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Two-sided Cybermediary Platforms: The Case of Hotel.de

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ABSTRACT (REQUIRED)

The market for hotel room accommodation is highly fragmented on the supply-side as well as on the demand-side. Online booking platforms such as booking.com or hotel.de bring together hotels and their customers. Hotels and booking customers are the main customer groups of the platform. This paper explores the business model of a large online hotel booking platform, hotel.de, using a case study approach. By serving two customer groups simultaneously, hotel.de has to deal with the specific dynamics that unfold on the two sides of its platform and align its business model accordingly. The results reveal that hotel.de maintains two distinct business models for the two customer groups, offering a unique set of value propositions to each of them. A third, overarching business model links the two sides by simultaneously solving both sides' specific problems and creating a match between booking customers and hotels.

Keywords (Required)

Multi-sided Market, Platform, Cybermediation, Business Model, Tourism Market.

INTRODUCTION

Information technology and the Internet have changed market structures across many industries. One of the most heavily affected industries is the travel- and tourism industry, whose complex, information-intensive product distribution infrastructures involve a high degree of intermediation. Early forecasts predicted a move towards direct links between sellers and buyers in markets (Benjamin and Wigand, 1995; Malone, Yates and Benjamin, 1987). Predictions were rebutted as intermediaries with innovative, IT-enabled business models – cybermediaries – entered markets and provided linkages that could even be cheaper than direct links between market actors (Sarkar, Butler and Steinfield, 1995). Cybermediaries fulfill various market functions such as search, product information, price discovery, settlement and trust (Bakos, 1998; Giaglis, Klein and O'Keefe, 2002).

A two- or multi-sided market platform can be seen as a particular instance of a cybermediary. Platforms provide services to multiple distinct customer groups, each of which uses the services of the platform for their own purposes. Furthermore, the different customer groups of the platform influence each other through their size, usage patterns and group structure. Platform cybermediaries that address sellers and buyers of products and services thus create two- or multi-sided markets, which differ from traditional markets by exhibiting a momentum of their own that results from the interdependencies between the different customer groups. This dynamic creates specific challenges for the design of the business model of the cybermediary who is the platform provider. The research field looking at platform dynamics is a relatively young one. Being largely rooted in the economics domain, existing work on platforms mainly examines singular phenomena such as efficient pricing for the platforms' services in a monopoly situation (Caillaud and Jullien, 2003; Jullien, 2005). Another research stream looks at how network effects unfold on platforms and what strategies have an influence on them (Parker and Van Alstyne, 2005). Evans et al. (2006) introduce the metaphor of the "invisible engine" of multi-sided platforms and how the demand-oriented "pull"-effect of platforms replaces the rather static way of allocating resources used by more traditional "push"-approaches. Due to users interacting with each other in a rather emergent and modular way, platforms develop growth dynamics on their own which is profoundly different from the one exhibited by more traditional business models such as retailers (Evans, Hagiu and Schmalensee, 2006).

There is little understanding, however, of how the described effects are reproduced in real world business models and how these business models are designed in order to trigger the desired effects and prevent the undesired ones. The goal of this paper is to create an understanding of how business models of multi-sided cybermediary platforms are designed and how they incorporate the platform effects that are described by the diverse theories on multi-sided platforms. For this undertaking, the business model of a real-world example of a large online hotel booking platform, hotel.de, was extensively studied and serves as an illustrative case. The analysis unveils the specific design of the business model of hotel.de and its distinctiveness as a two-sided platform.

The article proceeds as follows. In the following section, the prevalent literature on platforms and business models will be reviewed. The next section describes hotel.de and its business model. The subsequent discussion reflects the results and discusses the implications of how two-sidedness affects the business model of hotel.de. The last section concludes the article and gives implications for future research.

LITERATURE REVIEW

The Dynamics of Multi-sided Platforms

A two- or multi-sided platform is defined as “an organization that creates value primarily by enabling direct interactions between two (or more) distinct types of affiliated customers” (Hagiu and Wright, 2011). One type of platform customer could be suppliers and providers of goods and services, another type end consumers, and a third type third-party providers. In contrast to a retailer, a platform does not own any of the goods and services that are exchanged between the different customer groups, but merely enables direct transactions between the different groups by matching them (Hagiu, 2007). A platform thus resembles a cybermediary that connects different market participants with each other. A distinct feature of a platform, when compared to a retailer, is that the different types of customer groups influence each other. On a platform, the attractiveness of the platform for one user group often depends on the size and structure of another customer group (cross-side network effects), or of the same user group (same-side network effects). Network effects can be positive and negative. For consumers, it is valuable to find a high number of suppliers on the platform (as this increases market transparency), as well as a high number of other consumers (as this increases buying power and can enable an effective information exchange between consumers). Suppliers on the other hand value a high number of potential customers, but prefer a low number of suppliers in order to decrease competition and thus increase average price levels (Eisenmann, Parker and Van Alstyne, 2006).

Platform providers have to carefully implement pricing strategies that take into account one customer types’ willingness to pay, which in turn largely depends on the size and attractiveness of the other customer types that are affiliated to the platform. The basic pricing mechanisms are registration and transaction fees. Registration fees are charged once, granting a customer access to the platforms’ services for a certain period of time. Alternatively (or in addition), transaction fees can be charged upon creation of a direct link between two platform customers. Often one side of the platform is subsidized, while the other side has to pay fees for using the platforms’ services. The idea behind this is that the subsidized side grows faster, thus creating cross-side network effects by attracting customers on the “money-side” of the platform (Eisenmann et al., 2006; Jullien, 2005).

Another important aspect regarding platforms is the competition between different platforms. Depending on the specific market, several platforms might be able to exist next to each other. If platform customers can affiliate to several platforms, this is called “multi-homing”. If the costs for multi-homing are low, customers are more likely to register on more than one platform. Suppliers might offer their goods and services on several platforms at the same time if homing-costs on the potential platforms are low (Jullien, 2005). When technologies are non-exclusive and come at a low (marginal) cost, it is likely that several platforms serve the different customer types in a market, leading to a situation that Caillaud and Jullien (2003) call “global multi-homing” (Caillaud and Jullien, 2003).

The Business Model as Analytical Lens

Timmers (1999) defines a business model as “an architecture for product, service and information flows, including a description of the various business actors and their roles” (Timmers, 1999). This understanding emphasizes that a business model on the one hand describes how a company creates value from a holistic (end-to-end) point of view and on the other hand takes the environment into account by including a description of the inter-organizational relationships between the company and related business actors, who in some way contribute to the value creating processes (Papazoglou and Ribbers,

2006). The business model concept has been used for different purposes: For understanding and sharing the business logic of a firm or undertaking with others, for analyzing this business logic, for managing a company successfully by implementing the right business logic, and for innovating and increasing readiness for the future by designing an appropriate business model (Osterwalder, Pigneur and Tucci, 2005). For the purpose of this study, the business model concept is used as an analytical lens that enables a better understanding of the different parts of a platform cybermediary's business model. A detailed picture of the business model of such a platform enables a profound understanding of how the platform operates and a targeted identification of specific platform aspects within the business model (Osterwalder and Pigneur, 2010; Osterwalder et al., 2005).

A business model consists of different parts, each of which addresses a crucial element that must be well considered and aligned with the other elements in order for the business model to be successful. Osterwalder et al. (2005, 2010) distinguish nine building blocks of a business model (Osterwalder and Pigneur, 2010; Osterwalder et al., 2005). These nine building blocks can be subsumed into 4 pillars: Product, customer interface, infrastructure management and the financial aspects that are addressed by a business model (Osterwalder et al., 2005). Table 1 summarizes the four pillars and nine building blocks.

Pillar	Business Model Building Block	Description
Product	Value Proposition	Gives an overall view of a company's bundle of products and services and how they create value for customers.
Customer Interface	Target Customer	Describes the segments of customers a company wants to offer value to.
	Distribution Channel	Describes the various means of the company to get in touch with its customers.
	Relationship	Explains the kind of links a company establishes between itself and its different customer segments.
Infrastructure Management	Value Configuration	Describes the arrangement of activities and resources.
	Core Competency	Outlines the competencies necessary to execute the company's business model.
	Partner Network	Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialize value.
Financial Aspects	Cost Structure	Sums up the monetary consequences of the means employed in the business model.
	Revenue Model	Describes the way a company makes money through a variety of revenue flows.

Table 1: The building blocks of a business model used as analytical lens for this study. Source: Adapted from (Osterwalder et al., 2005).

THE ONLINE BOOKING PLATFORM HOTEL.DE

Research Method

The researcher followed a qualitative approach for gathering and analyzing the necessary data. The website of hotel.de offers extensive information to the different customer groups of the platform and was used as an information source. In addition, more than 370 press releases issued by hotel.de between November 2001 (the foundation date of hotel.de) and February 2012 were analyzed. The press releases include information about every major event in the history of hotel.de (e.g., the acquisition of new strategic partners, the introduction of a new technology, the general development of the company, etc.). The compulsory annual reports of the last 4 years were also analyzed to derive information on the business model. The press releases and annual reports were coded using a coding scheme that was derived from the research questions and the theoretical framework presented in section 2. The codes provided a means to manage the large amount of data and identify

the relevant elements that were needed for this paper. A semi-structured expert group interview with 3 decision makers at hotel.de was conducted after the analysis of the material was finished. The group interview served to fill information gaps and triangulate the secondary data.

The Online Booking Platform hotel.de

hotel.de was founded in 2001 and evolved to be the second largest online hotel booking platform in Germany. With its domain "Hotel.info" the company also addresses customers outside Germany. The website of hotel.de is available to booking customers in 37 languages and available in 14 languages to hotels as room suppliers. Over the course of 10 years, hotel.de exhibited a remarkable growth in terms of volume of bookings, number of booking customers, number of affiliated hotels and revenue. Especially in the first years after 2001, numbers doubled every year. While the booking volume on the platform amounted to 27 Mio Euros in 2003, bookings of nearly 400 Mio Euros were conducted in 2010. The number of booking customers grew steadily to 4,2 Mio in 2010 (of which 2,8 Mio were private booking customers). 210.000 hotels can currently be booked via hotel.de.

Over the course of time, the platform went into cooperative relationships with a variety of strategic partners on the hotel-side, as well as on the booking customer side of the platform. Especially in the beginning, contracts with customer reservation systems of hotel chains were signed, allowing hotel.de to access a large number of hotels via one single interface. Over the years, more and more hotels registered directly on the platform. For increasing the reach of the platform towards booking customers, several strategic partnerships with travel-related websites were made, e.g. with destination sites, the German national railways website and travel agency chains.

The Two-Sided Business Model of hotel.de

hotel.de provides a variety of services to its two main platform customer groups, booking customers and hotels. While the central value creating activity of hotel.de is the matching of supply (i.e., hotel rooms) and demand (i.e., booking customers), the distinct service portfolios for the two sides reflect two different sets of value propositions. These are adapted to the specific problems the two customer groups are facing when acting in the market. To *booking customers*, hotel.de provides a hotel room search engine with extensive search functionality. Booking customers can search for hotel rooms according to a variety of search criteria like location, time period, number of persons, hotel category, hotel services available and others. The goal is to enable booking customers' to express their travel preferences and find appropriate accommodation. Extensive hotel descriptions and pictures support decision making. Customers can also base their decisions on hotel evaluations made by other customers after their stay. The actual booking is conducted on the platform, but payment and settlement are usually handled with the hotel after the stay. In addition to the website, hotel.de provides various technical interfaces to its booking engine. These can be integrated into ERP-systems, travel management solutions and the Intranet sites of corporate customers. They also get access to corporate discounts that hotel.de negotiates with hotels and can, amongst other things, specify booking rules for their employees, integrate their own negotiated rates and produce various statistics. By offering this bundle of services to corporate booking customers, hotel.de establishes itself as a professional solution for corporate travel management. In addition to the above mentioned services, hotel.de runs a call center, so booking customers can call in and book via the telephone when they are en route or unfamiliar with Internet bookings.

To *hotels*, hotel.de provides the possibility to enter extensive hotel information and availabilities into the central hotel database and become listed and thus searchable on the platform. Hotels only need to enter hotel descriptions in one language. hotel.de then translates the content to all other 36 platform languages. hotel.de tries to negotiate best price guarantees with hotels, meaning that the hotel is not allowed to offer the room at a lower price through a different channel. The platform provides several means for accessing the hotel database. Hotels can log-on to the website of hotel.de and use the platform's own reservation tool, "myRes", which offers extensive functionality for administrating the hotel description including pictures, availabilities and the actual booking process. Furthermore, hotel.de has signed contracts with providers of more than 80 channel management systems (CMS). Interfaces to myRes were integrated so that hotels using these CMS do not have to attend to several systems.

Corporate booking customers and hotels have to register and thus enter into a contractual relationship with hotel.de if they want to use the specific services that the platform offers to them. Private booking customers can book hotel rooms without registering, but have to accept the terms and conditions.

hotel.de maintains an affiliate partners program which increases the platform's reach toward booking customers by giving other travel-related websites such as meta search engines (e.g. kayak), destination websites (e.g. graztourism.at), and even travel agencies access to the hotel database on a commission basis. In addition, the hotel database is connected with the

Global Distribution System (GDS) Amadeus. The GDS is used as an additional distribution channel for hotel rooms, as many online and offline travel agencies use Amadeus for searching the hotel market.

hotel.de maintains a transaction-based revenue model. The average commission currently amounts to about 12 % of the room price. The commission model is layered: Hotels can influence their position in the search results by becoming a preferred or premium hotel. Preferred or premium hotels pay more commission for getting a top ranking and a high position in the search results (cf., Riemer and Lehrke, 2009). In addition, hotels can bid for a top ranking in an auction. Booking customers, on the contrary, do not have to pay for using the services of hotel.de. Extensive marketing efforts towards hotels and large corporate customers and the development and maintenance of the necessary IT infrastructure are major cost factors for hotel.de.

DISCUSSION OF THE BUSINESS MODEL

One can ask whether hotel.de can be classified as a platform according to the definition given earlier. hotel.de has two main *distinct customer groups*, which use the platforms' services in different ways: Booking customers and hotels. While booking customers use hotel.de as a search tool to look for and book hotels, hoteliers use the platform as an additional distribution channel. Both customer groups are *affiliated* to the platform in a way that they at least need to register on hotel.de (private booking customers are an exception; they can also book without having an account). hotel.de as platform provider establishes *direct linkage* between booking customers and hotels. When taking these preliminary considerations into account, hotel.de is therefore classified as a two-sided platform.

When looking at the services hotel.de offers to both sides of the market, it becomes apparent that the platform basically maintains distinct business models to each side of the market. The platforms' value propositions towards the two customer groups are different from each other and target the unique problems the two customer groups encounter when acting on their respective side of the market. To booking customers, hotel.de basically provides a one-stop-shopping site that creates an access to the highly complex supply-side of the market. For searching and comparing, they benefit from the extensive content and information on availabilities that hotels provide on the platform via the various channels that hotel.de makes available to them. Hotels profit from an aggregation of demand that hotel.de achieves by connecting and binding booking customers to the platform through its various distribution channels towards the booking customer side. With hotels increasingly distributing their room capacities via multiple, partly competing channels, hotel.de claims to provide a cheap alternative to fully administrate capacities in its proprietary reservation system or through an interface, including the ability to retain control over prices and to influence their own ranking in the search results by paying a higher commission. Furthermore, hotel.de accumulates knowledge about the demand-side of the market by e.g. pursuing search engine optimization strategies and thus providing hotels with a targeted access to the demand side.

By differentiating between the two sides and tailoring its value propositions to the specific needs of those on one side, the platform creates value for those on the other side, meaning customers are attracted to the platform because of the size and structure of the respective other side. The business models for the two sides overlap, as the success of one depends on the viability of the other, and vice versa. In order to make money and reap benefit from the two sides, hotel.de puts a third, overarching business model into place that addresses both sides and aims at linking them. The central value proposition of this overarching business model is based on the ability to successfully match supply and demand. This ability in turn results from the success of the two separate business models *and* the ability to create synergies from simultaneously solving both sides' problems. The core value creating process, the matching, is based on the content that hotels provide and the demand that is captured on the booking customer side. The more input (i.e., hotel content and demand) the platform receives from the two sides, the more matches (i.e. bookings) can be achieved. In addition, the quality of the content and the preciseness with which hotel.de captures the demand influence the accuracy of the matching process, i.e., the satisfaction of both sides with the match and hence the likeliness of repeated usage of the platform. In addition, a high search-to-booking conversion rate can be achieved. Therefore hotel.de needs to consider the design of these overlapping business models well. The matching mechanism and the surrounding functionality (e.g. search algorithms, payment and settlement) need to be well developed and adapted to the changing needs of the two sides. Figure 1 illustrates the overlapping business models of hotel.de.

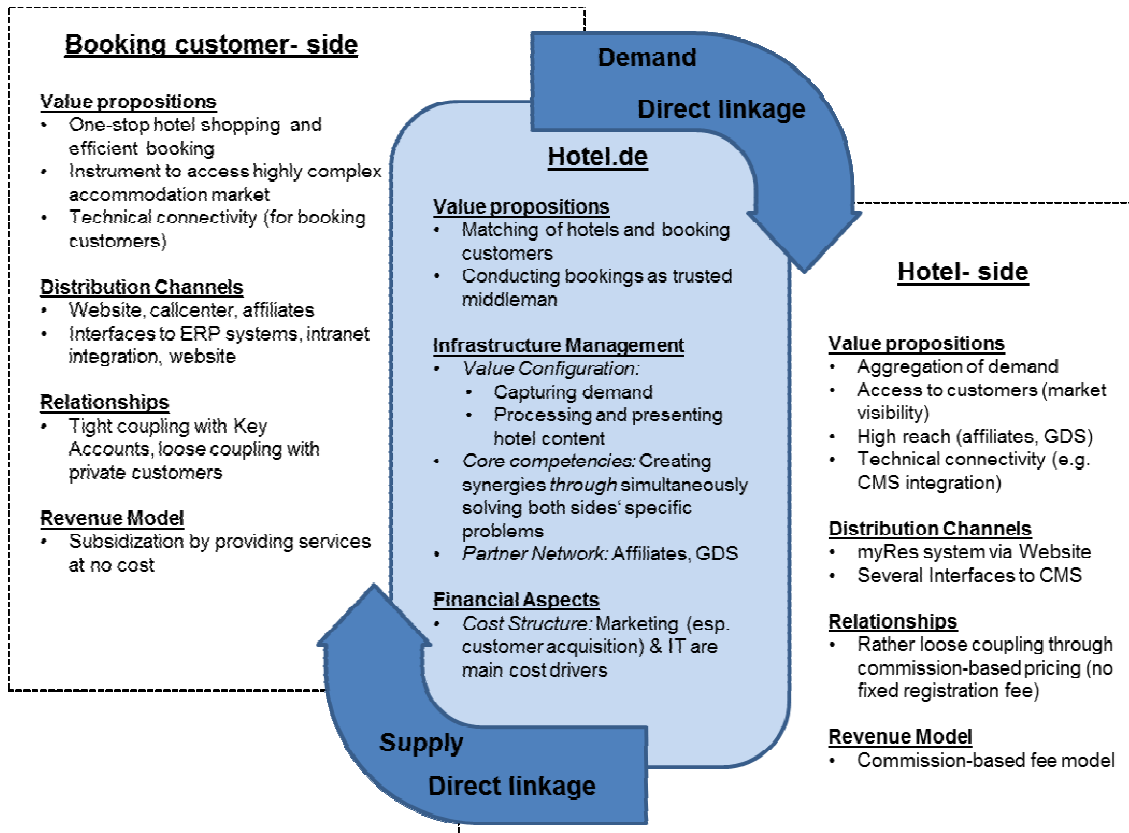


Figure 1: The overlapping business models of hotel.de

The success of the overarching business model (i.e., the revenue and profit for hotel.de as a company) depends on the number and volume of the transactions, i.e. matches, which are conducted through the platform. This means that a sufficient number of platform customers are needed on either side in order to increase the probability that a transaction will be conducted on the platform. The number of bookings is not only influenced by cross-side network externalities, i.e. by the size and structure of the respective other side of the platform, but also by same-side network externalities. A large number of previous bookings, for instance, contribute to a significant amount of customer evaluations for a certain hotel which improves decision making. While the added value of the platforms' services for its customers attracts customers of its own volition, the platform also tries to actively convince and acquire customers on both sides of the platform. The size and structure of the respective other customer side of the platform is used as an argument in acquisition efforts. When acquiring platform customers, hotel.de also needs to take into account conflicting interests and serve as a balancing instance in order to convince customers to join the platform. Hotels might not be happy about too much competition if many hotels from their region are listed. A large number of hotels is however necessary for the platform to be able to attract a high number of booking customers, which is again beneficial for hotels. The Best Price guarantee is used as an instrument for binding customers and increasing the search-to-booking conversion rate, but can create conflicts on the hotel side, as hotels might not stick to this policy and offer a lower price somewhere else.

The revenue model of hotel.de exhibits typical aspects of platform pricing models. One customer group is subsidized – the booking customers – and the other side, the hotels, pay the bills. It is interesting to notice that hotel.de does not charge any fixed amount of money (e.g. registration or annual fees). This is in line with expectations formulated in earlier work of Robles Sy and Schertler (2002), who suggested that a fixed fee pricing model, with increasing penetration of a market, would not create enough growth at some point. With a commission-based pricing model, the potential revenue exclusively depends on transaction volume and frequency, so even if all market participants would be registered on the platform, revenue can still grow if more transactions are conducted (Robles Sy and Schertler, 2002). Subsidizing the booking customer side is necessary, as they are normally not expected to pay for a hotel reservation and would not use the platform to the same extent if they would have to pay a booking fee. The extensive service portfolio offered to corporate customers is another subsidy which aims at binding this type of customer to the platform. Hotels on the other hand would be hesitant to participate on the

platform if they had to pay a fixed fee, especially if they were not sure whether they would receive a sufficient amount of bookings. With a commission-based model, hotels pay on a “per use” base. hotel.de faces major costs for marketing efforts towards the different customer groups and for the IT infrastructure. A platform like hotel.de thus faces specific financial challenges that differ from the investments that a classical retailer has to do (e.g. into warehousing and procurement).

The growth of hotel.de over the past 10 years indicates that the platform is successful with its business model. Although the matching mechanism itself and the underlying technology is rather simple and imitable, only a few companies have established comparable platform business models¹. By addressing both sides’ problems separately and hence “pulling” them to the platform, hotel.de has triggered dynamic growth that can be compared to the “invisible engine” that was mentioned in the introduction.

Although repeated innovation of the underlying information technology and extensive acquisition efforts contributed to the constantly increasing number of customers, the question remains how hotel.de managed to overcome the chicken-and-egg problem every platform is facing and how the platform managed to get off the ground in early years. While booking customers and hotels are the two main customer groups of the platform, the affiliate partners can also be seen as a distinct customer group. Although they play an important part in the business model of hotel.de, they were excluded from this analysis due to a limitation of space. A further aspect that was excluded is the competitive environment hotel.de operates in, and especially the role and influence of other cybermediaries on the business model. The main competitors of hotel.de are other online booking platforms for hotels, online travel agencies and hotels that pursue direct distribution efforts via the Internet.

CONCLUSION

While previous work studied the economics of platforms and the role of cybermediaries in markets, little research has described how cybermediary platforms design their business models. This paper illustrated how the business model of an online hotel booking platform, hotel.de, incorporates aspects that are specific to multi-sided platforms. The analysis of the business model of hotel.de revealed that the platform targeted its two main customer groups, booking customers and hotels, separately. By offering distinct value propositions which fit the needs of the two customer groups, hotel.de makes sure to attract and keep a sufficient amount of customers on the two sides. hotel.de pays special attention to defining its customer groups and carefully crafting its value propositions towards these distinct customer groups. The core value activity of hotel.de is the matching of hotels and their customers. Therefore, the platform puts an overarching business model into place, which creates value by linking the two other business models. For the matching to be successful, platform providers need to harmonize the business model towards the two sides and create synergies from the input it receives from each side (i.e., demand and content). Therefore, the success of a platform depends on a high number of valuable customers on both sides, as the size and structure of one side of the platform determines the attractiveness for the other side. hotel.de invests considerable amounts of time and money into marketing and acquisition efforts. By trying to tie booking customers to the platform through price guarantees and a high level of system integration, hotel.de seeks to establish a stable base of booking customers. hotel.de as the platform provider mitigates potential conflicts between platform customers by outweighing conflicts of interest with sufficient added value through its services.

The example of hotel.de illustrates that multi-sided cybermediary platforms have to carefully evaluate their central market position and take the effects that result from bringing different parties together on one platform into account when designing the platforms’ business model. Future research might also look into the role of multi-homing booking customers on the business model of hotel.de and different pricing strategies. Furthermore it would be interesting to study the evolution of hotel.de as a platform over time, and to investigate how hotel.de induced initial network effects and managed to reach a critical mass of users on the different sides.

¹ The business models of the various online travel agencies that exist are different, as they are usually based on bulk contracts for securing capacities.

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