy a very long lifetime. The average platform age of failed platforms in the US was only 4.9 years (Yoffie et al., 2019). For these purposes it is relevant to know the foundation year.
Third, a specification of the function, goal and size of the platform is described. For example, a transaction platform can focus on the sale of electronics, second-hand clothes, or even various household services. The goal of the platform is then to facilitate these transactions by connecting buyers and sellers. As platform value is mostly measured in the number of transactions that it facilitates, it is important to know the number of transactions that are facilitated by the platform. For this reason, an extra question is added to determine the size of the platform.
Fourth, a description of the market is given. A two-sided market consists out of complementors and buyers (Rochet & Tirole, 2005). This section first verifies if the platform operates in such a market and then identifies both sides. For example, the secondhand clothing market consists out of buyers and sellers of secondhand clothes, who are brought together and facilitated by platforms as Vinted or Marktplaats. To create additional insight, it is described if the platform segments their complementors and end users and if yes, who do they target specifically? Vinted seems to target young women or mothers in their tv-commercials. In addition, it is important to note if there is already a platform organization present and if yes, what is their current market share? If a single platform already achieved dominance, it may be very

difficult to compete as a newcomer (Rochet & Tirole, 2005). Mistiming or simply being too late at the party is also mentioned as common reason for platforms to fail (Yoffie et al., 2019).
And finally, it is interesting to describe the origin of the platform. With origin, this research makes the distinction between a newly found platform by a new organization or a newly found platform made by an existing party (and if yes, who?). This is very relevant as for example Uber is backed by investors with very deep pockets, which allow the organization to undercut prices and lose money, where standalone platforms may not have this luxury. To create a deeper understanding about this topic, each platform is asked for the advantages and disadvantages of being independent or of being backed by investors.
Together, these five elements give a brief impression of the context in which the platform operates.

Table 4. Platform context questions

Section	Construct	Question number	Group	Theory	Type of question
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Yoffie, Gawer, & Cusumano, 2019)	Closed
	Platform Origin	1.2	What was the platforms' year of establishment?		Closed
	Platform Function, Goal and Size	1.3a	What is the function of the platform?		Open
		1.3b	What is the goal of the platform?		Open
		1.3c	How many transactions does the platform facilitate?		Closed
	Market	1.4.1	Is the platform active in a two-sided market?	Rochet & Tirole, 2005	Closed
		1.4.2	Who are the complementors?	Rochet & Tirole, 2005	Open
		1.4.3	Do you segmentate complementors and do you actively select them?	Rochet & Tirole, 2005	Closed
		1.4.4	What complementor segments do you target?	Rochet & Tirole, 2005	Open
		1.4.5	Who are the end users?	Rochet & Tirole, 2005	Open
		1.4.6	Do you segmentate end users and do you actively select them?	Rochet & Tirole, 2005	Closed
		1.4.4	What end user segments do you target?	Rochet & Tirole, 2005	Open
		1.4.7	Is there already a platform present?	Yoffie, Gawer, & Cusumano (2019)	Closed
		1.4.8	If yes, what is their market share?	Yoffie, Gawer, & Cusumano (2019)	Open
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?		Closed
		1.5.2	Did this give advantages or disadvantages and in what way?		Open

Model

All findings of the literature search are bundled, generalized (table 2 and 3) and combined into one conceptual model (appendix A). The model consists out of four sections, that each describe one very important factor for failure and/or success. Each section equals one empirical research question. The first empirical research question, *'How do platform organizations solve the critical mass problem?'*, focuses on the introduction stage of platforms. It describes how platforms deal with the chicken-and-the-egg problem, how they aim to attract end-users and complementors and how they solve the ghost town problem. Together they solve the critical mass problem, which allows platforms to enjoy network effects, which is one of the most crucial factors for platform success.
The second empirical research question, '*How do platforms attract, bind, facilitate and connect its participants?*' focuses on the growth stage of a platform. Critical mass has been achieved and a pricing strategy has been formulated, but how will the platform aim to grow? This sub question is answered by looking at the platform's efforts to implement mechanisms as 'the toolbox', 'the magnet', 'the matchmaker' and how the platform aims to earn trust from its participants. These elements strongly influence the number of interactions that are being performed on the platform. More interactions lead to a more network effects, which in turn decide the size and value of the platform.
The third empirical research question, '*What is the platforms' pricing strategy?*', focuses on the pricing strategy of the platform. The platform must choose between a money side and subsidy side and in the early stage they must make a prioritization trade-off between revenue generation and achieving critical mass. Deciding on a balanced pricing strategy in a two-sided market is a complicated and delicate process that strongly influences the success or failure of a platform.
The fourth and final empirical research question, '*How do platforms manage their ecosystem?*', focuses on how platforms manage or govern their platform ecosystem. This question is answered by looking at various control mechanisms, the level of openness of the platform and if the platform also competes with

its complementors. Successful orchestration is crucial for long-term survival, but also a difficult and continuously changing process. A platform must make a tradeoff between restricting and controlling its participant's influence, without raising too many barriers at the expense of network effects.

How do platform organizations solve the critical mass problem?

The first section of the model focuses on the introduction stage and the achievement of network effects. It is important to know in detail what network effects are and how this phenomenon works. A network effect is defined as a phenomenon whereby increased numbers of people or participants improve the value of a good or service (Banton, 2019). Playstation enjoys a bigger player base than Nintendo, which makes it more interesting for game developers. A larger offering in games makes Playstation more interesting for players, which in turn will result into a growing player base. So, more users lead to a higher value for both sides of the market. Network effects can be split up in direct and indirect effects. A direct effect is the influence (positive or negative) of additional users to the same side of the platform. An indirect effect is the influence (positive or negative) of additional users to the other side of the platform. For example, the increase of buyers is a positive indirect network effect for sellers, but an increase of sellers will probably be perceived as a negative direct effect as it increases competition.

All previously cited studies strongly emphasize that network effects are a crucial factor for success of platforms. The introduction stage to achieve network effects however is very difficult as many platforms particularly fail at the launch. Startup platforms are faced with the chicken-and-the-egg problem, which is the vicious circle of 'there is no supply, because there is no demand, because there is no supply' (Choudary, 2015). Many platforms seem to fail at launch as they do not attract enough chickens and enough eggs to achieve a critical mass (Evans & Schmalensee, 2010). When platforms do succeed in attracting both sides, they may be faced by the next difficulty called the ghost-town problem, where buyers and sellers cannot 'see each other' (Choudary, 2015). The platform starts empty, without any activity and so without any value to both sides. So as soon as one side is attracted, the ghost-town problem still prevents them from entering the platform. To break these initial impasses a platform owner can follow a few strategies, which are proposed by Sangeet Paul Choudary in his book 'Platform Scale' (2015). First, the book describes the impasse as a baiting problem, in which the buyers form the bait for the sellers and vice versa. The problem can be solved by the platform owner, by providing the bait itself. It can choose to target the buyer, the seller or to provide bait to the side that is the most difficult to attract. For example, dating sites tend to target women as they are the most difficult side to attract. As soon as one side is on board, the other side is baited, and the ball starts to roll. Platforms do have to be very careful with picking a side to target first, as picking the wrong side is also mentioned as one of the most commonly reason for platform failure (Van Alstyne et al., 2016b).

Second, Platforms can achieve this by either creating products by themselves or by creating an incentive to producers to offer their products to the new platform. An example of an incentive is when the platform offers an infrastructure where the producer can interact with their customers in a better way than they currently can. This also holds benefits for the platform. Not just the producer will move to the new platform, but often also its customer base and reputation (Parker & Van Alstyne, 2016).

The above-mentioned elements have been bundled in the following table. Together they will answer the first empirical sub-research question: *'How do platform organizations solve the critical mass problem?'*?

Table 5. Introduction Stage questions

Section	Construct	Question number	Group	Theory	Type of question
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Choudary, S. (2015)	Closed
		2.1.1b	If yes, how did they solve it?	Choudary, S. (2015)	Open
		2.1.1c	If no, how did they prevent it?	Choudary, S. (2015)	Open
		2.1.2	Who was bait for who?	Choudary, S. (2015)	Closed
		2.1.3	How did the platform attract end users?	Choudary, S. (2015)	Open
		2.1.4	How did the platform attract complementors?	Choudary, S. (2015)	Open
		2.1.5a	Did the platform face the ghost-town problem?	Choudary, S. (2015)	Closed
		2.1.5b	If yes, how did they solve it?	Choudary, S. (2015)	Open
		2.1.5c	If no, how did they prevent it?	Choudary, S. (2015)	Open

How do platforms attract, bind, facilitate and connect its participants?

The second part of the model focuses on the growth stage of the platform. Critical mass has been achieved and the platform tries to grow. According to Bonchek & Choudary (2013), a successful platform strategy consists out of three elements which they call connection, gravity and flow. Connection means how easy it is for others to connect to the platform and to start sharing and interacting. Gravity means how well the platform manages to attract buyers and sellers. Flow focuses on how well a platform facilitates transactions and the co-creation of value. Bonchek & Choudary also describe three building blocks how platforms can optimize their score on these elements. These building blocks are called 'the toolbox', 'the magnet' and 'the matchmaker'. The toolbox consists of tools provided by the platform owner, to support users to connect with the platform. The goal is to make usage easier and therefore more accessible. For example, YouTube and Twitch provide streamers and other content creators with various tools to improve their content. The magnet is a mechanism that attracts and binds buyers and sellers. The study mentions various loyalty and reputation systems that ensures that platform visitors become returning users. The matchmaker building block focuses on facilitating the interaction. It aims to match demand and supply as accurate and as fast as possible. Showing the correct recommendations requires a lot of data of participants. As soon as the number of interactions increases, the higher the accuracy of the matchmaker is likely to be, which in turn will probably lead to even more interactions.

In addition to the mentioned questions above, a few more questions have been added based on different theories. Ease of use is on the two core components of the Technology Acceptance Model (TAM) (Davis F. , 1989). If a new technology is easy to use, it increases the chance of adoption by the user. Where toolboxes mainly focus on content creators or sellers, an easy-to-use buyer experience would increase the connection factor of buyers. For this reason, one extra question is added to the connection section of the model what the platform did to ease the buyers experience.

Another interesting finding regarding platform adoption and diffusion is the use of ambassadors and influencers. Platform adoption is lower and grows slower without influencers (Sanchez-Cartas & Leon, 2018). For this reason, one question is added to the magnet section of the model if the platform makes use of influencers or ambassadors.

The final addition addresses the importance of trust. Trust is a crucial factor when two or more parties that do not know each other are making an agreement (Yoffie et al., 2019). Elements that support building trust or security are reputation systems, reviews, payment securities and insurances. The absence of trust and security could lead to failure of the whole platform.

In general, platforms should specifically be aware of the importance of attracting complementors/developers as this is also mentioned as one of the reasons why most other platforms fail (Van Alstyne et al. 2016a).

Table 6. Growth stage questions

Section	Construct	Question number	Group	Theory	Type of question
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.1.1b	If yes, which? What were the developments over time?	Bonchek & Choudary (2013)	Open
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Davis F., 1989	Closed
		3.1.2b	If yes, which? What were the developments over time?	Davis F., 1989	Open
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.2.1b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If yes,	Bonchek & Choudary (2013)	Closed
		3.2.2b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.2.3b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Sanchez-Cartas & Leon (2018)	Closed
		3.2.4b	If yes, who?	Sanchez-Cartas & Leon (2018)	Open
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.3.1b	If yes, what?	Bonchek & Choudary (2013)	Open
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Yoffie, Gawer, & Cusumano (2019)	Closed
		3.4.1b	If yes, what?	Yoffie, Gawer, & Cusumano (2019)	Open

What is the platforms' pricing strategy?

The third section focuses on the pricing strategy of a platform. Pricing in a two-sided market is a complicated process. It often consists out of a money side and a subsidy side (Eisenmann et al., 2006). This is the result of the trade-off between charging product cost and the willingness to pay at one side of the market (Rochet & Tirole, 2005). For example, the cost of a physical newspaper is much higher than the price that the customer pays. Readers are being subsidized, which results into more readers. The difference is compensated by advertisers that are willing to pay to access the reader database. The newspaper earns money on advertisers and a little bit on customers who are still willing to pay a certain amount for the newspaper. The online newspaper market however is quite different, as only few readers are willing to pay to read (premium) articles. If the online newspaper would have chosen to charge readers for access, their reader base may not be large and interesting enough for advertisers to cover all costs. Some platforms are even willing to pay to attract users at one side of the market or to not earn anything at all in the introduction stage.

Finding the correct balance and correct pricing strategy is important, but also very difficult. This is further emphasized by Van Alstyne et al. (2016a), as incorrect pricing is one of the most commonly reasons for platform failure. Yoffie et al. (2019) even argue that deciding which side should get charged and which side should be subsidized, might very well be the most important strategic decision for a platform to make. Especially in the introduction stage, many organizations choose for some sort of revenue generation before they achieved critical mass. It would have been better if they prioritized to grow first. Charging participants at any side of the market can work as a barrier and will slow down platform expansion. This enables competitors to step in and attract participants that would otherwise have been locked in already. Also, when the platform is more mature and critical mass is achieved, pricing remains risky. Platforms should continuously monitor that all participants sufficiently benefit from their participation (Van Alstyne et al., 2016a). Increased competition could lower the value for complementors, and they may decide to leave the platform. Subsidizing actions by taking a lesser share of the profit (lowering transaction costs) could prevent this from happening.

To create insight in the platforms' pricing strategies, the following questions are formulated (see table 7). A distinction is added on maturity level of the platform, to investigate if different strategies are used in different contexts. Additional valuable insight can be created to see if the platform experimented with different pricing structures and to find out what worked good and what not.

Table 7. Pricing strategy questions

Section	Construct	Question number	Group	Theory	Type of question
Pricing strategy What is the platforms' pricing strategy?	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.1b	And why?	Rochet & Tirole, 2005	Open
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.1d	And why?	Rochet & Tirole, 2005	Open
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.2b	And why?	Rochet & Tirole, 2005	Open
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.2d	And why?	Rochet & Tirole, 2005	Open
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Rochet & Tirole, 2005	Closed
		4.2.1b	What worked good and what did not work good?	Rochet & Tirole, 2005	Open
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Van Alstyne et al. (2016)	Closed
		4.3.1b	And why?	Van Alstyne et al. (2016)	Open

How do platforms manage their ecosystem?

The final section of the model describes the governance stage. Platform governance is defined as the decision-making process for platform organizations about access, ownership and control of the platform (Tiwana, 2014). Tiwana emphasizes that platform ecosystems should be orchestrated rather than controlled. The difference between platform control and orchestration lies in the voluntarily participation of the participants. If participants do not like the course, strategy or rules of the platform, they are free to leave. In other words, there is no hierarchy or authority in place, which is a fundamental difference between traditional organizations and platform organizations. The role of the orchestrator is not to direct its participants, but to facilitate them and to integrate their individual contributions to the platform.

The first governance element and one of the most important decisions that a platform owner must make, is to the decide the level of openness. Eisenmann et al. (2009) defined an open platform as a platform without restrictions placed on participation in its development, commercialization or use. If there are restrictions, then they must be reasonable, non-discriminatory and applicable to all participants. Incorrect governing of openness is also a common reason for failure. Closing a platform by raising a (cost) barrier for complementors could lower the number of complementors, which in turn harms innovation of the platforms offering and network effects (Van Alstyne et al., 2016a). If the platform is too open, it risks that the platform infrastructure is taken over by one by on the complementors and it risks lower overall quality of the offerings. In the end there is no right or wrong and it all depends on monitoring the situation and deciding what level of openness is the best for the current situation.

Tiwana (2014) describes two commonly used restriction/control mechanisms for platform governance, gatekeeping and relational control. Gatekeeping regulates participation of complementors and products that can enter the platform through prescribed criteria. For example, Marktplaats offers a marketplace where people can sell secondhand products. Not everything can be sold though. They placed a restriction that some types of product cannot be offered for sale (for example: pets, drugs, alcohol or explosives). Relational control focuses on norms, values and behavior of participants and describes the external image that the platform wishes to represent. Marktplaats asks its participants to make realistic offerings, be reasonable and don't be disappointed if sellers are not willing to negotiate. Monitoring both mechanisms help the platform to steer the offering and environment.

There is another governance mechanism that platform owners can use to exert pressure on participants and this by deciding whether they want to participate as complementors as well. It is mentioned before as startup mechanism to attract the first buyers (Choudary, 2015), but platforms can also benefit from it at a later stage (Gawer, 2009b). Advantages are that they can fill up empty spaces in their product offering, earn extra money or improving their negotiating position towards dominant complementors. A downside however of doing this is that the platform will lose its neutral reputation and it will weaken complementors incentive to innovate (Gawer, 2009a).

Table 8. Governance strategy questions

Section	Construct	Question number	Group	Theory	Type of question
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Tiwana, 2014	Closed
		5.1.1b	If yes, what?	Tiwana, 2014	Open
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Tiwana, 2014	Closed
		5.1.2b	If yes, what?	Tiwana, 2014	Open
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Gawer (2009b)	Closed
		5.2.1b	If yes, how?	Gawer (2009b)	Open

4. Description of theoretical contribution

This research contributes to literature by combining various theories into one single guideline. The model itself is therefore a valuable contribution. It consists of a mix of carefully selected elements that have proven to be crucial for success at different maturity stages of a platform. Aside from that, the empirical data contributes as well as platform markets are very dynamic and complex. Each situation is different, and context is very important for the outcome of strategic actions. More examples of strategic choices made in different environments help to create a bigger understanding of platform market mechanics. Lastly, all deviations or extensions of existing literature will be evaluated in detail.

5. Description of practical contribution

This research can also be very valuable in practice. First, starting platform organizations can use the model as a guideline for formulating their strategy. Second, platform organizations can learn from mistakes that other organizations have already made. Third, they can look for examples of strategies and actions that have been made by similar platform organizations and use this as inspiration for their own platform.

The model is also valuable for pipeline organizations that are threatened by a new platform organization in their market. The model helps them to understand how platform organizations think and what their drivers are for success. This understanding can be crucial to anticipate correctly, and it will allow pipeline organizations to formulate a counterstrategy.

The research can also be valuable for entrepreneurs to recognize platform potential in a market. The study describes all aspects of a two-sided market, how to attract complementors and sellers and all other components that are needed for starting a new platform.

In general, the categorization of the empirical evidence is particularly useful for organizations that look for inspiration in a specific context. Current literature does give examples of other platform organizations, but they may be a bit too different from the context that an organization operates in.

6. Research design

This chapter describes the type of research, methods of data collection and methods of data analysis.

Research Method

The research method of this research is a qualitative multiple case study. Baxter & Jack (2008) write that a qualitative case study methodology is particularly suitable to study complex phenomena within their contexts. As platform markets are complex and different cases cannot always be compared due to a different context, this research method is very fitting to answer the research question. The choice for a qualitative design over a quantitative study comes forth out of the research goal to create insight. For creating insight, Baarda (2009) advises to use mostly open research questions. The results will then mostly be descriptive rather than fixed numbers or statistics. Some quantitative elements have been added later to allow some comparison between the multiple cases. Some research questions have therefore been rephrased to a closed question, but they still require a qualitative explanation.

This research follows the design guidelines described by Baxter & Jack (2008) and the research question formulation guidelines from Baarda (2009). To confirm if a case study approach is suitable method, Yin (2003) describes four checks to verify this. First, the focus of the study should be on "how" and "why" questions. This is the case, as the study tries to create insight on how platform organizations deal with their strategic challenges and why they decided to act like they did. Second, the researcher should not influence behavior of those involved in the study. This is also the case, as it looks back at decisions made in the past and it does not influence current behavior. Third, the research should cover contextual conditions as they are relevant to the phenomenon that is studied. To cover this, an extra section is added to the model to describe the context of the platform organization. Fourth, the boundaries between the phenomenon and the context should be unclear. This is also the case, as the platforms decision making is mostly based on the context and it the correctness cannot be judged without knowing the context. For example, a decision whether the end user side should be subsidized is different for a gaming platform as PlayStation than for a true marketplace as eBay. In short, based on the checks of Yin, a case study approach fits the research setting and objectives.

The next step is to determine the case or unit of analysis. A case is defined as a phenomenon of some sort occurring in a bounded context. The cases in this research are the platform organizations. Each platform organization is considered as one case. The bounded context is the setting or environment in which they operate. The unit of analysis will be the strategic decisions that have been made by the platform organizations.

Next is to determine what the case is not. One of the pitfalls of case studies is that researchers try to answer a too broad research question and/or have too many objectives in one study (Baxter & Jack, 2008). It is therefore advised to place boundaries and to limit the scope as much as possible. Boundaries can be placed through limiting "time and place", "time and activity" or "definition and context". For this reason, the study decided to only look at platform organizations that are active in the Netherlands. Secondly, the research will only focus on transaction platform organizations and not also to innovation platforms. Thirdly, to compare on activity, this research is focused on Dutch platforms that operate in the same fashion. This creates a balance between narrowing down the research scope, but it still leaves plenty of opportunity to create insight.

With the case decided, the choice for type of case study should be made. Case studies can be categorized as explanatory, exploratory or descriptive. First, this study is not explanatory, as it does not seek to answer and explain a specific question. This study does have explorative and descriptive elements. It is somewhat explorative as the outcomes in a context are not clear upfront. It surely is descriptive as it describes the phenomenon in a real-life context in which it occurred. There is also a difference between single case, holistic case and multiple case studies (Yin, 2003). This study is surely a multiple study, as it consists of multiple cases in different contexts. Yin specifically mentions that if researcher however would like to do

some comparison between cases, he should carefully select cases that are in the same context. This is in practice possible when the platforms have the same function. An attempt can then be made to find patterns that both cases share. To enable comparison, some qualitative questions have been rephrased into a quantitative question (+ qualitative explanation).
Multiple case studies sometimes also make use of propositions. This creates scope and increases the feasibility of the study. This study however decided not to use propositions, as it requires to take a certain position by making a statement of right or wrong. In this study there is however no right or wrong as all actions are situational and based on context.

Data collection
Based on literature review, a theoretical model has been created. Answering of the questions in the model is done through both interviews and desk research. The choice for multiple data collection methods is to increase the credibility and validity of the results through methodological triangulation (Baxter & Jack, 2008). Other collection methods like a survey has been considered, but not found suitable for this research. A survey is not very flexible, lacks depth and fits better for larger sample sizes.
The interviews are structured and follow the questions mentioned in the model. The results of the open interview questions consist of visions, experiences and opinions of stakeholders and are therefore of qualitative nature (Dooley, 2001). The results of the closed interview questions are of quantitative nature. If the context is similar, it is possible to compare multiple cases (Yin, 2003). The interviewee is preferably the platform founder. The platform founder was most likely the person who faced the early strategic challenges and can therefore provide firsthand information. If not possible, then the interviewee should at least be at strategic management level to understand the platform mechanics.
Desk research is done through the collection of public sources, observations and personal user experience with the platform, press releases from the platform organization and year reports (in case of public listed companies). The university database of Nexis Uni proved to be very valuable for this. Data generated by end-users or complementors in the form of reviews (for example Trustpilot), blogs or social media posts (for example, nice new website feature at 'Airbnb') can give valuable insights as well and it is a form of data triangulation (Baxter & Jack, 2008). This research originally aimed to only include platforms for which data is collected through both interviews and desk research. Due to feasibility reasons (see data analysis section) it will also include platforms when there is only data from one collection method (interview or desk research.
Initially, a list of platform organizations that fit the above-mentioned criteria has been created. The list included transaction platforms that operate in the Netherlands. Next, all platforms were categorized on platform type. This resulted into three somewhat larger groups that would be suitable for research. These groups consisted of six auction platforms (sell tickets/products through an auction), seven discount platforms (sell tickets/products with a huge discount) and five second-hand platforms (resale platforms of second-hand items). All auction platforms and discount platforms have been invited for an interview. Two auction platforms responded positively and were willing to cooperate. For this reason, it is decided to put the full focus of this research on Dutch auction platforms. All six auctions platforms will be researched through desk research and two auction platforms will be researched in more depth through both desk research and an interview.

Data analysis
According to the guidelines of Dooley, a research should be reproducible, reliable, valid, useful and feasible (Dooley, 2001). Each of these mentioned points is briefly described in the following section.
The reproducibility of this research is high as the model can be used by other researchers as well. By using the same model, others can choose to study (other) platforms in similar different contexts.

The reliability of the interviews is guaranteed through an interview summary. This will be shared with the interviewee to ensure that the collected data is interpreted correctly. The reliability of the desk research data is guaranteed through a copy of the source in the appendix of this research. Each statement must be based on a source, which will be combined into one package per case studied.
To ensure validity of the data collected through interviews, a few precautions have been made. As the interviewee knows that the data is used for research, it may have an influence on the results. Answers could be socially desirable or more positive for the organizations' reputation. For this reason, the information gathered through interviews will also be compared with data gathered from desk research. Through this way of triangulation, both findings can be either confirmed or refuted. There is also a possibility that the researcher influences the interviewee by taking position. For this reason, it is important that the researcher stays neutral. To ensure construct validity during the research, each individual construct is explained and defined before it is being discussed. Lastly,
The usefulness of the study has already been extensively described in chapter 4 and 5. The feasibility does limit this research somewhat. In an ideal world, each of the platform organizations will be studied through both interviews and desk research. The data collection phase however must take place within a limited timeframe. Interviews require a lot of scheduling and it depends on the availability, cooperation, and openness of the interviewee. Desk research is much more flexible in that regard. A tradeoff has been made that the increase of empirical evidence weights heavier than the validity reasons of excluding them.
The final data analysis chapter will consist out of two sections. One section describes the results per individual case and the second section will describe the comparative analysis of multiple cases that share the same context.

7. Data collection / Data analysis

Six Dutch auction platforms have been researched individually. The results and analysis are presented in this chapter and together they answer the empirical research questions S3 – S7 and analytical research questions S8-S9.

For each platform, the results are presented in a summary in an individual case summary. Each summary includes the answers to all questions and a visual timeline of the platform's maturity stages and most important events. Four of these case study summaries can be found in the appendix C-F of this research. The remaining two (A+B) have been excluded due to confidentiality.

First, a descriptive analysis is performed which describes all findings per question. Second, a cross case analysis is performed to find patterns in the answers to all closed questions. Third, a pairwise analysis is performed to find differences and similarities between the qualitative answers to all interview questions.

Descriptive analysis

Context

Six platforms have been studied. Five are still active in 2020 and one failed to survive. All six meet the preconditions or being a transaction platform that operates in a two-sided market that consists of complementors and end users. Also, they have in common that they sell items through an auction concept and that they are active in the Netherlands.

Complementors are usually organizations (five out of six platforms), but sometimes also individuals (two out of six platforms). Complementors are segmented on size, geographic location, product category, high- or low-end segment and the nature of the business (reason for sale). The end user side however shows a different image. All platforms seem to have individual consumers as customers, but only two platforms have organizations as customer. End users are segmented on geographic location, user activity, personal interest, and personal characteristics. As both sides of the market are populated by different audiences, it makes sense that each side receives a different approach and strategy.

Three out of six platforms enjoyed a first mover advantage and were the first auction platform in their market. The other three entered a market in which already at least one other auction platform was present. Four out of six platforms were founded as a new organization, without help or backup of an existing organization. In the whole lifetime of the platform, two platforms have received funding from an external investor (in exchange for shares), two platforms have received support from their parent organization and two platforms have been self-supporting.

The biggest advantage of having external investors on board, was that they enabled rapid growth. Investments were used to professionalize the IT systems and for marketing to target new geographic areas. Both moves would probably not have been possible without these investors. The costs to set foot in a new market is specifically named as a huge and risky investment. In the end it can be concluded that both platforms that had investors on board benefitted from their presence as they successfully grew. The biggest disadvantages however were the loss of ownership and outsider influence on the company strategy.

The two platforms that received support from their parent organization also enjoyed a massive competitive advantage from it. In both cases, the auction platforms benefitted from the concerns network, marketing possibilities, product synergies and end user databases (consumer knowledge). Without this support, it is assumed that it would have been much harder to survive for these platforms. Both parent organizations are leading organizations in the domestic market, but their absence in other geographic locations is also named as reason of why they struggled, failed, or decided not to expand geographically.

Of the remaining two platforms that have been self-supporting, only one managed to survive. The one that did survive is profitable on its own, but it also seems to have reached its growth cap. This argues that the presence of investors or a parent organization is an important indicator for growth and success.

How do platform organizations solve the critical mass problem?

Choudary (2015) wrote that startup platforms are faced with the chicken-and-the-egg problem. This study found that the chicken-and-the-egg problem is very common among auction platforms. Five out of six platforms have faced this. The only platform that did not face it, avoided the problem by taking the role of the complementor by themselves to prove their concept. This confirms the existence of this problem and platforms therefore indeed must create a strategy to deal with it correctly.

There appears to be one extension though. Two platforms specifically mention that the problem also occurs for each new product group that they launch, or when they expand their business into a new market or geographic area. As solution for this reoccurring situation, the platform explained that they set specific criteria for each new launch, which should guarantee a continuous supply. An example of this criteria is that the platform must have attracted and bound at least one large complementor for this market or product group. Based on this insight, it also became clear that a platform can face different type of chicken-and-the-egg problems and that a fitting solution also depends on the context. This seems to be a useful extension to the existing literature.

Choudary (2015) also proposes various solutions for solving the chicken-and-the-egg problem. First, he advises platforms to create a bait at one side of the market, usually the side that is the most difficult to attract. Second, he proposes that platforms can create incentive for complementors to offer their products on the platform (for example, a better infrastructure). There is a variety of solutions that the studied platforms found to solve this problem.

Complementors seemed to be the bait for end users in five out of six cases. Only in one case, where supply was very rich and where the platform enjoyed a very dominant position in the market, the platform had to put more effort in attracting the demand side than the supply side. The other five platforms had to work hard to find their first complementors, as some were not convinced by the concept or they were not willing to take the risk to sell their goods for only €1. Not only did the platforms choose one side to bait, they also chose the side, which was the most difficult to attract, which confirms correct application of the theory.

Extra insight is that all platforms have in common that they initially focused on creating enough supply, whether it was the bait side or not. This may sound trivial and logical, as nobody opens an empty shop. On the other hand, this finding suggests that a platform at least needs to first secure interesting products and services (both quality and price wise), before it chooses to bait one side of the market. The single platform that failed to survive seems to have overlooked this step. They certainly had some supply on their platform, but it lacked structure, the offer felt random (wide variety of products) and it was not clear who their target audience was. It appears that the platform launched before it defined the complements it wanted to offer.

Two platforms benefitted from their own or from their parent companies' existing network of complementors. Another platform initially built a community of enthusiasts before it opened the option of trade to their platform. All platforms have in common that they needed to look actively for complementors and that they needed to convince them. It also appears that in some cases the platform owner had to cover some of the auction risks by guaranteeing a minimum earning and pay for a potential loss. In general, it seems wise for the platform to regulate the supply to the market and to fit it to the demand as some of the platforms did and still do (for example less demand during the night). By closely monitoring the presence of end users at the demand side, the platform can create scarcity and avoid that auctions are sold against a loss.

Complementors were attracted through the network of the organization and through advertisements (tv, radio, online and offline). They are also are recruited through cold acquisitions (sales) and at trade shows for specific products. The general advantage for complementors was the potential reach of the platform, through which would access new audiences and generate sales that they otherwise would not have

generated. Second, a larger end user pool increases competition and drives up the price. For these reasons, the platforms were an attractive option for complementors which they could use as an additional sales channel for their products. This is also what Choudary meant with creating incentive for complementors.

End users were attracted in various ways and for various reasons. In some cases it is not 100% clear what the initial strategies were to attract end users, but it is assumed that all platforms did some marketing promotions to launch their platform, to create brand awareness and to attract the first end users. The most effective methods were advertisements (tv, radio, online and offline) and word of mouth through early winners. Especially the latter seemed very strong when the first end users made an exceptionally good deal for just a couple of euro's, as the better the deal, the more attractive it becomes for end users. Three platforms try to attract end users by offering a very well-priced deal. In those cases, the products can often be bought elsewhere as well, but people choose to participate with the auction to score an even better deal (or just for the thrill). One platform clearly focuses on quality of their offering and the other two aim for a combination of both.

Choudary (2015) also warned for the ghost town problem, in which end users and complementors cannot see each other on the platform. Just as the chicken-and-the-egg problem, it is an impasse problem, for which he also proposed the same solutions.

The ghost town problem does not seem to be very common in practice, as only two studied platforms have faced it. For one of those however, it did become their final destination. So even though the appearance of the problem is low in this study, it certainly remains a factor to consider as it could lead to platform failure. So first, the problem does exist, so it is confirmed that it can occur during the introduction stage of some platforms. Second, it is also confirmed that the ghost town problem could become a fail factor for platform if not handled correctly.

The best way to deal with this ghost town problem, is to prevent it from happening at all, as three platforms managed to do. They prevented it mainly by regulating the supply to match demand. If one of both sides became short, they either increased supply or they put effort in marketing to attract more end users. Regulation of supply appears to be a very important and effective tool to prevent the ghost town problem and this could be an extension of the existing theory. Of the last platform it is unfortunately unknown if they have faced it at all.

Another interesting side effect of the ghost-town problem (and new insight) is that it could result into a hype as well. One auction platform faced the ghost town problem and sold its first auction for a hotel room including breakfast for the unbelievable amount of only €1. The winner could hardly believe it was true. When she found out that it was real, she immediately became an important ambassador for the platform by spreading the word in her personal network. Such stories spread fast and it caught the interest of new end users that wanted to see it with their own eyes, which in turn populated the ghost town and solved the problem. This is however not completely without risk, as too many €1 sales could also scare away all complementors for good, which would turn the platform into a permanent ghost town, which is what happened to one of the platforms.

How do platforms attract, bind, facilitate and connect its participants?

Bonchek & Choudary (2013) state that a successful platform strategy consists out of three elements which they call connection, gravity and flow. To optimize the performance on these elements, they created three building blocks which are 'the toolbox', 'the magnet' and 'the matchmaker'. This section aims to collect practical examples of what the studied platforms have chosen to focus on to maximize their score on these building blocks.

Regarding 'the toolbox', only three out of six platforms provide tools for complementors to make it easier to connect to the platform. Examples of these tools are import portals through which the complementors can upload new articles or information (hotel room availability) to the platform, reservation systems,

seller handbooks with tips and tricks, photography guides, affiliate programs/tools for websites to add the platforms advertisements and clear process descriptions on the website. The goal of these tools is to make the cooperation process more efficient, to make it easier for complementors to connect and to maximize the earnings of auctions (for example, better photo's). The three platforms that do not offer tools, do offer other solutions that eventually lead to the same goal. The only difference is that they place the supply on their platform by themselves. To improve the cooperation with the complementors, they do support complementors with the preparation process. For example, they help with product categorization, product description and presentation or offer to store the articles in their warehouse. This concludes that all platforms have a strategy in place that makes it easier for complementors to connect to the platform.

All six platforms put effort in improving the user experience and focused on elements that made their platform easier to use for end users. Examples of this are a very user friendly website, mobile application (still two platforms don't have an app), free and easy account creation (also through social media plugins), an implemented payment system, easy bidding, clear terms and conditions and reservation systems to finalize bookings of won auctions. Aside from that, most platforms also have a clear buyer process guide and a customer service department that helps in case of problems.

Regarding 'the magnet', all platforms have a strategy to attract complementors and end users. Five platforms have mentioned that their complementors use their platform as additional sales channel. They generally benefit from the large audience and reach of the platform and can sell their products to customers that they would otherwise not sell to. Two platforms have a dedicated salesforce in place that are responsible for finding new complementors and for negotiating better deals. Another platform has a whole team in place to unburden their complementor as much as possible. They became specialist of all pre-auction processes and offer their services to help their complementors with achieving a maximum result. The reputation of the platform is also an important factor for the complementor as their brand is associated with it. A bad customer experience with the platform could also be perceived as a bad experience with the complementor. Most platforms are aware of this and they see their relationship with complementors as a close cooperation, rather than a more distant supplier-platform relationship. Complementors are finally also attracted through the brand awareness marketing efforts that are done to target end users.

End users are attracted through advertisements (tv, radio, online, outdoor), promotions (discounts, no transaction cost coupons), through internet forums and word of mouth. They are typically interested in an attractive offering. This could be a very low price or the purchase of a rare or high-quality object. Platforms therefore must first ensure that their offering is interesting and preferably also distinguishing.

Four out of six platforms have loyalty/reputation/giveaway systems in place. For end users, such programs consists of VIP treatments for very active platform participants (better customer service, extra bidding credit, yearly gifts, no transaction cost coupons), daily newsletters with special offers for newsletter subscribers and even discussion forums where people can discuss their products and interests within a community of equal minded. Some platforms also give to opportunity to write reviews about complementors, which improves the reliability of the sellers. Complementors are also bound to the platform through a continued flow of income. It may be true that some auctions are sold below the average market price, but it is still higher than no income at all.

None of the six platforms make use of ambassadors. This is quite surprising and possibly a huge opportunity for the future, as the effect of ambassadors have been proven to be very positive for the platform's growth. The closest example of ambassador usage of the researched platforms was the example of the woman who won an auction for only €1. The effects of her voluntarily ambassadorship was very noticeable as it solved the platforms ghost-town problem. In established markets it may not be necessary anymore, but when a platform decides to launch a new product category or in case it wants to expand into a new geographic location, it may be a very good option to experiment with.

Regarding 'the matchmaker', two out of six platforms have a matchmaking mechanism in place that helps to connect complementors and end users. This means that their platforms website/mobile view becomes personalized and that it shows auctions that are in line with the end users' interest. Such matchmaking systems also have different levels, as some basic systems only look at the search history on the platforms website, while others go way beyond that and link it to the end user's social media profile. Yet, only two have at least a basic matchmaking system in place, which could prove to be a huge opportunity for growth for the other platforms. Two platforms do target specific end user profiles that fit their product offerings through the purchase of customer intent. This means that advertisements are only shown to end users with a specific interest. This however is just limited to advertisements outside the platform and not affect any recommended auctions shown on the own platform.
Trust and security are mentioned as crucial factors when two or more parties that do not know each other are making an agreement (Yoffie et al., 2019). All six platforms have trust and security mechanisms in place. All six state that honesty and fairness are very important factors and most platforms also restrict directly involved employees from participation to the auction. Only three auction platforms are supervised by a notary though, who is an independent external supervisor who ensures fair and correct execution of the auction process. Notary supervision is very important, as end users often have the feeling that auctions are being manipulated by either the auction platform or the complementor or through a programmed bidding robot. End users express their feelings on review websites as Trustpilot and report that they often see suspicious actions of people that overbid themselves, place unnecessarily high bids and people that constantly seems to win the same auction over and over (why would you need 3 sets of pans?). Notary supervision can prevent such a negative image as manipulation would no longer be not possible. Another way a gaining trust is through the Thuiswinkelwaarborg certificate, which is a certificate that is only awarded to online shops that meet the strict set of demands to ensure fair, honest, and safe trading. Some auction platforms hold this certificate.
Some auction platforms also track the complementors reputation through a review system to protect the end users and the platforms reputation. Complementors who perform bad and do not follow the platform rules and guidelines are prohibited from further participation. Lastly, complementors gain trust from the platform through a stable flow of income. If the platform facilitates a healthy and regular flow of trade, then it also had positive influence on the level of trust that the complementor perceives.
Regarding security, most platforms emphasize the importance of a secure payment system. Two platforms even take the role of payment intermediary, in which they receive the payment from the end user and ensure that the payment will be transferred to the complementor. One platform claims that being a large and established platform also offers some form of security.

What is the platforms' pricing strategy?

Finding the right pricing strategy is a crucial decision for platforms. An incorrect strategy could lead to platform failure (Van Alstyne et al., 2016a). Deciding which side should get charged and which side should be subsidized, is argued as the most important strategic decision for a platform to make (Yoffie et al., 2019). The decision however depends heavily on context (level of competition, end user willingness to pay). This section is therefore highly descriptive but does provide insight in the decision making of the studied platforms throughout the different maturity stages. It also describes how they decided to make money and if they experimented with different kind of pricing strategies.
During the introduction stage, four out of six platforms chose to earn money on the complementor side. One out of six subsidized complementors and for one it is unknown. During the growth stage, this did not change. In general, three different ways have been observed in which the platforms earn money. The first and most common method is by receiving commission on each sale. This can be a fixed amount or a percentage. However, as competition increased and complementors sometimes also have their own sales channel, margins have lowered throughout the years. This resulted into the introduction of the second

way, which is by purchasing a large volume of items at a discounted price and to offer them at the platform by themselves. This way the platform carries the risk of a lower earning, but if they regulate the supply correctly, they can also achieve a higher margin than through commission. The third way is by trading items (tickets/vouchers/products) in exchange for a service of the platform, its parent or sister organization.
All platforms decided to earn money on the end user side in the introduction stage. This also remained the same during the growth stage. At end user side, two different types of pricing have been used by the platforms. Three platforms chose to add a fixed percentage as auction fee charge, which is added to the final bid amount. The other three platforms earn money by charging a 'administration' or 'transaction' fee, which is charged to cover administrative and handling costs. In practice it is assumed that this is also a revenue model, which if it is accepted by the market, seems to be a viable method.
Four out of six platforms have experimented with different pricing strategies. Examples of such experiments are the 'buy now' (buy now for a predefined fixed amount) or 'buy more' (buy more tickets/vouchers for the same price) buttons. Some platforms raised the transaction fees but simultaneously added discount coupons that waived this fee (partially). Others tried temporary timeslots in which the transaction costs are €0. The idea behind this is attract more end users, which in turn leads to higher competition and potentially higher auction earnings.
Another important decision that platforms must make in the introduction stage, is if they prioritize revenue generation over gaining critical mass (Van Alstyne et al. 2016a). It is strongly advised that platforms focus on critical mass first before they focus on being profitable. In practice, this study observed the opposite behavior. Only one out of six platforms prioritized 'achieving network effects' over 'revenue generation'. The other five earned money from the start. One platform gives as possible explanation that some platforms were first movers and that they did not have to 'buy' market share as what often is seen in many established markets. Furthermore, the deals provided by the auction platforms (including transaction fee or auction charge) were often better than the best offer in the market. Therefore, the market was already willing to pay for such a fee from the start. Yet, it can still be argued if the platform growth would have gone even faster if this charge was introduced at a later moment, but a possible downside of this is that end users may find a price increase harder to accept than paying a fixed price from the beginning.

How do platforms manage their ecosystem?
Three out of six platforms have a gatekeeping mechanism in place. The same three out of six have also a behavioral control mechanism. Gatekeeping mechanisms occur in the type of products that are offered, the type of complementors that are allowed at the platform and the type of end users that can participate. The product restrictions are placed on quality, minimum value or on suitability with the platform (fireworks, weapons are excluded). Where some platforms put restriction on what they want to be associated with, other platforms do not mind this at all and just execute their clients order to facilitate trade. Complementors and end users are expected to be serious participants. Complementors that do not deliver are quickly blocked and to avoid end users that are bidding for fun, but without the intention of truly paying, one platform has placed a substation cancellation fee for cancelling a won auction. Aside from these gatekeeping restrictions, some platforms also have behavioral rules and guidelines that need to be followed. This is only applicable to platforms that enable some form of communication. Communication is sometimes possible through the username (which is shown during bidding), through user reviews and on discussion forums. In those cases, it is expected that participants use common sense and that they do not offend, curse, or discriminate other platform participants.
Five out of six platforms also compete with their complementors. Only one of them is a true independent platform that does not take the role of either end user of complementor. Being a complementor as well is one way to control complementors and to offer an alternative. It is unclear however if the platforms

compete with their complementors for governance reasons (control/pressuring) or for commercial reasons (to increase earnings).

Cross case analysis (closed questions)

To allow cross-case comparison between the six auction platforms, all answers to the closed questions have been bundled in table 9 below. To ensure that results are handled confidentially, all data is presented in an aggregated form without showing the names of the participating platforms.

Table 9. Answers to closed questions

						Platform					
						Confidential	Confidential	Centjesveiling	Ticketveiling	BVA Auctions	Hotelkameraveiling
Chapter	**Construct**	**Question number**	**Question**	**Type of question**	**Criteria?**	**A**	**B**	**C**	**D**	**E**	**F**
1. Context	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Closed	Yes = 0, No = 1	0	0	0	0	0	0
	Market	1.4.1	Is the platform active in a two-sided market?	Closed	Yes = 0, No = 1	0	0	0	0	0	0
		1.4.3	Do you segmentate complementors and do you actively select them?	Closed	Yes = 0, No = 1	0	0	?	0	0	0
		1.4.6	Do you segmentate end users and do you actively select them?	Closed	Yes = 0, No = 1	0	0	?	0	0	0
		1.4.7	Is there already a platform present?	Closed	Yes = 0, No = 1	1	1	0	0	1	0
	New or existing party	1.5	Is the platform founded by a new or existing organization?	Closed	New = 0, Existing = 1	0	0	0	1	0	1
2. Introduction stage	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Closed	Yes = 0, No = 1	0	0	0	0	0	1
		2.1.2	Who was bait for who?	Closed	Complementor = 0, End user = 1	0	0	0	0	1	0
		2.1.5a	Did the platform face the ghost-town problem?	Closed	Yes = 0, No = 1	1	1	0	?	1	0
3. Growth stage	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Closed	Yes = 0, No = 1	1	0	0	1	1	0
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Closed	Yes = 0, No = 1	0	0	0	0	0	0
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Closed	Yes = 0, No = 1	0	0	0	0	0	0
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If yes, what?)	Closed	Yes = 0, No = 1	0	0	0	0	0	0
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	Yes = 0, No = 1	0	0	1	0	1	0
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Closed	Yes = 0, No = 1	1	1	1	1	1	1
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	Yes = 0, No = 1	0	1	1	1	0	1
	Trust	3.4.1a	Does the platform offer anything to build trust and security to its participants? (Yes/No)	Closed	Yes = 0, No = 1	0	0	0	0	0	0
4. Pricing strategy	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Closed	Money = 0, Subsidy = 1	0	0	0	0	1	?
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Closed	Money = 0, Subsidy = 1	0	0	-	0	1	0
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Closed	Money = 0, Subsidy = 1	0	0	0	0	0	0
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Closed	Money = 0, Subsidy = 1	0	0	-	0	0	0
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Closed	Yes = 0, No = 1	0	1	1	0	0	0
	Priorization	4.2.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Closed	Yes = 0, No = 1	1	0	1	1	1	1
5. Governance strategy	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Closed	Yes = 0, No = 1	0	0	1	1	1	0
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Closed	Yes = 0, No = 1	0	0	1	1	1	0
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	Yes = 0, No = 1	0	0	0	0	1	0

The cross-case analysis looks for patterns in the answers, by following the QCA (Qualitative Comparative Analysis) method (Ragin, 1987). It looks for combinations of answers that are shared between several cases (truth table). Below are four clear patterns that have been found, analyzed, and described.
The first pattern combines the first mover advantage with the ghost town problem question (see Table 10). None of the three platforms that enjoyed a first mover advantage, suffered from the ghost town problem. Two out of three platforms that entered a market where at least one other platform was already present, also faced the ghost town problem (for the third one it is unknown). This could assume that platforms that are first mover in a market, attract more interest to the platform than platforms that are no first mover, which in turn helps them to surpass the impasse of the ghost town problem.

Table 10. First Mover advantage + Ghost Town Problem

						Platform					
						Confidential	Confidential	Centjesveiling	Ticketveiling	BVA Auctions	Hotelkameveiling
Chapter	Construct	Question number	Question	Type of question	Criteria?	A	B	C	D	E	F
1	Market	1.4.7	Is there already a platform present?	Closed	Yes = 0, No = 1	1	1	0	0	1	0
2	Critical mass	2.1.5a	Did the platform face the ghost-town problem?	Closed	Yes = 0, No = 1	1	1	0	?	1	0

The second pattern compares the magnet construct with the bait side and compete with complementors constructs (see Table 11). All platforms had loyalty/reputation/giveaway systems in place to bind participants, except for one platform. This was also the only platform that had chosen the end-user side as bait side. This is somewhat contradicting, as they were the only platform that had the more difficulties in finding end users than in finding complementors. This finding however is only applicable to the introduction stage and it is possible that this has changed during the years. More interestingly though is the fact that this platform was also the only platform that remained fully independent by not competing with its complementors. It could be assumed that this is felt unnecessary because of the rich supply of goods, but this might be studied in more detail.

Table 11. The Magnet + Bait side + Compete with complementors

						Platform					
						Confidential	Confidential	Centjesveiling	Ticketveiling	BVA Auctions	Hotelkameveiling
Chapter	Construct	Question number	Question	Type of question	Criteria?	A	B	C	D	E	F
2	Critical mass	2.1.2	Who was bait for who?	Closed	Complementor = 0, End user = 1	0	0	0	0	1	0
3	The magnet	3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	Yes = 0, No = 1	0	0	1	0	1	0
5	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	Yes = 0, No = 1	0	0	0	0	1	0

The third pattern is based on qualitative data and compares the matchmaker construct with organization size (see Table 12). The two of the six platforms that had a matchmaking system in place, were also part of a very large organization. The third large organization did not have a matchmaking system, but due to the nature of their products this may not be a necessity. As this is usually a very expensive technological development, it can be argued that the knowledge was already present at one of the sister organizations or that the organization had substantial investment capabilities. This assumes that wealthy organizations can get competitive advantage over smaller platforms by investing in matchmaking mechanisms.

Table 12. Organization size + The matchmaker

						Platform					
						Confidential	Confidential	Centjesveiling	Ticketveiling	BVA Auctions	Hotelkamerveiling
Chapter	Construct	Question number	Question	Type of question	Criteria?	A	B	C	D	E	F
3	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	Yes = 0, No = 1	0	1	1	1	0	1
Qualitative	Organization size		What is the size of the organization?	Close	Large = 0, Small/ Medium = 1	0	0	1	1	0	1

The fourth pattern is based on qualitative data and it compares geographic expansion with the presence of external investors (see Table 13). Three platforms have at some point been acquired (partially) by external investors during its lifetime. In all three cases, a part of the investments was used for geographic expansion. In all three cases, this successfully resulted into presence in a foreign market. Two platforms have also managed to become market leader in the European market, while the third platform enjoys profitable presence without being the market leader. For the remaining three platforms that have not been acquired by external investors, it means that they would have to fund geographic expansion from their own pockets. Getting foot on the ground in a foreign market as an unknown player has been mentioned by one of the cases as a very difficult and costly affair. It may be interesting though to find out what the true reasons were why they stopped their growth at the border. Did the platform lack ambition, did they find the step too risky or did they want to keep full ownership of their platform? These are questions that may be interesting for future research.

Table 13. Geographic expansion + Presence of investors

						Platform					
						Confidential	Confidential	Centjesveiling	Ticketveiling	BVA Auctions	Hotelkamerveiling
Chapter	Construct	Question number	Question	Type of question	Criteria?	A	B	C	D	E	F
Qualitative	Geographic expansion	n/a	Is the platform active outside of the Netherlands?	Closed	A lot = 0, A bit = 1, Not = 2	1	0	2	2	0	1
Qualitative	Investors	n/a	Did the platform receive external investments?	Closed	Yes = 0, No = 1	0	0	1	1	0	1

Pairwise analysis

Many platforms share similarities and differences in their approach. It is possible however that both platforms put many efforts into attracting end users, but that their approach in achieving this is very different. For this reason, a pairwise analysis is performed. This means that each of the 6 studied platforms is compared with the other five. This leads to 15 unique pairs and the extra insights created is discussed in this section.

The studied platforms can be grouped into two categories. True trade facilitators and problem solvers. Platform A-D are true trade facilitators. They offer a sales channel for complementors that wish to sell their goods to as many end users as possible (A, C and D) or to a very specific audience (B). Platform E and F go one step beyond and are also problem solvers. Their unique proposition also solves a problem for their complementors, which is very difficult to solve by themselves. Platform E helps banks, curators, and governments to liquidize items of bankrupt organizations or old inventories. As this is not their core business, they look for a reliable party that does not only maximize the earnings, but also coordinates the logistics, curation, and auction processes. Platform F solves a different problem. Hotels do not always run on full capacity and often still have some empty rooms left which remain not booked. To optimize their capacity, these rooms are now offered at Platform F for a (often) reduced price. Complementors can this way increase their earnings, without raising their fixed costs. It is a great solution for complementors to offer these through one unique sales channel, as discounted rooms may otherwise harm the earnings of their regular room offerings.

Platforms D and F seem to be very similar to each other. Both are medium sized platforms that offer mostly intangible products as tickets or vouchers for an attractive price on a user-friendly website. Both platforms also have a clear name, which immediately makes it clear to the audience what they have to offer. They successfully started and grew their platform and are for quite a while in the success stage of their life cycle. Both have a similar pricing strategy with a fixed transaction fee for end users and commission at complementor side and they hold regular promotions to attract new or returning customers. This pricing strategy feels logical as both platforms do not have much operational costs for facilitating a transaction. Aside from the IT infrastructure and a customer service department, they do not need costly employees for curation or logistics. The most noticeable difference is the type of product that is offered. Platform D focuses on entry tickets for leisure parks, zoo's, and similar activities, while Platform D auctions hotel vouchers. Another difference is that Platform F is a problem solves for its complementors, while platform D acts more as a sales channel. Both are quite successful in their own area and they appear very stable organizations. These platforms could be a role model for new platforms that wish to start offering auctions with a different type of product, as their strategic execution looks complete and quite straight forward.

Platforms B and E also have many similarities. Both are large sized platforms, that offer mostly tangible and sometimes very expensive products. Both platforms also offer curator services, which is a time consuming and specific task that can only be performed by someone with product knowledge. Platform E also has warehousing and logistics processes, which platform B does not have. A difference between the two is the target audience, which is very specific and narrow for platform B and quite wide and general for platform E. Most important though is that both is that the costs per transactions are quite high and therefore is it not surprising that they have chosen a percentage-based transaction fee as pricing strategy. The percentage at the end user side of Platform E is a bit higher, but they chose to not charge the complementor side, which Platform B does do.

The platform pairs of DF and BE suggests that another distinction can be made between platforms, which has a strong influence on the pricing strategy. There is a difference is observed between platforms that offer tangible products or intangible products, which directly influences on the amount of work or facilities that is needed to facilitate one transaction. A fixed transaction fee per transaction will cover the costs of the DF pair, but it is not enough to cover the additional services of BE. Therefore, it feels logical that they chose for a percentage-based transaction fee.

To see if the remaining platforms A and C also fit the above categories, they are compared with the above descriptions as well. Platform A is quite comparable with platform D and F, but still a bit more different. Aside from the intangible items, which are handled quite similar, they also offer tangible items that must be stored and shipped. For those products they add an extra fixed transportation fee that cover those extra costs.

Platform C is quite unique on its own and very different from the others. It does not seem to have a very clear product offering and value proposition, so it feels like they have a 'stuck in the middle' problem from Porter's competitive advantage strategy (1985). They mostly sell tangible products in small volumes, which do not have to be curated or stored, so the costs per transaction are also quite low. Yet, they do follow a percentage-based pricing strategy, which is only seen at platforms that have a high cost per transaction. Even though the percentages are lower than at B and E, it still feels a bit out of place. They also offer a wide variety of products, which could be perceived as confusing by the audience. Also, the name of the platform does not clarify what kind of products can be expected for auction.

Regarding governance strategies, behavioral gatekeeping mechanisms only seem to be in place when platform users also have a way to communicate. This is mostly through usernames, user reviews or on the discussion forums of the platforms. When these are present, there is also a behavioral guideline, and when not, they are not necessary.

8. Discussion

This chapter interprets the results of the previous chapter and it describes the implications for theory and practice. It also describes the limitations of this study and it gives suggestions for future research.

Implications for theory

All answers have also been linked back to the original theory and where possible it is described if the original theory is confirmed, refuted, or perhaps even extended. These results are found in table 14 and are more described in detail below.

Table 14. Findings linked back to theory

Theory	Author	Theoretical Statement	Finding	Theory vs Findings (Confirm, Refute or Extend)
First mover advantage	Yoffie, Gawer, & Cusumano (2019)	Being first mover is an advantage.	All three platforms that enjoyed this advantage have managed to become successful.	Confirmed
Chicken-and-the-egg problem	Choudary, S. (2015)	Startup platforms are faced with the chicken-and-the-egg problem	Five out of six platforms have faced this.	Confirmed. Extension: it also re-occurs when new product groups are launched or when new markets are entered
Bait	Choudary, S. (2015)	Startup platforms can solve the impasse problems by choosing one side as bait side.	All platforms chose a side of the market that they targeted first.	Confirmed. Extension: All platforms have in common that they initially focused on creating enough supply, whether it was the bait side or not.
Ghost-town problem	Choudary, S. (2015)	Startup platforms are faced with the ghost town problem	Two out of sic platforms have faced the ghost town problem	Confirmed. Extension: an interesting side effect of the ghost-town problem (and new insight) is that it could result into a hype as well.
Critical mass vs revenue generation	Van Alstyne et al. (2016)	Correct priorization is advised	Five out of six platforms prioritize have prioritized differently.	Refute, but with clear explanation
Ambassadors	Sanchez-Cartas & Leon (2018)	Use of ambassadors has a positive effect on platform growth.	None of the platforms make use of ambassadors	Not applicable
Trust	Yoffie, Gawer, & Cusumano (2019)	Use of trust and security mechanisms is important for platform governance.	Platforms recognize the importance as all platforms have these mechanisms in place	Confirmed

The first mover advantage seems to be real. The three platforms that enjoyed this advantage have also managed to survive and to become an established player in the market. In practice, all three also offered something new that answered a certain demand in the market. This tied their name to the phenomenon they created, and this suggests that their success is also related to them being the first mover. Therefore, is it confirmed that being a first mover can increase the chance of being successful.

The chicken-and-the-egg problem is also real. Most platforms faced it at least once and they provided many different solutions on how to overcome the issue. New is that the problem not only occurred during the initial launch, but that it can re-occur when new product lines are launched, or when new markets are entered.

Theory suggests that choosing a bait side is a good solution to overcome the chicken-and-the-egg problem and this research has found that all studies platforms also have followed this suggestion. More important however seemed to be that the platform ensured sufficient supply, where it the supply side was the bait side or not.

A possible pitfall for a starting platform is the ghost town problem. This study confirms the existence as it was observed a few times, but in practice it seemed to be solved rather fast also. Key solution for overcoming the problem is to regulate supply, so that it matches the demand on the other side of the market. New is that the problem is not necessarily negative, as it could also generate a lot of attention when an end user managed to win an auction for an exceptionally low price.

Theory advises that achieving critical mass should be prioritized over revenue generation. In practice this was hardly observed, as only one platform followed this advice. All other platforms did have a clear explanation for this, as the end users were willing to pay for the provided services from the beginning. Another explanation was that there was no market share to be captured and if there was, the end users were already used to pay an administrative fee or flexible auction charge. This theory is therefore not confirmed but refuted.

The use of ambassadors could have a positive effect on platform growth. In practice however, none of the platforms seem to have make use of ambassadors, so it has not been possible to test this statement. There was only one situation in which an end user voluntarily took the role of ambassador, by sharing a success story of winning a hotel room voucher for only €1. This generated a lot of positive attention and interest for the platform and greatly influenced the interest in the auction platform. It is however too much to confirm the existence of the positive effect by basing it on this single event, so this theory is neither confirmed nor rejected.
The use of trust and security mechanisms are mentioned as very important to protect the platform from harm or negative publicity. All platforms have recognized the importance of this and have implemented various mechanisms to ensure that their platforms are protected against potentially harmful situations, which confirms that this element is found very important.
In addition, this study identified two type of platform strategies. Platforms that focus on price or on quality. Both strategies were in line with theory of competitive advantage (Porter, 1985) and they also heavily influenced the pricing strategy. The platforms pricing strategy in turn seem to be related to transaction cost. Platforms that focused on price, also seemed to focus on keeping their processes as efficient and cheap as possible, which allowed them to remain profitable by only charging a fixed amount per transaction. Platforms that focus on quality, also seemed to invest more in adding additional services and this resulted in a pricing strategy of a fixed percentage of the final sell price, which is in practice usually much higher than a fixed fee.
This study also found that only one platform failed to succeed in solving the puzzle. This raised a few questions. Did this platform do anything different than the other five that did manage to succeed? Did the platform fail to meet one or more success factors from the framework, or was there a different reason for failure? And does this mean that the absence of a success factor leads to failure? The platform did manage to successfully execute some of the prescribed factors for success. It had a clear and easy to use website and had a clear vision that it wanted to make auctions more accessible for all participants. It also tried to make the life of complementors easier by providing various options to submit items for auctions. Yet, it never succeeded in solving the chicken-and-the-egg problem and it eventually turned into a ghost town. It is expected that the true reason for failure was the absence of a clear image and goal of the platform. It was not clear who the audience was and what products were offered. It also seems that lack of marketing activities failed to attract and generate sufficient interest from both sides of the market. The pricing strategy also did not seem to be in line with the operational costs per transaction. In short, it looks like that it was a sum of incorrect execution of many elements that eventually led to the failure of this platform. This leads to the suggestion that correct execution of a success factor contributes to achieving success and that incorrect execution or absence of such a factor could contribute to failure. It also suggests that the absence of a success factor does not necessarily lead to failure. One example is that the failed platform did provide tools that makes it easier to connect to the platform, while other successful platforms did not. Yet they did become successful and this platform did not.

Implications for practice

This research created a lot of insight on how various platform organizations dealt with the challenges of starting and growing a new platform. It became clear that there is not one single strategy that leads to success, but that there are many different options that a platform can choose from to achieve its goals. Starting or existing platforms can benefit or take inspiration by looking at the examples given by others. These options are presented in a structured view in table 15, which can be used in practice as checklist.

Table 15. Checklist

Chapter	Construct	Topic	Option
Context	Market	Identify complementors	Organizations, individuals or both
		Segmentate complementors	High end, low end complementors
			Products and service providers
			Complementor size (large or small)
			Product category
			Reason for sale (bankruptcy, excess of inventory, available capacity or regular sales).
		Identify end users	Organizations, individuals or both
		Segmentate complementors	Personal characteristics (age, gender, homeplace etc.)
			Travel party (alone, couple with/without children).
			Product interest
		Competitor prescense	Is the platform first mover or not?
	Organization	Existing or new organization	Is the platform founded by a new or existing organization?
			Identify strengths or parent, sister or partner organizations that can be utilized.
Introduction	Critical mass	Chicken-and-the-egg problem	Ensure sufficient supply (for short and long term) before releasing it to the market.
		Identify Bait side	Complementor or end user
		Strategy to attract end users	Choose a marketing strategy (radio, tv and online, outdoor or word of mouth).
			Choose a clear value proposition (price, quality, service).
		Strategy to attract complementors	Active complementor recruitment through a dedicated sales force.
			Through the network or parent, sister or partner organizations.
			Decide the added value of the platform. To be 'trade facilitator' (sales channel) or to be a 'problem solver'.
		Ghost town problem	Regulate supply to the market to match supply to the demand.
Growth	Toolbox	Decide content strategy	Allow complementors to place content or not
		Develop tools for content placement	A tool for complementors to submit products for auction (single use or batch uploads)
			A calendar tool for complementors to submit hotel room availaibility
			Guides and FAQ's to improve content quality (photo/ presentation guide)
		Payment tool	A tool for secured payment transactions
		End user tools	A clear and easy to use website
			A clear and easy to use mobile application
			Easy account creation
	Magnet	Product offering	Attractive product offering (price, quality)
		Customer service	Excellent customer service solutions (online FAQ sections, service desk)
			VIP program for active end users (extra service, extra bidding credit, personal discounts)
		Marketing	Target marketing through the purchase of marketing intent.
			Brand awareness
			Promotions and discounts
		Complementor service	Complementor problem solving proposition
		End user service	Regional physical locations to inspect auctioned items (usually high value offerings)
	Matchmaker	Personalization	Personalized website to match auctions with end user interest
			Personalized marketing / newsletters
	Ambassador	Ambassador	Decide if the platform wants to use an ambassador for marketing purposes
	Trust	Notary supervision	Decide if auctions will be supervised by an independent notary
		Reputation systems	Complementor or end user review and rating mechanisms
			An external website review system (Trustpilot)
			External trust certificates (Thuiswinkel waarborg)
	Security	Payment solutions	A safe and secure payment method
		Data security	Consumer data security policy
Pricing	Pricing	Money side / Subsidy side	Decide for each side of the market if it will be a money side or a subsidy side
		Pricing strategy	Commission based or margin based (through large volume purchases)
			Fixed amount per transaction or a fixed percentage per transaction
Governance	Governance	Gatekeeping mechanism	Decide what type of users are allowed to participate
			Decide what kind of products are being offered (category, quality, brand)
		Behavioral mechanism	Describe the behavioral guidelines (reviews, usernames)
		Compete	Compete with complementors or being a fully independent platform

Limitations

This research also faced some limitations. General limitations of the qualitative multiple case study method are the lack of statistical proof, difficulty to investigate causality and the difficulty to generalize. Also, as it concerns a thesis project, this study had to be performed within a fixed amount of time, which limits the research possibilities. For example, six platform organizations have been researched, but not all platforms have been interviewed. This lowers the amount of insight created and it lowers the validity of the data due to the lack of data triangulation.

Content wise there were some limitations as well. Most studied cases proved to be successful, while the research problem stated that most platforms seem to fail. The study does create insight on how these platforms managed to be successful by sharing their success stories, but it does not give many examples of decisions that eventually proved to be an incorrect strategic move. It also seemed difficult to find examples of failed platforms. They could have failed in the early stage (before they created brand awareness) and their websites are often taken offline as soon as their operations end.

Future research suggestions

This research does offer many opportunities for practical actions and future research. Starting and existing platform organizations can benefit from the insight gained in this research. They can also take inspiration from ideas of other platforms. Regarding future research, the conceptual model could be re-used in a different context to create additional insight. This would also allow comparison between generalized conclusions. Another possibility is to use this conceptual model multiple times within one case. One could consider comparing the launch of the platform in different markets/cultures or search for changes and developments over time within one topic. This study also invites further investigation in the topic of platform growth stages, as there seem to be at least three growth stages. It may also be interesting to find out how many platforms use ambassadors and matchmaking systems to further grow their platform. The cross-case analysis results identified four patterns, which have led to the formulation of four propositions that may also be interesting for future research. The four propositions are:

Proposition 1: Platforms that enjoy first mover advantage, attract more interest to the platform and suffer less from the ghost town problem.
Proposition 2: Platforms that have a rich supply of goods/complementors, are less likely to compete with their complementors.
Proposition 3: Large and wealthy platform organizations can get competitive advantage over smaller platforms by investing in matchmaking mechanisms.
Proposition 4: Platforms cannot expand geographically without the financial backup of external investors.

The study also found three theoretical extensions that could be researched in more detail.
Extension 1: The chicken-and-the-egg problem does not only occur during the introduction stage of a platform, but it also re-occurs when new product groups are launched or when new markets are entered.
Extension 2: Before deciding which side of the market will be the bait side (complementor or end user) a platform should make sure that its supply side is fulfilled.
Extension 3: The ghost-town problem may have an interesting and positive side effect, as it could result into a marketing hype. End users have a one-off chance to score an exceptionally good deal, which could unexpectedly result into a lot of attention.

9. Conclusion

This final chapter reflects on this study and will answer the main question of the research, “How do transaction platform organizations that operate in the Netherlands, solve the challenges of starting, growing and governing their platform?
The initial research problem stated that many organizations want to start a platform, but most fail to succeed. Since the success or failure of organization strategy seem to depend heavily on context (place, activity, and time), this study aimed to get better understanding of platform mechanics by collecting more empirical evidence. A conceptual model with the most important factors for both success and failure of platform organizations is developed, and this has been tested on six Dutch auction platforms in a qualitative multiple case study.
Results are presented in the form of rich case study summaries, through three type of analysis (descriptive analysis, cross-case and pairwise comparison) and a checklist with examples which can serve as a guideline for practice. The core message is that there is no single solution to the platform puzzle. There are many right solutions and correct paths that a platform can take on the road to success. Strategic choices seem to be highly dependent on the context and the choice should depend on what would fit the situation the best. Aside from these, the most important findings of this study are summarized below.

External help seems to be an important factor for growth. It seems possible to start a platform from scratch, but to achieve growth, platforms can benefit strongly from external help. External help is received from parent/sister organizations or from external investors and can be both financially and through product/service synergy. The help provides advantages that accelerate growth and lowers risk. The help also provides backup, which can be important for survival and it will allow a less preserved strategy.
Regarding the introduction stage, the chicken-and-the-egg problem is also real. Most platforms faced it at least once and they provided many different solutions on how to overcome the issue.
Achieving network effects proved to be one of the key factors for success. Attracting complementors and end users from scratch can prove to be difficult. As complementors are mostly organizations and end users are mostly individuals, both groups require a different approach to attract them. It does help if the platform already has a network to get started. In practice, it seemed that the platforms had more difficulties in attracting complementors and it also became clear that scarcity on one side of the market determined that this side also became the bait side.
There seem to be three different growth stages of a platform organization, which are different from the original life cycle theory. These stages are the introduction stage, digitalization stage and geographic growth stage. The introduction stage focused on achieving critical mass and in becoming an organization that successfully facilitates one or a few types of transactions. The digitalization stage transforms the organization into a true digital platform with optimized digital processes and many tools, magnet, and matchmaking systems in place. When the platform is fully optimized and digitalized, it can handle much higher volumes of transactions and it could consider geographic expansion. Each transition to next stage however requires a large investment, which in practice could also mean a large risk. This research followed a different approach with regards to growth stages, but this insight suggests that it could be split up into different growth stages as well. Further research that focuses on platform growth could verify or refute these findings.
Regarding pricing, the following insights have been created. The platforms that chose a percentage-based revenue model at end user side, also had higher costs per transaction due to extra services provided, while the platforms that chose a fixed amount as transaction fee had a more simple and straight forward type of transaction. This could suggest that there are two types of auction platforms. Those that purely focus on an efficient way to facilitating trade, while others also try to add more value to the transaction by offering curation, logistics or other services. The first also fits the audience that looks for an attractive price, while the other audience looks for qualitatively higher value product or more service. It is also true that the average transaction value is higher for the percentage-based platforms and that they have two options to grow their turnover (higher price and higher volume), while the fixed-amount based platforms only can grow by increasing their volume. This says something about the scalability of both pricing strategies and it suggests that organizations should think carefully about their pricing model in combination with their product offering, so that it fits their audience and if this model is suitable for further growth.
In short, this study has created a lot of insight of how platform organizations deal with their strategic challenges. It has both a practical and theoretical contribution and it opened the door for further investigation. It looks like there is still plenty to learn and explore for platform researchers and enthusiasts about the topic of platform strategy.

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11. Appendix

Appendix A – Overview of all interview questions

Section	Construct	Question number	Question	Theory	Type of question
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Yoffie, Gawer, & Cusumano, 2019)	Closed
	Platform Origin	1.2	What was the platforms' year of establishment?		Closed
	Platform Function, Goal and Size	1.3a	What is the function of the platform?		Open
		1.3b	What is the goal of the platform?		Open
		1.3c	How many transactions does the platform facilitate?		Closed
	Market	1.4.1	Is the platform active in a two-sided market?	Rochet & Tirole, 2005	Closed
		1.4.2	Who are the complementors?	Rochet & Tirole, 2005	Open
		1.4.3	Do you segmentate complementors and do you actively select them?	Rochet & Tirole, 2005	Closed
		1.4.4	What complementor segments do you target?	Rochet & Tirole, 2005	Open
		1.4.5	Who are the end users?	Rochet & Tirole, 2005	Open
		1.4.6	Do you segmentate end users and do you actively select them?	Rochet & Tirole, 2005	Closed
		1.4.4	What end user segments do you target?	Rochet & Tirole, 2005	Open
		1.4.7	Is there already a platform present?	Yoffie, Gawer, & Cusumano (2019)	Closed
		1.4.8	If yes, what is their market share?	Yoffie, Gawer, & Cusumano (2019)	Open
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?		Closed
		1.5.2	Did this give advantages or disadvantages and in what way?		Open
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Choudary, S. (2015)	Closed
		2.1.1b	If yes, how did they solve it?	Choudary, S. (2015)	Open
		2.1.1c	If no, how did they prevent it?	Choudary, S. (2015)	Open
		2.1.2	Who was bait for who?	Choudary, S. (2015)	Closed
		2.1.3	How did the platform attract end users?	Choudary, S. (2015)	Open
		2.1.4	How did the platform attract complementors?	Choudary, S. (2015)	Open
		2.1.5a	Did the platform face the ghost-town problem?	Choudary, S. (2015)	Closed
		2.1.5b	If yes, how did they solve it?	Choudary, S. (2015)	Open
		2.1.5c	If no, how did they prevent it?	Choudary, S. (2015)	Open
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.1.1b	If yes, which? What were the developments over time?	Bonchek & Choudary (2013)	Open
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Davis F., 1989	Closed
		3.1.2b	If yes, which? What were the developments over time?	Davis F., 1989	Open
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.2.1b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If yes, what?)	Bonchek & Choudary (2013)	Closed
		3.2.2b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.2.3b	If yes, what?	Bonchek & Choudary (2013)	Open
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Sanchez-Cartas & Leon (2018)	Closed
		3.2.4b	If yes, who?	Sanchez-Cartas & Leon (2018)	Open
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Bonchek & Choudary (2013)	Closed
		3.3.1b	If yes, what?	Bonchek & Choudary (2013)	Open
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Yoffie, Gawer, & Cusumano (2019)	Closed
		3.4.1b	If yes, what?	Yoffie, Gawer, & Cusumano (2019)	Open
Pricing strategy What is the platforms' pricing strategy?	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.1b	And why?	Rochet & Tirole, 2005	Open
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.1d	And why?	Rochet & Tirole, 2005	Open
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.2b	And why?	Rochet & Tirole, 2005	Open
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Rochet & Tirole, 2005	Closed
		4.1.2d	And why?	Rochet & Tirole, 2005	Open
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Rochet & Tirole, 2005	Closed
		4.2.1b	What worked good and what did not work good?	Rochet & Tirole, 2005	Open
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Van Alstyne et al. (2016)	Closed
		4.3.1b	And why?	Van Alstyne et al. (2016)	Open
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Tiwana, 2014	Closed
		5.1.1b	If yes, what?	Tiwana, 2014	Open
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Tiwana, 2014	Closed
		5.1.2b	If yes, what?	Tiwana, 2014	Open
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Gawer (2009b)	Closed
		5.2.1b	If yes, how?	Gawer (2009b)	Open

Appendix B – Construct list for interview

Chapter	Construct	Definition
1	Transaction platform	A transaction platform enables the exchange of information, goods, or services.
	Two-Sided Market	A two-sided market consists out of complementors and buyers
	Complementor	Seller/Producer of the product/service. Active on the supply side of the two-sided market.
	End-user	Buyer/End user of the product/service. Active on the demand side of the two-sided market.
2	Network effect	A phenomenon whereby increased numbers of people or participants improve the value of a good or service
	Chicken-and-the-egg problem	The vicious circle of 'there is no supply, because there is no demand, because there is no supply'
	Bait	Which side provides the first bait? As soon as one side is on board, the other side is baited, and the ball starts to roll.
	Ghost-town problem	Buyers and sellers cannot 'see each other'. Ghost-town without any activity (and so no value).
3	Money Side	The side that pays to participate on the platform (main source of income of the platform).
	Subsidy Side	The side that is subsidised to for their participation on the platform (discounted, sometimes lossgiving to lower the entry barrier).
4	Toolbox	The toolbox consists of tools provided by the platform owner, to support users to connect with the platform.
	Magnet	The magnet is a mechanism that attracts and binds buyers and sellers. (loyalty/reputation mechanisms so that people keep coming back)
	Matchmaker	The matchmaking function aims to match demand and supply as accurate and as fast as possible.
	Trust	Trust is a crucial factor when two or more parties that do not know each other are making an agreement (reputation systems, reviews, payment securities and insurances).
5	Gatekeeping mechanism	Gatekeeping regulates participation of complementors and products that can enter the platform through prescribed criteria.
	Control mechanism	Relational control focuses on norms, values and behavior of participants and describes the external image that the platform wishes to represent.
	Compete	Competing with competitors to exert pressure on participants (offer an alternative)

Appendix C – Case Study 1 – BVA Auctions

Context

BVA Auctions is a Dutch online auction platform that focuses on the sale of company assets, real estate and new products. It was founded in 2003 by auctioneer Blees, together with his partners Pil and Kliebisch, who saw potential in making auctions more accessible and transparent ((BVA Auctions, Over BVA Auctions, 2020a); (Het Financieele Dagblad, 2012)**)**. Auctions back then were usually physical meetings, attended by a small number of bidders, usually professional traders. Blees explained that he was annoyed by private deals between bidders that agreed to bid low, only to resell them immediately after against a profit. Online auctions would prevent this, and it would also make the whole process much more efficient. Aside from traders, it would also attract regular people, who usually do not feel too comfortable in the environment of an auction house. In the beginning, Blees was ridiculed for this idea, but he persisted and was eventually proved right. Where traditional auctions attracted only 50 visitors, the first online auctions were already attended by 10.000 visitors. This number was grown until 100.000 visitors in 2009 and even 3.7 million visitors per month in 2020 (BVA Auctions, Over BVA Auctions, 2020a).

In 2009, after a successful start, Blees decided to buy out his founding partners, together with external investor Ecart Invest (Het Financieele Dagblad, 2012). The investments were mainly done in IT, to transform the online auction house into a true digital platform. In 2014, BVA auctions was purchased by investment organization Bencis. Bencis believed in the concept and focused on geographic expansion in Europe (Het Financieele Dagblad, 2015). They acquired auction houses Bechow (Germany) and Karner & Dechow (Austria) in 2015 and together with BVA, they started to trade under the flag of Auctio. In 2016, they also added Notarishuis Arnhem (Netherlands) to the club (Het Financieele Dagblad, 2016). In 2018, the whole group merged with its main competitor in Europe, Troostwijk Auctions and valuations and they decided to continue under the name of TBAuctions (Karsten, 2018). Both Troostwijk (highest revenue) as Auctio (highest number of transactions) claimed to be European market leader, which they also were per their own definitions.

Complementors of the platform are the government, curators, banks, and normal trading organizations that see BVA auctions as a sales channel ((BVA Auctions, Over BVA Auctions, 2020a); (BVA Auctions, 2020b)). Complementors are segmented into the nature of their business. Especially in the early days of the platform, most auctions were the result of bankruptcy of an organization (Dagblad van het Noorden, 2007). Curators and banks contacted BVA auctions to liquidate assets to pay outstanding debts. Since 2012, the Dutch government is a large complementor as they offered excess of office furniture, army material, jewelry, and art for sale (AD/Amersfoortse Courant, 2012). Other organizations use the BVA platform to sell overstock or even use it as a regular sales channel for the sale of new products (Het Financieele Dagblad, 2012).

End users are individual consumers, but also organizations and professional traders. They are segmented between business and consumer and for business customers, also on geographic location ((BVA Auctions, Over BVA Auctions, 2020a); (BVA Auctions, 2020b)).

At the start, BVA Auctions was first mover in the online auction market, and therefore did not have any competitors (Het Financieele Dagblad, 2012). They cashed-in this advantage, as they are still the European market leader in 2019 (Het Financieele Dagblad, 2019). BVA was also founded by a new organization, without any external investors. In 2009, external investors came on board to improve and digitalize the IT systems and in 2014, new investors joined to fund geographic expansion in Europe ((Het Financieele Dagblad, 2012); (Het Financieele Dagblad, 2015)). A huge advantage of the investors was the rapid growth it enabled which would otherwise have been a big risk. The investment in 2009 allowed transformation of the organization from auctioneer, into a digital data platform that uses market knowledge to facilitate trade between buyers and sellers. The financial injection in 2014 bought both market share, and an already profitable and established organization in a new geographic area. This approach was faster than

opening a new BVA location that yet had to establish/prove its name and both organizations could immediately benefit from each other's strengths. A disadvantage of investors is the loss of ownership and involvement in strategy.

Timeline

The timeline image in figure 1 shows the most significant events in the history of BVA auctions. The introduction stage lasted from 2003 up to 2007 where it successfully achieved critical mass of one type of transaction (auction of confiscated goods). The growth stage started in 2007, where the focus was put on growing its position. The biggest growth spurts took place in 2007 (financial crisis → more bankruptcies) and in 2009, when BVA began the transformation from an online shop to a true digital platform. This is where is truly secured its position and where it moved to the maturity stage. In 2014, when it started to expand geographically, it moved to the renewal stage.

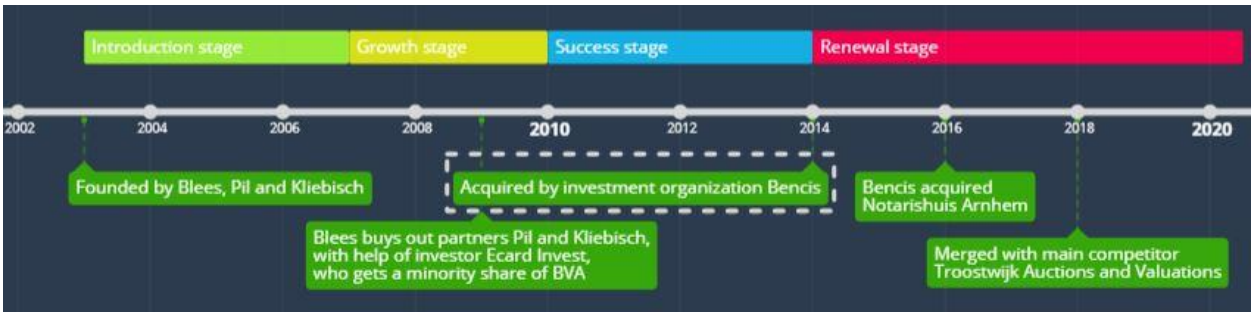

Figure 1. Timeline

Introduction stage

During the introduction stage, BVA auctions probably faced the chicken-and-the-egg problem. No exact reports have been found of their initial actions, but some things can be assumed based on an interview with the founder, Mr Paul Blees (Het Financieele Dagblad, 2012). Paul Blees was an auctioneer for a physical auction house for many years before he founded BVA auctions. This means that he had access to a large network of both complementors and end users (who were mostly professional traders). The complementors were the ones who benefitted the most from online auction system, as it would make auctions much more transparent and accessible and this would increase the number of bidders. Increasing the number of users on one side of the market, leads to an indirect network effect of increased prices, which is an advantage for complementors, but disadvantage for end users. Furthermore, the number of auction houses that were specialized in bankruptcies were limited, so supply did not seem the biggest problem for BVA. In fact, predicted earnings are a very important indicator for curators to award an auction assignment. End users were therefore the bait for the complementors.

It is unfortunately unclear what actions have been taken to attract the first end users. In general, end users are attracted to bankruptcy auctions to purchase items at a highly discounted price. Especially well-trained traders seem to know where to find a good deal, so it probably does not require much effort to be attracted. It can be assumed that the number of bidders automatically increased, due to the increased scope of online auctioning. Before, bidders had to invest time and money to travel to one specific auction, while they can browse all open auctions at once in the online version. To attract a new kind of audience of individual consumers, BVA auctions probably had to launch a marketing campaign to increase their brand awareness.

The ghost town problem was not applicable to BVA auctions, as they regulated the supply to the website themselves (BVA Auctions, 2020a). In addition, they had an auction time extension mechanism in place, which extends the auction time with 5 minutes after each last-minute bid (with less than 5 minutes to go

on the clock) (BVA Auctions, 2020c). This prevents auction sniping (by unseen end users), which often happens to auctions with a fixed end time. This measure is at the advantage of the complementor as it increases the average earnings. For the end user it can be positive as well, as it avoids rushed decision making and impulsive purchases. One downside of this system is it that some auctions take a very long time to complete.

Growth phase

Since 2009, the organization invested heavily in IT to transform from an auction website into a true digital marketplace (Het Financieele Dagblad, 2012). The investment was also used to develop a self-made piece of software, which would enable online and notary supervised auctions (Nederlands Dagblad, 2013). Aside from this, the platform did a lot of efforts for complementors to make it easier to connect to the platform. Most efforts however were no tools that helped complementors to submit their items for auctions, but more to unburden the client. BVA began to move more towards the complementor in the supply chain and almost began to pick up all complements (Nederlands Dagblad, 2013). Examples of this are rush auctions that were held at bankrupt companies' locations. Instead of moving all items to a BVA warehouse, the BVA employees moved to the item locations and organized the auctions from there. This way, BVA employees became trained in processing and preparing all kind of products for auctions, which saves both the client and BVA a lot of time and transportation costs. These extra services are highly appreciated by curators and other complementors and improved preparation and presentation of the goods also leads to an increased final sell price. So instead of making it easier to connect to the platform, BVA goes beyond and almost comes to pick up the complements.

BVA Auctions has also invested in improving the end users experience. Both the website and mobile application are very user friendly (observation). Bidding is easy, all terms and conditions are clear and there is an 'are you sure?' pop-up window that shows up when someone places a bid. This last window shows the final price (including VAT, auction fee and transport costs) that the end user must pay, which avoids misunderstandings and disappointments.

End users are attracted through advertisements and lured in for a chance for a very good deal. Sometimes, they target very specific audiences (Nederlands Dagblad, 2013). For example, when they have a lot of building tools and equipment to sell, then they advertise in countries and economies that are growing rapidly as India or Brazil. The same is done for rare objects as special post stamps. Then BVA often advertises on international websites or communities for philatelists. In both cases, it leads to higher earnings than if they would only advertise locally in the Netherlands. For bigger, more expensive or for used items, then buyers often like to inspect items before they decide to place a bid. In the early days of BVA, they only had warehouses available in Amersfoort and Zwolle where they could organize such inspections. Some potential bidders dropped out as they had to travel too far. For this reason, BVA has also opened new locations in Deurne and Leiden to become more accessible for end users.

As already mentioned before in this section and in the pricing chapter, BVA does a lot of effort to unburden its complementors. They offer a lot of different services to help complementors with preparing all items for auction and to maximize their earnings (and BVA's earnings indirectly as well).

Aside from the high level of service, they do not seem to have any special program in place to bind users and complementors. They also did not make use of ambassadors to help grow their platform.

Regarding the matchmaking systems, BVA does seem to have such a system in place (observation). Both the app and website seem to adjust its offerings based on earlier search queries. For example, after some search queries for a 'bed', a blank search recommends auctions for some beds and other bedroom accessories. BVA is named as a data driven tech-organization and their use of data to personalize the end users view confirms this image. It is very likely that they have gathered a lot of data of their consumers and they appear to use it in everyone's favor.

Trust and reliability are two very important factors for BVA. As their clients (complementors) are often banks, governments, and curators, they must ensure that the auction process goes according to the book. For example, the government named three important criteria for awarding the assignment of auctioning their assets in 2012 (Het Financieele Dagblad, 2012). These criteria were reliability, notary supervision and high earnings. BVA scored the highest on these criteria and they eventually won the tender. Without a high level of trust, this would not have happened. User reviews of BVA are tracked by independent organization 'feedbackcompany.com' and BVA is also connected to the Thuiswinkelwaarborg (The Feedback Company, 2020).

Pricing

BVA Auctions earns money by charging an auction fee on top of the final sell price, which the end user is obliged to pay. This auction fee varies between 12.5% and 17% in 2020 and it depends on the type of product and the total auction value (BVA Auctions, 2020d). It is unclear if the other side of the market is monetized or subsidized, as no records have been found of complementors that need to pay any commission. Based on yearly turnover figures of 2018-2019 of TBAuctions (478 million auction turnover and 61 million own turnover), it can be calculated that TBAuctions' earnings are 14.63% of the original auction value (61/417) (Het Financieele Dagblad, 2019). As this percentage is in line with the auction fee, it is likely that the organization does not charge much to complementors. One of the directors however mentions in an interview in 2013 that BVA Auctions usually receives a percentage of the total earnings or a fixed amount and that this construction is negotiated with the client (Nederlands Dagblad, 2013). Whether this percentage is already included in the auction fee, or if it is an additional charge to the complementor, is unclear. Yet, it can be assumed that the complementor side is somewhat subsidized. This assumption is strengthened by the various services that are offered to complementors by BVA Auctions. Examples of these services are warehousing, transport, security, photography, and administration. Also, while processing bankrupt organizations, BVA employees often travel to the organization's location and prepare all items for auction (Nederlands Dagblad, 2013). This preparation process is called the 'art of lot out', which includes categorization, packing, photographing, and describing of all lots to maximize returns. It is difficult to believe that the organization does this for free, but it is however possible that the height of the auction charge depends on the level of service that is delivered by BVA. In 2013, they had 70 employees employed (plus another 50 flex workers) who are available to respond on rush requests from curators.

No records have been found of different pricing structures throughout the history of BVA Auctions. It is also unknown if they have experimented with this and what their opinion is about it. It looks like BVA Auctions earned money from the start. This would mean that they did not prioritize achieving critical mass over revenue generation. This does make sense in some way, as they were the first mover and they did not have to 'buy' market share.

In short, BVA Auctions earns its money on the end user side. The complementor side does not only seem to be subsidized with regards to commission, but BVA Auctions also seems to do a lot of extra effort to make the life of complementors easier, without any extra charge. This would make sense if complementors were at the bait side, but the opposite is true. On the other hand, BVA has created a very high standard in the market for competitors to beat (high quality at no cost) and therefore only must ensure that the offer remains attractive enough for end users.

Governance

BVA Auctions appears to be a very open platform. At end user side, everyone seems to be able to create a new account and start bidding on the auctions (observation). There does not seem to be any restriction at all. At complementor side it is unclear if BVA has any restriction, but it does look like it sells a very wide range of products. From old-timer cars, bathroom equipment and even horses. It looks like that if an organization goes bankrupt, a curator wants to liquidize assets and that BVA just takes care of these requests.

BVA does seem to be very independent. The present themselves as pure platform provider and it does not look like that they compete with their complementors at all.

General note and conclusion

BVA Auctions managed to successfully start and grow an online auction platform. They started off as a newly founded organization by a few individuals that were annoyed by the current auction process. They fully utilized their value proposition by first focusing on one specific type of service (auction of confiscated assets due to bankruptcies) and they achieved critical mass in the Netherlands. Further growth was achieved by adding a different type of complementors. They truly secured their position as market leader in the Netherlands by investing heavily in IT. BVA's potential was eventually recognized by an external investor, who enabled further growth to become the largest online auctioneer of Europe under the name of TBAuctions. So far, BVA managed to grow gradually and there are no signs that this growth will be halted in the in the coming years.

Answers to Research Questions

Section	Construct	Question number	Question	Type of question	Answers BVA Auctions (Deskresearch)
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Closed	Yes, exchange of goods and services
	Platform Origin	1.2	What was the platforms' year of establishment?	Closed	2003
	Platform Function, Goal and Size	1.3a	What is the function of the platform?	Open	To connect buyers and sellers.
		1.3b	What is the goal of the platform?	Open	Make auctions more accessible and transparent by offering auctions online.
		1.3c	How many transactions does the platform facilitate?	Closed	In 2020, approximately 100.000 transactions per month
	Market	1.4.1	Is the platform active in a two-sided market?	Closed	Yes
		1.4.2	Who are the complementors?	Open	The government, banks, curators and also normal trading organizations
		1.4.3	Do you segmentate complementors and do you actively select them?	Closed	Yes
		1.4.4	What complementor segments do you target?	Open	Split on reason for sale of the goods. Bankruptcy, excess of assets, overstock or just regular sales.
		1.4.5	Who are the end users?	Open	Individual consumers, organizations and professional traders
		1.4.6	Do you segmentate end users and do you actively select them?	Closed	Yes
		1.4.4	What end user segments do you target?	Open	Business and consumers are distinguished. Businesses are distinguished on geographic location.
		1.4.7	Is there already a platform present?	Closed	No
		1.4.8	If yes, what is their market share?	Open	First mover. In 2020, European market leader in online auctions.
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?	Closed	New. Started as a new platform, later owned by investors
		1.5.2	Did this give advantages or disadvantages and in what way?	Open	Advantage: rapid growth through IT investments and acquisition of other organizations/competitors. Disadvantage: loss of ownership
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Closed	Yes
		2.1.1b	If yes, how did they solve it?	Open	Attracting the supply side was relatively easy. End users had to be recruited more actively.
		2.1.1c	If no, how did they prevent it?	Open	-
		2.1.2	Who was bait for who?	Closed	End users
		2.1.3	How did the platform attract end users?	Open	In general by 'the opportunity to score a very good deal' and by 'a for everyone accessible online auction experience'. It is unclear what direct actions have been taken to attract end users to the platform.
		2.1.4	How did the platform attract complementors?	Open	In general, through higher earnings per auction, due to a larger audience of bidders and by more transparency. It is unclear what direct actions have been taken to attract complementors to the platform.
		2.1.5a	Did the platform face the ghost-town problem?	Closed	No
		2.1.5b	If yes, how did they solve it?	Open	-
		2.1.5c	If no, how did they prevent it?	Open	BVA auctions regulated the supply. Sniping is avoided by the extended auction time.
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Closed	No
		3.1.1b	If yes, which? What were the developments over time?	Open	-
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Closed	Yes
		3.1.2b	If yes, which? What were the developments over time?	Open	Very user friendly website and mobile application. Easy bidding, clear terms and conditions and a pop-up warning windows before a bid is finalized (including extra VAT, auction fee and transport costs).
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Closed	Yes
		3.2.1b	If yes, what?	Open	Advertisements in newspapers. International advertisements for specific products. Open new physical warehouses for inspections in different regions.
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If	Closed	Yes
		3.2.2b	If yes, what?	Open	As mentioned before, they offer a lot of extra services to unburden their complementors and to maximize the earnings.
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	No
		3.2.3b	If yes, what?	Open	Aside from the high level of service, they don't have any special program in place to bind users and complementors.
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Closed	No
		3.2.4b	If yes, who?	Open	-
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	Yes
		3.3.1b	If yes, what?	Open	Personalized recommended auctions based on earlier search results.
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Closed	Yes
		3.4.1b	If yes, what?	Open	Trust: Notary supervision, reliability and high earnings. Security: large partner
Pricing strategy What is the platforms' pricing strategy?	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Closed	Subsidy side
		4.1.1b	And why?	Open	Little to no sales commission is charged. Additional services are offered as warehousing, transport, security, photography, administration and lotting out at bankrupt organizations.
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Closed	Subsidy side
		4.1.1d	And why?	Open	Little to no sales commission is charged. Additional services are offered as warehousing, transport, security, photography, administration and lotting out at bankrupt organizations.
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2b	And why?	Open	Flexible %, mostly between 12.5-17%
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2d	And why?	Open	Flexible %, mostly between 12.5-17%
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Closed	Not clear
		4.2.1b	What worked good and what did not work good?	Open	-
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Closed	No
		4.3.1b	And why?	Open	It looks like BVA Auctions earned money from the start. It was not needed to 'buy' market share, as BVA was the first mover.
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.1b	If yes, what?	Open	It looks like everyone can create an account and start bidding.
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.2b	If yes, what?	Open	It looks like BVA just executes the orders from their clients to liquidize assets. This could result into the sale of very unusual objects, as a unique Ferrai or even a horse.
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	No
		5.2.1b	If yes, how?	Open	No records have been found that assume that BVA also offers items by themselves.

Appendix D– Case Study 2 – De Centjesveiling

Context

"De Centjesveiling" is a Dutch auction platform founded in 2019. As an independent party, it wishes to facilitate the exchange of goods or services between two parties. It distinguishes itself from others, by offering a totally different auction process as alternative for existing auction platforms. "There is great dissatisfaction in how existing auction platforms organize the auction process (De Centjesveiling, 2020a). As alternative, De Centjesveiling offers a much easier and more accessible solution for offering items. The platform has on average 145 visitors per day and the history page shows 25 completed auctions ((Sitedeals.nl, 2020); (De Centjesveiling, 2020b)). Complementors can be both organizations and individuals and it looks like both are also allowed to participate in auctions as well. The platform seems founded by an individual, without support or backup from an existing organization. One attempt for crowdfunding has been found online (Getfunded.nl, 2020), but only €15 was generated. In February 2020, De Centjesveiling was offered for sale (Sitedeals.nl, 2020)), which assumes that the organization did not succeed. "Pity that the website has to go, it surely has potential and users review the concept as interesting, but there is a lack of money for marketing activities". Unfortunately, the owner did not respond to a request for interview, but nevertheless, an analysis has been made to find out what could have been the cause for failure.

Timeline

The timeline of De Centjesveiling only consists out of the introduction stage and the decline stage (see figure 1). It unfortunately never succeeded in achieving critical mass and it therefore it never made it to the growth stage. Instead, it moved to the decline stage since it was offered for sale.

Figure 1. Timeline

Introduction stage

It appears that De Centjesveiling failed in solving the critical mass problem. This is concluded by the limited number of auctions (25 completed, 13 still active) and visitors (on average 145 per day) (Sitedeals.nl, 2020). It does look like all ingredients were there for a successful auction website: the infrastructure was complete, processes were explained, terms and conditions were written out and the website looks fine (observation). It just never seems to have taken off, as both complementors and end users were missing to get network effects going. It is not clear what has been done to attract complementors and end users as no online advertisements have been found. It can be assumed that some attempts have been made through Instagram or Facebook, but both pages have been deleted at the time of writing (April 2020). Based on the completed auctions, it looks like that the owner tried to generate activity on the platform by offering some items by himself. This is assumed as one item (Oldtimer buscamper) is also offered on a secondhand website by the owner of De Centjesveiling (Speurders.nl, 2020). Other widely desirable items as a PS4 Pro, Fifa 19 and VVV Gift coupons have been offered (perhaps as a promotion by the owner as well), but by looking at the eventual sell prices (€17,33 for the PS4) this unfortunately did not lead to a significant number of serious participants (De Centjesveiling, 2020b). Based on the reviews however (and a happy photo of the winner), it looks like the auction was genuine and processed as promised (De Centjesveiling, 2020c).

Based on the above, it is expected that supply side was supposed to be the bait for the demand side. It also looks like De Centjesveiling eventually faced the ghost-town problem, in which both sides cannot see the other side, which prevents them from participation on the platform. The platform slowly died out and activity decreased where it was meant to increase.

Growth stage

Regarding tools, the platform mentioned that it one its goals was to ease the advertisement process (De Centjesveiling, 2020a). As a solution, if offered complementors to just send a photo + description of the items by email or Whatsapp (De Centjesveiling, 2020d). De Centjesveiling would take it from there and put the advertisement and auction online. Another improvement for complementors, was that it was not necessary to create an account (De Centjesveiling, 2020d). This saves a lot of time and could lower the entrance barrier for complementors. For end-users, the platform does not offer many specific tools to improve the user experience. The website does have an Ideal payment option and FAQ section, but such sections are nowadays more a minimum requirement rather than extra added value ((De Centjesveiling, 2020e); (De Centjesveiling, 2020f)).

It is not very clear what the platform's strategy was to attract complementors and end users and which distinguishing aspect received the strongest emphasis in marketing activities. It does mention that users are very unsatisfied with existing auction websites, but the problem that De Centjesveiling solves does not seem to attract many participants (De Centjesveiling, 2020a). It is also unknown if there were any reputation, loyalty and giveaway systems in place to bind current participants, but as none have been found, it can be assumed that these had not yet been developed. The same counts for any matchmaking activities. It is most likely however that such functions were not there yet and that they would only be developed when there is more activity on the platform.

Regarding trust, they do emphasize that they are honest and transparent. They try to distinguish themselves from other auction platforms by not manipulating the positioning of auctions. Proof of loss giving transactions does contribute to this image of honesty (De Centjesveiling, 2020b).

Pricing

De Centjesveiling has chosen to earn money on both sides of the market. Complementors are charged 10% commission on each sale and buyers pay an additional 5% auction fee on each purchase (both before BTW) (De Centjesveiling, 2020d). This means that both sides are a money side and that none of the sides are subsidized. Both charged percentages are relatively lower than offered elsewhere, so the claim that De Centjesveiling is cheaper is a rightful claim.

The platform did not prioritize critical mass growth over revenue generation, as it looks like both charges were there from the beginning. It is not sure however is this has prevented people from joining the platform and if this was the true reason for failure. On the other hand, it probably did not contribute to the growth. The platform did make clear that everything is free and without any commitments until an item was sold or an official bid was made (De Centjesveiling, 2020d).

Governance

It is not clear if De Centjesveiling has any gatekeeping or behavioral control mechanisms in place. It looks like participation is open for everyone and that no rules and or guidelines have been communicated.

It is likely that the platform does compete with complementors, by offering items by itself. The purpose of this was probably however to initiate activity and it is not sure if the platform intended to continue with doing this at a later stage.

Conclusion

De Centjesveiling looks like a serious and honest attempt that unfortunately did not work out in practice. The owner invested time and effort in creating a website and auction infrastructure. They also tried to generate some activity by investing and offering own offerings, but this sadly only led to some very happy bidders who won the auction at an absolute bargain price. This immediately shows the risk of the auction concept for complementors as they risk selling their items far below the cost price. It looks like the main cause of failure is the lack of participants (both end users and complementors). Complementors may have been scared/hesitant by the low selling prices and end users may not have been tempted enough by the low number of auctions. The shop did have some interesting items for sale but did not manage to keep this going continuously. Marketing actions could have contributed to increase brand awareness, but this would have required a large initial investment. It is also unclear if complementors were willing to offer their items at a new platform without any guarantees of a minimum turnover. This also proves that the launch of a platform should be timed very carefully, that a first impression/ early reputation can only be built once and that it is difficult to recover from a slow start.

Answers to Research Questions

Section	Construct	Question number	Question	Type of question	Answers Centjesveiling (Deskresearch)
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Closed	Yes, exchange of goods and services
	Platform Origin	1.2	What was the platforms' year of establishment?	Closed	2019
	Platform Function, Goal and Size	1.3a	What is the function of the platform?	Open	To connect buyers and sellers.
		1.3b	What is the goal of the platform?	Open	A cheaper, more accessible and easier alternative for existing auction websites. It offers a different and unique auction process (auctions end after a fixed time or when a fixed amount is reached).
		1.3c	How many transactions does the platform facilitate?	Closed	145 visitors per day, 25 completed auctions in total
	Market	1.4.1	Is the platform active in a two-sided market?	Closed	Yes
		1.4.2	Who are the complementors?	Open	Businesses and Individuals
		1.4.3	Do you segmentate complementors and do you actively select them?	Closed	Not clear
		1.4.4	What complementor segments do you target?	Open	Not clear
		1.4.5	Who are the end users?	Open	Consumers
		1.4.6	Do you segmentate end users and do you actively select them?	Closed	Not clear
		1.4.4	What end user segments do you target?	Open	Not clear
		1.4.7	Is there already a platform present?	Closed	Yes
		1.4.8	If yes, what is their market share?	Open	Vakantieveilingen, BVA Auctions, Catawiki
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?	Closed	New
		1.5.2	Did this give advantages or disadvantages and in what way?	Open	Not clear
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Closed	Yes
		2.1.1b	If yes, how did they solve it?	Open	It appears they did not succeed to solve the chicken-and-the-egg problem.
		2.1.1c	If no, how did they prevent it?	Open	
		2.1.2	Who was bait for who?	Closed	Complementors
		2.1.3	How did the platform attract end users?	Open	Unclear, but no online marketing advertisements have been found.
		2.1.4	How did the platform attract complementors?	Open	Unclear, but no online marketing advertisements have been found.
		2.1.5a	Did the platform face the ghost-town problem?	Closed	Yes
		2.1.5b	If yes, how did they solve it?	Open	The website became a bit of a ghost town.
		2.1.5c	If no, how did they prevent it?	Open	
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Closed	Yes
		3.1.1b	If yes, which? What were the developments over time?	Open	The complementor only has to send pictures and a description to the platform. The platform will take care of the placement. Submitting items is possible through email or whatsapp and the complementor does not need to create an account for this.
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Closed	Yes
		3.1.2b	If yes, which? What were the developments over time?	Open	Easy Ideal payment service, a FAQ section.
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Closed	Yes
		3.2.1b	If yes, what?	Open	More accessible and more user friendly auction process.
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If	Closed	Yes
		3.2.2b	If yes, what?	Open	By offering a much easier and more accessible solution for offering goods/services for auction.
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	No
		3.2.3b	If yes, what?	Open	No systems have been found
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Closed	No
		3.2.4b	If yes, who?	Open	-
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	No
		3.3.1b	If yes, what?	Open	No systems have been found
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Closed	Yes
		3.4.1b	If yes, what?	Open	They emphasize that they are honest and transparent. They try to distinguish themselves from other auction platforms by not manipulating the positioning of auctions.
Pricing strategy What is the platforms' pricing strategy?	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.1b	And why?	Open	10% commission of the sell price
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Closed	Not applicable
		4.1.1d	And why?	Open	Not applicable
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2b	And why?	Open	5% auction charge on top of the sell price
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Closed	Not applicable
		4.1.2d	And why?	Open	Not applicable
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Closed	No
		4.2.1b	What worked good and what did not work good?	Open	Not clear
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Closed	No
		4.3.1b	And why?	Open	Not clear
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.1b	If yes, what?	Open	No systems have been found
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.2b	If yes, what?	Open	No systems have been found
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	Yes
		5.2.1b	If yes, how?	Open	It is likely that the platform offered some personal items by themselves to generate activity.

Appendix E – Case Study 3 – Hotelkamerveiling.nl

Context

Hotelkamerveiling.nl is a Dutch auction platform founded in 2008 (Hotelkamerveiling, 2020a). The platform is in the Netherlands the biggest auction website that focuses on hotel arrangements. The current supply contains 650 unique offerings of various hotel rooms in the Netherlands and abroad. Since 2008, they facilitated over 4 million transactions (bookings) by 760000 unique members (end users with an account). Each year they send 100 million newsletters to their subscribers. The idea is straight forward. Dutch hotel chains usually only sell out 68% of their available rooms (Verhoeven, 2016). To fill up the remaining 32%, Hotelkamerveiling.nl found a solution to help hotels by selling them through an auction at a reduced rate (40-60% lower than at regular booking sites). Complementors are in this context the hotel chains or bed & breakfasts. They are segmented into individual hotels, hotel chains, event organizers, wellness organizations and geographic location (observation). End users of Hotelkamerveiling.nl are mostly consumers or individuals that bid on the auctions. They are differentiated on personal characteristics (age, gender, homeplace etc.) and travel party (alone, couple with/without children) (De Gelderlander, 2010). Hotelkamerveiling.nl and the complementors agree on a purchase price and hotel chains submit the available dates for which the offer counts (Hotelkamerveiling, 2020b). Hotelkamerveiling.nl adds the available dates in a calendar format to the auction, so that end users can immediately schedule their visit.

The platform was founded by Klaas Stekelenburg, owner of Hotel 't Paviljoen (Rhenen, Netherlands), and his two sons Mathijs and Jesper (Hotelkamerveiling, 2020a). They recognized the potential of the online auction concepts as seen from other parties as Vakantiveilingen.nl. So, when they started, there were already other platforms present in the market. Together, they came to the idea to sell open/leftover hotel rooms through an auction system. The initial offer consisted of only 3 hotels but expanded rapidly to the 650 different hotels today. By focusing only on leftover rooms, they found a way to distinguish themselves from other auction platforms and they are market leader for this specific purpose. In 2017, the offer was expanded with some wellness organizations. Until today, the family still owns the organization. They have always financed their own operations and never received money from investor organizations (Verhoeven, 2016).

Timeline

The most important events of the history of Hotelkamerveiling.nl are visualized in figure 1. The introduction stage lasted from 2008 until 2009. After contracting the Sandton hotel chain in late 2009, the supply side was large enough to make the next step for further growth (Reintjes, 2010). Many small local hotels also started to benefit from the platform (Speerstra, 2009). A first radio campaign in early 2010 to attract users and to create brand awareness is therefore marked as the start of the growth phase (Hotelkamerveiling, 2020a). Until today, Hotelkamerveiling.nl continues to search for growth through the addition of new hotels, new geographic locations and even new product groups as wellness. In 2011, when the organization hired a lot of extra personnel to improve existing functionalities and to secure its position. Since 2014, the organization is quite stable, and this is where it moved to the success stage.

The number of transactions that the platform facilitated throughout the years is presented in the line graph. It took ~3 years to achieve a volume of 300K auctions won (De Telegraaf, 2011). In the next 3 years, they facilitated another 700K auctions (average of 233K per year) and in the next 6 years, another 3 million (500K per year) ((AD/Rotterdams Dagblad, 2014)); (Hotelkamerveiling, 2020a)). Exact numbers per year are not available, but this trend does show the gradual and continued growth of the organization. Also, no revenue or profit figures have been published, so these have been excluded from this analysis.

Figure 1. Timeline

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Auctions/Transactions HV	1			300K total			1M total						4M total

Figure 2. Transactions

Introduction stage

Hotelkamerveiling.nl solved the critical mass problem by taking on the role of the complementor. As hotel owner themselves, they also had available rooms left (Hotelkamerveiling, 2020a). It made sense that the initial offering consisted of their own hotel room. They however waited until they also found two more hotels that were willing to join, before they launched the auction platform (Hotelkamerveiling, 2020a). For end users, the bait consisted of a hotel room booking at a very attractive price, usually 40-60% lower than through booking websites (Verhoeven, 2016). Fun however is also mentioned as a factor as the bidding process is perceived as a game (Metro, 2010). Complementors on the other hand were a bit more careful and more difficult to attract initially. “No way I’m going to auction my rooms” is what they said (De Gelderlander, 2010). They had to be approached actively and they needed to be convinced before they were willing to participate. For this reason, the complementors clearly formed the bait for the end-users as they were more difficult to get on board.

During the launch of the first auctions, it looks like Hotelkamerveiling.nl faced the ghost town problem. The first auction was sold for only €1, which assumed that only one end user was on the website at that moment (Speerstra, 2009). This could also have been caused by the limited supply of only three hotels. The organization however did not mind this as the winner eventually became an important first ambassador who spread the word to others. Soon after, the snowball began to roll and more end users were attracted, who in turn attracted more hotels that were willing to join. After one year, in 2009, the first hotel chain was attracted the platform (Sandton) and the supply increased (Hotelkamerveiling, 2020a). This is when it truly achieved critical mass. In 2010, they launched their first radio campaign which is when end users were attracted at a larger scale (Hotelkamerveiling, 2020a).

Growth stage

Regarding tools, the platform has various tools to make cooperation easier for complementors. First, the platform took over the whole reservation process (Hotelkamerveiling, 2020a). This saves the complementor a lot of time. One condition for this to work, is that the complementor submits the availability of their rooms. Hotelkamerveiling.nl offers two solutions for this (Hotelkamerveiling, 2020b). First, hotels can submit their availability by email after which Hotelkamerveiling will update their website. Second, Hotelkamerveiling has facilitated a connection which connects the systems of both organizations. This way, complementors can almost submit their data themselves, which is much faster and also more efficient. Lastly, Hotelkamerveiling.nl has opened an option through which complementors can add auctions to the website by themselves.

For end users, Hotelkamerveiling.nl writes that is has a continuous focus on improving user experience and ease of use of their website. Examples of their efforts are the wide variety of offerings of hotel rooms, an easy to use and clear website, the booking reservation system, bidding credit for instant payment and the Facebook plugin for fast account creation (observation). Another nice feature is that you can select a date for when you like to book a hotel and the website shows you all available options.
Regarding the magnet, it is not completely clear from desk research what Hotelkamerveiling.nl does to attract complementors. As the complementor side is the bait side and as it is mentioned that most complementors need to be convinced, it makes sense to assume that Hotelkamerveiling.nl must be the initiator for contact with complementors. This means that it is more likely that Hotelkamerveiling contacts complementors than the other way around. One does not rule out the other, however. On their website they do emphasize the advantages of a cooperation for complementors, which are very wide (Hotelkamerveiling, 2020b). These are the optimization of hotel capacity, no costs to setup a partnership, Hotelkamerveiling.nl takes ownership of the reservation process, the complementor decides when they would like to receive guests, guaranteed reservations (cancellations are not possible) and free use of media campaigns (newsletter, Facebook, advertisements on tv and radio).
Hotelkamerveiling.nl aims to attract end users through advertisements, radio campaigns, word-of-mouth and promotions (discount coupons)((Hotelkamerveiling, 2020a); (Speerstra, 2009); (Spydeals, 2020); (Acties.nl, 2020)). As with most platforms, they also must ensure a wide and attractive offering of hotels and wellness accommodations. In the beginning, the offering consisted of mostly Dutch hotels, but nowadays they also offer accommodations in other European countries (see figure 3). All hotel arrangements are based on bed and breakfast for two people. This is a decent offering for most travel companions and gives clarity as it avoids a wild growth of different packages and conditions which could lead to disappointment and unforeseen extra costs for the end user.

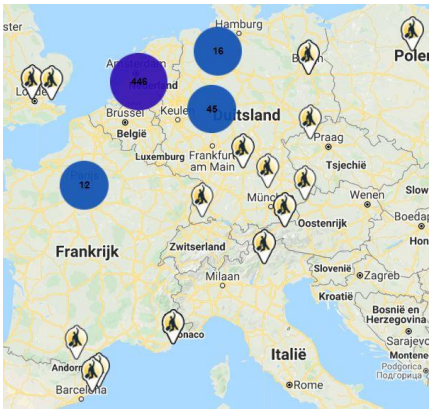

Figure 3. Accommodations on map

Hotelkamerveiling.nl does numerous efforts to bind participants to the platform. Complementors are bound through a continuous flow of customers that they would otherwise not be able to reach, who also book rooms that would otherwise remain empty (Verhoeven, 2016). Aside from that, they receive valuable consumer insight of the type of audience that they attract (De Gelderlander, 2010). They also build up reputation through the complementor review system in which end users can share experiences of their stay (Hotelkamerveiling, 2020d). End users are bound through subscription of the newsletter. This way, they get offered rooms and promotions (discounts, coupons, bidding credit) on a regular basis and they get reminded of the existence of the organization (observation).
The platform does not actively and intentionally use ambassadors. However, end users that score an exceptionally good deal, will voluntarily become ambassadors themselves. This is proved by the winner of the first auction held at Hotelkamerveiling.nl, that was won for only €1 (Speerstra, 2009). They organization off course made a loss on this transaction, but in exchange the winner spread the word

enthusiastically in her network. Winning a hotel arrangement for €1 sounds would normally sound too good to be true, but as it really happened, it gained interest of many new end users that were interested in the concept. It can be assumed that the better the deal for the end user, the higher the marketing value may be for Hotelkamerveiling.nl. A shortage of end users will decrease the final auction price, which in turn will attract more new end users that would like to benefit from this, which again will increase the price back to an acceptable and profitable level. An accidental loss giving auction may therefore not be that bad, as the possibility will increase the believe of end users that it is possible to score a very good deal.
Regarding the matchmaking function, it is not clear what the platform does to better connect complementors or end users (observation). Tracking cookies and social media plugins does enable certain mechanics, but it is unclear whether these are used at all to personalize the websites content. Many searches for hotels in the Twente area, did not result into any changes in the recommended hotels. Based on this, the website is probably not personalized, which assumes that there are no matchmaking systems are in place.
To gain trust, they show their user reviews about their website as tracked by Trustpilot (Trustpilot, 2020). This is where users and complementors can share their experiences with Hotelkamerveiling.nl. Their auctions however are not being supervised by a notary, as some other auction websites are (observation). Some end users are therefore under the impression that the booking process is somewhat unfair and that bids are being manipulated by a bot or by employees (to increase the margin and to ensure a minimum earning) (Trustpilot, 2020). The owners however mentioned that hotels are not allowed to bid on their own auctions, but they do admit that in practice they could find a workaround by creating a different account. They do emphasize that this hardly happens in practice, but they are not able to prove it. Some hotel owners back this by saying that it is too time consuming to do this.
The payment process of Hotelkamerveiling.nl is very secure. End users that win an auction must pay the agreed amount to Hotelkamerveiling.nl directly. All payments are bundled centrally by Hotelkamerveiling.nl and they transfer the earnings to complementors once a month.
To conclude, Hotelkamerveiling.nl does a lot of efforts to attract and bind their complementors and end users. They successfully managed to grow their platform, increase the number of participants on both sides and to increase the number of transactions. There is still room for improvement by developing a mobile application, by using ambassadors and the use of matchmaking capabilities. Trust and security are important factors to them, but their auctions are still not supervised by a notary, which allows price manipulation.

Pricing
Hotelkamerveiling.nl earns money on both the complementor side as on the end user side. In 2011, they agreed on an 8-10% commission fee per booking (in practice ~€5), which places the risk at the complementor side (Reintjes, 2010). Nowadays in 2020, they agree on a fixed purchase price with hotel chains, which allows a flexible margin on the sale of each auction which puts the risk at the platform side (Hotelkamerveiling, 2020b). It is unclear if their complementor pricing strategy changed throughout the years, but it is clear that at least two different strategies have been applied.
On end user side, Hotelkamerveiling.nl earns money by charging a fixed fee for each transaction. In 2009 and 2011, this charge was €7,50 per hotel booking ((Radar/AvroTros, 2012) ; (Het Financieele Dagblad, 2010)). In 2020, they vary from €9,00 per hotel booking to €5,00 for wellness tickets (Hotelkamerveiling, 2020c). This shows that they experimented with different heights of the auction transaction fee. Discount coupons are offered for 'no transaction costs' or 'discount on the booking price', so this is another way in which Hotelkamerveiling.nl does experiment with various pricing strategies ((Spydeals, 2020); (Acties.nl, 2020)). It is unclear if they have charged a transaction fee from the start and therefore it can also not be concluded if they prioritized revenue generation above achieving network effects or not. What is clear, is

that the first auction was won for only €1, which means that this first auction was an investment/subsidy to attract more end users (Speerstra, 2009). Whether this strategy was intentional or coincidentally cannot be said for sure.

Governance

To ensure that the platform is not harmed from unwanted participants and behavior, Hotelkamerveiling.nl also has some gatekeeping and behavioral restriction in place. One risk for the platform could be end users that have a bad intention. They do participate in auctions and bid on lots, but they never have the intention to pay. This would drive prices up, frustrate the auction process and harm other serious participants. To avoid these end users, Hotelkamerveiling has added a cancellation fee of €25 (Hotelkamerveiling, 2020f). By Dutch law, an end user can cancel its purchase within 14 days, but to counter this, Hotelkamerveiling decided to charge this €25 to cover any costs made. This amount is made high enough to ensure that bad end users would pay heavily for their actions.

Behavior wise, there are also some instructions in place. End users can communicate on the platform through user reviews of the hotels they have visited. The only restriction that Hotelkamerveiling.nl places, is that their response should be in accordance with Dutch law and should contain only decent wordings (Hotelkamerveiling, 2020g). Cursing, discrimination or other hateful or disturbing comments are not allowed and will be changed/removed by the website moderator.

Hotelkamerveiling.nl is competing with its complementors on the platform in the sense that the platform owners also own a hotel (Hotelkamerveiling, 2020a). They also compete with participating hotels as they also have their own offerings and sales channels. Rooms offered through Hotelkamerveiling.nl are often the leftovers and less attractive rooms, so on the other hand there is not much cannibalism going on.

General note and conclusion

Hotelkamerveiling.nl successfully managed to start and grow an auction platform with a unique concept of auctioning 'otherwise remained' empty hotel rooms at a for an end user very attractive price. In 2008 they saw the potential, created a value proposition for both sides of the market and started with their own hotel as complementor. After a successful start, they managed to convince other hotels to join as complementors and they grew and achieved critical mass.

During the growth phase, they managed to attract an increasing the number of participants on both sides of the market. They succeeded in growing the number of transactions and they improved the user experience for both end users and complementors. They also expanded their offerings to hotels outside the Netherlands, but it looks like their focus remains in the Netherlands. It is unclear if they wish to further expand their operations in other countries as Belgium, Luxembourg or Germany, but until now this remained limited and could potentially cap their potential. They still have some opportunities for improvement by increasing their matchmaking capabilities, by increasing trust (notary supervision) and by developing a mobile application.

They managed to earn money at both sides of the market through commission and auction costs from the start, even though they sometimes lost money by selling a hotel booking below the cost price. By experimenting with the height of auction costs (with or without combination of coupon/discount/promotions) and fixed and flexible commission agreements, they optimized their value capture mechanism.

Regarding governance, they do various efforts in keeping the platform clean from external influences that could harm the auction process. Both gatekeeping and behavioral restrictions are placed and monitored closely to protect the platforms operations.

The platform appears to have a very healthy business model and proposition, which could also be very sustainable on the long term. The concept could also be rolled out over other countries, as many hotels share the same challenges. On the other hand, the investment that it would take to capture another

market in a different country could be too much of a risk to take. It looks like the organization is just happy and satisfied with its current position in mostly the Netherlands. For now, it does not face much competition and the market accepts to pay €9,00 as a transactions fee per booking. It is not unthinkable however that a competitor will enter the market and will try to compete on price, which could pressure the margin of Hotelkamerveiling.nl. On the other hand, as long as it manages to earn on both sides of the market, they may still have some room to spare for negotiation.

Answers to Research Questions

Section	Construct	Question number	Question	Type of question	Answers Hotelkamerveiling (Deskresearch)
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Closed	Yes, exchange of services
	Platform Origin	1.2	What was the platforms' year of establishment?	Closed	2008
	Platform Function, Goal and Size	1.3a	What is the function of the platform?	Open	To connect buyers and sellers.
		1.3b	What is the goal of the platform?	Open	Facilitate transactions between end-users and complementors
		1.3c	How many transactions does the platform facilitate?	Closed	Since 2008, more than 4 million transactions (hotelbookings) by 760000 members (accounts). Each year, they send 90 million newsletters and on facebook they have 125000 fans (followers).
	Market	1.4.1	Is the platform active in a two-sided market?	Closed	Yes
		1.4.2	Who are the complementors?	Open	Organizations. Mostly hotel chains, but also a few event organizers, leisure parks or wellness organizations.
		1.4.3	Do you segmentate complementors and do you actively select them?	Closed	Yes
		1.4.4	What complementor segments do you target?	Open	Individual hotels, hotel chains, event organizers and wellness organizations.
		1.4.5	Who are the end users?	Open	Consumers
		1.4.6	Do you segmentate end users and do you actively select them?	Closed	Yes
		1.4.4	What end user segments do you target?	Open	Consumers are differentiated on personal characteristics (age, gender, homeplace etc.) and travel party (alone, couple with/without children).
		1.4.7	Is there already a platform present?	Closed	Yes, Vakantieveiling, Ticketveiling
		1.4.8	If yes, what is their market share?	Open	Per their own words, market leader for hotelroom auctions.
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?	Closed	Existing
		1.5.2	Did this give advantages or disadvantages and in what way?	Open	Being a complementor in the startup phase is a huge advantage. Having a network in the hotel industry also proved very useful.
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Closed	No
		2.1.1b	If yes, how did they solve it?	Open	-
		2.1.1c	If no, how did they prevent it?	Open	They started with auctions for their own hotel and two others, and slowly expanded the supply side.
		2.1.2	Who was bait for who?	Closed	Complementors
		2.1.3	How did the platform attract end users?	Open	In general, to make hotels more accessible for everyone (by offering a good deal). Through word-of-mouth by succesful auction winners.
		2.1.4	How did the platform attract complementors?	Open	Through the personal network and through cold acquisition. It required some effort to convince early complementors to participate.
		2.1.5a	Did the platform face the ghost-town problem?	Closed	Yes
		2.1.5b	If yes, how did they solve it?	Open	They did not mind. The first auction was sold for €1 at the hotel of the owners. The winner was so enthusiastic, that she voluntarily became an ambassador and she spread the word in her hometown, which led to more bidders.
		2.1.5c	If no, how did they prevent it?	Open	-
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Closed	Yes
		3.1.1b	If yes, which? What were the developments over time?	Open	Take over the booking and reservation process. Complementor has to inform Hotelkamerveiling about availability (by email or through coupled system). Auctions are binding, so sold auctions are guaranteed bookings. Option on the website for Complementors can add their own auction to the website.
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Closed	Yes
		3.1.2b	If yes, which? What were the developments over time?	Open	Continous effort to improve user experience (ease of use) and by through a wide variety of different offerings. Calendar with available booking dates is visible in the auction screen. Facebook plugin for account creation, bid-credit for instant payment. No mobile application though.
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Closed	Yes
		3.2.1b	If yes, what?	Open	By offering a wide range of hotel/wellness arrangements at a much lower price, through an exciting auction system. Through advertisements, radio campaigns, word-of-mouth and through promotions (discount coupons).
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If	Closed	Yes
		3.2.2b	If yes, what?	Open	Help to optimizate hotel capacity. No costs to setup a partnership. Hotelkamerveiling.nl takes ownership of the reservation
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	Yes
		3.2.3b	If yes, what?	Open	Complementors: A continous flow of customers that they would otherwise not be able to reach for rooms that would stay empty anyway. Consumer insight. A reputation/review system. End users: Through newsletter subscribers. By offering bidding credit, vouchers and discount coupons.
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Closed	No
		3.2.4b	If yes, who?	Open	However, end users that score a very good deal usually become voluntary ambassadors, as they spread the word.
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	No
		3.3.1b	If yes, what?	Open	Website is not personalized. Recommended hotels are not updated based on earlier search queries.
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Closed	Yes
		3.4.1b	If yes, what?	Open	Trust: Trustpilot review for Hotelkamerveiling itself. Hotels are not allowed to participate in auctions. Auctions are not supervised by a notary. Security. Payments by end users are addressed toHotelkamerveiling.nl. Complementors are paid on a monthly basis. This is very safe, as there is no third party involved.
Pricing strategy (What is the platforms' pricing strategy?)	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Closed	Not clear
		4.1.1b	And why?	Open	In 2008: Not clear. In 2011: 8-10% commission as fee from complementors.
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Closed	Money side
		4.1.1d	And why?	Open	In 2020: A fixed purchaseprice per accomodation is discussed. Looks like Hotelkamerveiling.nl changed strategy by taking the risk themselves. No costs are charged for setting up a cooperation.
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2b	And why?	Open	In 2011: €7,50 auction costs per transaction for hotels. It is unclear if this charge was there from the start.
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2d	And why?	Open	In 2020: €9 auction costs per transaction for hotels, €5 auction costs for some wellness organizations.
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Closed	Yes
		4.2.1b	What worked good and what did not work good?	Open	At complementor side: fixed commission (low risk) versus fixed purchase price (high risk). At end user side: They experimented with a 'buy now' button. They also experimented with different heights of the auction transaction fee. Discount coupons are offered for 'no transaction costs' or 'discount on the booking price'.
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Closed	No
		4.3.1b	And why?	Open	Purely based on the first auction, that was sold for €1 (against a loss), it looks like that they were willing to take a loss to achieve platform growth. It is unclear if this was intended or just accepted.
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Closed	Yes
		5.1.1b	If yes, what?	Open	To ensure only serious participants, they also added a 'cancellation fee' of €25. This is to lower the risk of frustration of the auction process by those who do not have an honest intention to buy.
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Closed	Yes
		5.1.2b	If yes, what?	Open	End users are able to write reviews, but they have to be in compliance with dutch law and guidelines for good behaviour.
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	Yes
		5.2.1b	If yes, how?	Open	In the sense that the platform owners also own a hotel. Participating hotels also have their own offerings, but the rooms offered through Hotelkamerveiling.nl are often the leftover and less attractive rooms.

Appendix F – Case Study 4 – Ticketveiling.nl

Context

Ticketveiling.nl is a Dutch auction platform founded in 2011. The organization focuses on the auction of products and services. Complementors are leisure parks, wellness, zoo's, theatres, museums, party organizers and product producers that wish to sell their tickets and products (Ticketveiling, 2020a). End users are consumers or individuals that are looking for a good deal (Leidsch Dagblad, 2011). Ticketveiling.nl facilitates trade by offering the complementors' products through an auction concept on which end users can bid. Ticketveiling is part of Clear Channel, which is an outdoor advertising company (Emerce, 2016). Jeroen Hillenaar, CEO, was the driving force behind the launch of this separate organization. In 1990, he was the founder of Hillenaar Outdoor Advertising, which became part of Clear Channel International in 2001. In 2011, he thought of a unique concept in which he trades outdoor advertisement services for tickets and arrangements. These tickets and arrangements were offered on Ticketveiling.nl and the organization was able to keep the full margin.

Timeline

Ticketveiling.nl has a very straight forward timeline as shown in figure 1. It was founded in 2011 as additional service and addition to the outdoor advertisement companies of Clear Channel and Hillenaar Outdoor (Ticketveiling, 2020a);. It was launched and established very fast and with help of the sister organizations, and slowly grew throughout the years (Leidsch Dagblad, 2011). It is profitable on its own, has synergy with the activities of the sister organizations and therefore it looks like everyone is satisfied with the situation as it is (Noordhollands Dagblad, 2020). It also looks like its focus is limited to the Netherlands only and that no further geographic expansion is aspired. The founders of 2011 are also still the owners in 2020 and no external investors have been involved since then (Noordhollands Dagblad, 2020). As the whole Hillenaar group consists of only 70 employees and the main focus in on advertisement, it can be assumed that Ticketveiling.nl is ran by just a handful of employees (Noordhollands Dagblad, 2020). Further expansion is therefore only likely if the parent organization would also decide to expand to new territories. Without its parent it would need also need to attract complementors on its own and it would have to pay a full purchase price for complements (Leidsch Dagblad, 2011). This, together with the investment of creating brand awareness may be too much of a risk to take for returns that are not guaranteed. Therefore, it probably will remain in the success stage. Nevertheless, it continues to improve the website, create new promotions, and add new product groups to secure its position.

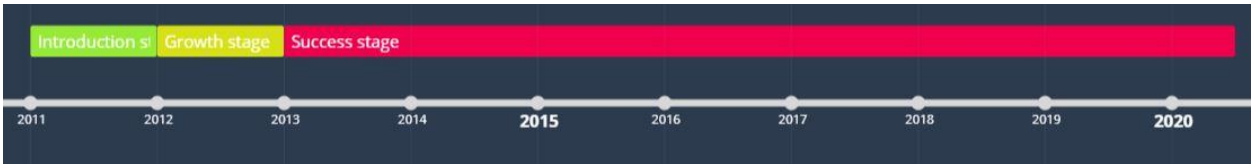

Figure 1. Timeline

Introduction stage

Ticketveiling.nl solved the chicken-and-the-egg by taking the complementors role by themselves. They acquired tickets and vouchers in exchange for outdoor advertisement and they slowly offered them on their auction platform (Leidsch Dagblad, 2011). So, in the beginning, they were the complementors who formed the bait for end users. End users were attracted through the same outdoor advertisements, but also through tv and radio commercials. More end users led to more complementors, from which the mother organization also benefitted. Since Ticketveiling.nl regulated the supply, the ghost town problem was never an issue.

Growth Stage

Ticketveiling.nl puts all offerings on their platform by themselves. There is no role for complementors in this process and so there are also no tools available. They do have tools to improve the user experience (observation). They have a quick and easy to use website and mobile phone application. All terms and conditions of the auctions (including any additional costs) are clearly mentioned at each auction page (Ticketveiling, 2020c).

As strategy to attract new users, they use advertisements on their outdoor billboards (Het Financieele Dagblad, 2014). Also, unregistered users that visit the site will immediately receive a pop-up notification with an offer for €5 discount for subscription to the newsletter (observation). With a parent organization that is expert in advertising, it is no surprise that they experimented with many other ways of advertising to attract new users. They advertised through tv commercials (various channels), radio campaigns (various stations), but also online and through their social media pages. They found out that offline advertising seemed to be the most effective and cost efficient, based on a research from marketing analysis organization Validators (Het Financieele Dagblad, 2014).

Complementors are attracted in various ways, but mainly through the duo offering with Clear Channel. Ticketveiling.nl's competitive distinctness lies in bartering, which is the trading for tickets in exchange for outside advertisement services (Ticketveiling, 2020b). They offer a wide range of advertisement solutions and they actively advise complementors which type of advertisement would be the most effective. This leads to customized solutions and unique package deals for each complementor. Ticketveiling.nl states that they try to create a win-win situation for each complementor and that they try to be as flexible as possible in this process. Complementors are mostly ticket agencies and event organizers that are already in the network of Clear Channel and Hillenaar Outdoor. Therefore Ticketveiling.nl does not need many employees to actively recruit new complementors, as their colleagues of the marketing organizations bring in most leads (Noordhollands Dagblad, 2020).

They try to bind users with regular promotions as Firstday Funday (no transaction costs on 1st day of the month) (Ticketveiling, Firstday Funday, 2017) and Super Sunday (no transaction costs on random Sundays) (Ticketveiling, 2018). The same concept is repeated regularly for sauna's or circus only and shared on coupon/discount websites as well (Pepper, 2020). In December 2019, auction winners could 'spin the wheel' which would guarantee a price from €5 up to €100 (Ticketveiling, 2020g). They have an active blog with news and tips for activities (Ticketveiling, Blog, 2020h). Complementors can get extra attention here.

Trust is gained through a specific mention in the FAQ section in which they emphasize that the auctions are fair ("Complementors and employees are excluded from participation") (Ticketveiling, 2020e). They however do not have the supervision of a notary that other platforms do have, so this statement cannot be proven. They state that reliability is important for them and they also refer to Trustpilot review rating and a Thuiswinkelwaarborg certificate ((Ticketveiling, 2020e); (Trustpilot, 2020)).

Not much is mentioned about efforts to improve security. The only mention is in the FAQ section on their webpage, which states that their website is protected with an SSL certificate, which is very standard (Ticketveiling, Klantenservice, 2020e). Regarding user details, they refer to their privacy policy, which is also quite standard.

Pricing

Ticketveiling.nl has chosen to earn money on both sides of the market. On the complementor side, Ticketveiling.nl can earn in two ways (Ticketveiling, 2020b). First, if the organization has acquired the tickets/vouchers/products from complementors themselves, then they basically take the full margin on the products. A second option, when complementors are not interested in outdoor advertisement services, then Ticketveiling.nl take an agreed amount of commission on each sale. It can be assumed that especially in the early days, the risk was fully on the shoulders of Ticketveiling.nl. It was possible that

auctions were sold way below the actual value, so in one way they subsidized at the complementor side by taking the risk of a loss.
On the end user side, Ticketveiling.nl earns through transaction costs (€5,00 per transaction) for tickets/vouchers and through additional shipping costs for products ((€3,95 - €5,95) (Ticketveiling, 2020c); (Ticketveiling, 2020d)). Ticketveiling.nl did not prioritize critical mass over revenue generation as they earned money from the start. On the other hand, however, they did have the advantage of access to a large network of complementors from Clear Channel. The bait side was already attracted. At the end user side, they do however waive the administration fee (transaction costs) for the first purchase, which can be seen as a one-time subsidy (observation).

Governance
Regarding openness, the platform is not very clear about its rules and guidelines for the platform participants. It is unclear what gatekeeping mechanisms are in place and it is also unclear what behavioral restrictions are in place. Ticketveiling.nl does compete with complementors as they basically offer complementors products at a reduced price. Complementors also offer their products by themselves and through different sales channels. Furthermore, Ticketveiling also sells products from events that are hosted by sister organizations (Leidsch Dagblad, 2011). These events also compete with events offered by complementors.

Conclusion
Ticketveiling successfully managed to start and grow an auction platform. With the help of the parent organizations network, they quickly managed to fill up the complementor side of the market. Then, they also successfully managed to attract end users, and slowly grew to a stable organization that still exists after 9 years. They key strength of Ticketveiling.nl is the synergy created with the outdoor advertisement products of Clear Channel. This way, they share sales employees to attract complementors for Ticketveiling (and end users for Clear Channel). They also benefit from higher margins on ticket auctions, as they earn more than just a fixed percentage of commission. The cooperation is also a weakness, as Ticketveiling.nl would probably not be able to survive on its own. It also limits it growth possibilities to other geographic territories, as it does not have the complementor and advertisement network yet. The only alternative would be to invest heavily in building a new organization from scratch, but that is probably one bridge too far. Ticketveiling.nl is therefore expected to remain present in the auction market in its current shape, as long as Clear Channel will be active in the advertisement market.
Truly critical for the success were the sister organizations of Clear Channel and Hillenaar Outdoor. Early access to complementor goods at a very interesting rate helped to overcome the critical mass problem very easily. From there on, they successfully secured their position by investing in the right things during the growth stage (toolbox and magnet functions).

Answers to Research Questions

Section	Construct	Question number	Question	Type of question	Answers Ticketveiling (Deskresearch)
General Information (Setting/ Context of the platform)	Platform Type	1.1	Does the platform meet the criteria of a transaction platform?	Closed	Yes, exchange of goods and services
	Platform Origin	1.2	What was the platforms' year of establishment?	Closed	2011
	Platform Function, Goal and Size	1.3a	What is the function of the platform?	Open	To connect buyers and sellers.
		1.3b	What is the goal of the platform?	Open	Facilitate transactions between end-users and complementors
		1.3c	How many transactions does the platform facilitate?	Closed	Not clear
	Market	1.4.1	Is the platform active in a two-sided market?	Closed	Yes
		1.4.2	Who are the complementors?	Open	Organizations. Leisure parks, wellness, zoo's, theatres, museums, party's and product producers. Regular ticketagencies.
		1.4.3	Do you segmentate complementors and do you actively select them?	Closed	Yes
		1.4.4	What complementor segments do you target?	Open	All ticketagencies, but also product producers.
		1.4.5	Who are the end users?	Open	Consumers
		1.4.6	Do you segmentate end users and do you actively select them?	Closed	Yes
		1.4.4	What end user segments do you target?	Open	Mostly females, as they usually organize day outs for the family.
		1.4.7	Is there already a platform present?	Closed	Yes, Vakantieveilingen
		1.4.8	If yes, what is their market share?	Open	They are marketleader
	New or existing party	1.5.1	Is the platform founded by a new or existing organization?	Closed	Existing
		1.5.2	Did this give advantages or disadvantages and in what way?	Open	Clear Channel / Hillenaar Outdoor
Introduction stage (How do platforms solve the critical mass problem?)	Critical mass	2.1.1a	Did the platform face the the chicken-and-the-egg problem?	Closed	Yes
		2.1.1b	If yes, how did they solve it?	Open	They already had a network of complementors from their marketing branch, so they had to focus on attracting end users to their auction platform. They also offered tickets for events from their sister organization (Kamasutra fair, Wintercircus and the 'Nationale Wensbon'). Extra product offerings were purchased at a lower price and offered for sale through an auction.
		2.1.1c	If no, how did they prevent it?	Open	-
		2.1.2	Who was bait for who?	Closed	Complementors
		2.1.3	How did the platform attract end users?	Open	"The whole Hillenaar imperium was used to give Ticketveiling a kickstart." They purchased tv commercials, but also used outdoor advertisements.
		2.1.4	How did the platform attract complementors?	Open	From their own network. Through their marketing and advertisement business
		2.1.5a	Did the platform face the ghost-town problem?	Closed	Not clear
		2.1.5b	If yes, how did they solve it?	Open	-
		2.1.5c	If no, how did they prevent it?	Open	-
Growth stage (How do platforms attract, bind, facilitate and connect its participants?)	The toolbox	3.1.1a	Does the platform provide any tools, which makes it easier to connect to the platform? (Yes/No)	Closed	No
		3.1.1b	If yes, which? What were the developments over time?	Open	They basically put all complementor content on the website by themselves.
		3.1.2a	Did the platform do anything to make it easy to use for buyers? (Yes/No)	Closed	Yes
		3.1.2b	If yes, which? What were the developments over time?	Open	Quick website, good working mobile app and clear product categories. Also, clear terms, conditions and extra costs.
	The magnet	3.2.1a	Does the platform have a strategy for attracting users? (Yes/No)	Closed	Yes
		3.2.1b	If yes, what?	Open	Pop-up, sign up for newsletter and get €5 discount. They experimented with tv, radio and online commercials. Outdoor advertisements (next to the highway) seem to be the most effective as it lures back existing customers to participate in another auction.
		3.2.2a	Does the platform have a strategy to attract complementors? (Yes/No) (If	Closed	Yes
		3.2.2b	If yes, what?	Open	By aiming for a win-win situation for both Ticketveiling.nl as for the complementor.
		3.2.3a	Does the platform have loyalty/reputation/giveaway systems in place to bind participants? (Yes/No)	Closed	Yes
		3.2.3b	If yes, what?	Open	Quite some promotions as Firstday Funday (no transaction costs on 1st day of the month) and Super Sunday (no transaction costs on random sundays). The same concept is repeated for sauna's or circus only. In december 2019, auction winners were allowed to 'spin the wheel' which would guarantee a price from €5 up to €100. They have an active blog with news and tips for activities. Complementors can get extra attention here.
		3.2.4a	Does the platform make use of ambassadors? (Yes/No)	Closed	No
		3.2.4b	If yes, who?	Open	-
	The matchmaker	3.3.1a	Does the platform do anything extra to connect buyers and sellers? (Yes/No)	Closed	No
		3.3.1b	If yes, what?	Open	The webpage or mobile app do not seem to be personalized.
	Trust	3.4.1a	Does the platform offer to build trust and security to its participants? (Yes/No)	Closed	Yes
		3.4.1b	If yes, what?	Open	Trust: Trust is gained by prohibiting complementors and employees from participation in auctions. Auctions are not supervised by a notary. User reviews are mentioned on Trustpilot. Ticketveiling has a Thuiswinkelwaarborg certificate.
Pricing strategy What is the platforms' pricing strategy?	Money side vs. subsidy side	4.1.1a	Which pricing strategy did the platform use for complementors in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.1b	And why?	Open	They use two earning models. First, they get commission on each sale. Second, they offer marketing promotions in exchange for lower purchase prices (higher margins on sales).
		4.1.1c	Which pricing strategy did the platform use for complementors in the growth phase? (Money or Subsidy side?)	Closed	Money side
		4.1.1d	And why?	Open	Same as startup phase
		4.1.2a	Which pricing strategy did the platform use for end-users in the startup phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2b	And why?	Open	Transaction costs (€5,00 per transaction) for tickets/vouchers. Additional shipping costs for products (€3,95 - €5,95)
		4.1.2c	Which pricing strategy did the platform use for end-users in the growth phase? (Money or Subsidy side?)	Closed	Money side
		4.1.2d	And why?	Open	Same as startup phase
	Experiment	4.2.1a	Did the platform experiment with various pricing strategies?	Closed	Yes
		4.2.1b	What worked good and what did not work good?	Open	At complementors side they have experimented a lot by trading complements for marketing promotions. At end user side, they experiment with the removal of transaction costs during promotions. Both seems to work fine, as both strategies are still used in 2020. It is not clear if any other strategies have been used which did not work out well.
	Priorization	4.3.1a	Did the platform prioritize 'achieving critical mass' prioritize over revenue generation?	Closed	No
		4.3.1b	And why?	Open	First auction wins were for free, but after, end users had to pay for administration costs. Immediate revenue generation at the user side. At the complementor side, they may have had to invest a lot in the beginning as the concept was not proven yet.
Governance strategy (How do platforms manage their ecosystem?)	Openess	5.1.1a	Does the platform have a gatekeeping control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.1b	If yes, what?	Open	No systems have been found
		5.1.2a	Does the platform have a behavioral control mechanism in place (prescribed criteria)? (Yes/No)	Closed	No
		5.1.2b	If yes, what?	Open	No systems have been found
	Compete	5.2.1a	Does the platform compete with complementors? (Yes/No)	Closed	Yes
		5.2.1b	If yes, how?	Open	They compete with other auction websites and discount platforms that offer the same tickets. They also compete by offering tickets from their own events.