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Understanding platform business models: A mixed methods study of marketplaces

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A B S T R A C T

Recent technological advances have enabled the emergence of novel business models based on digital platforms. Marketplace like Airbnb or Uber offer such digital platforms to connect previously unmatched demand-side and supply-side participants through innovative forms of value creation, delivery and capture. While countless firms claim to offer the next 'Airbnb for X' or 'Uber for Y', we lack knowledge about the defining business model characteristics of these marketplaces. To close the gap, this paper provides a conceptually and empirically grounded taxonomy of their business models. Applying a mixed methods approach, it first develops an integrative framework of marketplace business models. Guided by the framework, the research systematically analyzes 100 randomly selected marketplaces with content analysis and binary coding. The gathered data is analyzed with cluster analysis techniques to develop a taxonomy for marketplace business models. The clustering process reveals six clearly distinguishable types of marketplace business models and thus shows that there is no one-size-fits-all approach to creating, delivering, and capturing value with marketplaces and platforms in general. We characterize these distinctive types on basis of the qualitative and quantitative findings. Among others, we find that two of these types are highly aligned with business model characteristics associated with the so-called sharing economy. The findings are discussed against platform, marketplace, and sharing economy literature to contribute to a higher integration of different literature streams that are concerned with similar organizational types and phenomena.

1. Introduction

Marketplaces — such as Airbnb or Uber — open new ways for radical changes in the organization of economic activities (Parker, van Alstyne, & Choudary, 2016). Marketplaces, a rapidly emerging category of platforms (Gawer, 2014; McIntyre & Srinivasan, 2017), enable and support transactions between independent supply- and demand-side participants. Also discussed as transaction platforms (Evans & Gawer, 2016), they are characterized by their open business models that inherently rely on independent participants to co-create value. As they trigger network effects between the demand and supply side, they are particularly associated with rapid growth and the potential to dominate a market due to winner-take-all dynamics (Hagiu & Wright, 2015). As such, scholars from diverse fields have become interested in these organization types (Gawer, 2014; McIntyre & Srinivasan, 2017) and even suggest that they can become a core organizing principle for a new economy (Kenney & Zysman, 2016; Parker et al., 2016).

To date, however, there is a lack of understanding about the distinctive business model configurations of marketplaces. While scholars have been interested in internet-enabled marketplaces since the late 1990s (Bakos, 1998; Brunn, Jensen, & Skovgaard, 2002; Ordanini & Pol, 2001; Vesa & van Heck, 2005), existing literature focuses primarily on business-to-business marketplaces as institutions for efficient procurement and sourcing within established industry settings (Choudhury, Hartzel, & Konsynski, 1998; Dai & Kauffman, 2001; Giaglis, Klein, & O'Keefe, 2002). Yet, recent technological advances, such as novel search and matching algorithms or the broad diffusion of mobile devices, enabled the development of innovative marketplace business models that address diverse consumer markets, including transportation (Uber), accommodation (Airbnnb), or finance (Lending Club). Such marketplaces often provide entirely new value propositions, apply

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novel revenue models, or build on the assets of private individuals to create value (Parker et al., 2016). Their attractiveness is, among others, evidenced by more than 30 private marketplace firms that are currently valued at more than a billion dollars (CB Insights, 2017). Given these high valuations, it is not surprising that several hundred firms have launched new marketplaces over the last years, including an increasing number of new ventures that claim to provide an "Airbnb for X" or "Uber for Y". Examples range from 'Airbnb for food with strangers' (*BonAppetour*), 'Airbnb for 3D printing' (*3D Hubs*) to 'Airbnb for toilets' (*Airpnp*). In many cases, however, the meaning of these analogies remains ambiguous. As we lack a clear understanding about different types of marketplace business models, findings in related research streams – including research on the 'sharing economy' (Möhlmann, 2015; Sundararajan, 2016; Zervas, Proserpio, & Byers, 2017) or 'gig economy' (Friedman, 2014) – remains largely unconnected and isolated. As such, we observe a great need for a more holistic perspective on how marketplaces create, deliver, and capture value through their business model configurations. To address this need, we aim at exploring the distinctive types of marketplace business models through a systematic study of their elements. The paper thus aims at answering two questions: *(1) What are the business model types for marketplaces? (2) What value creation, delivery, and capture mechanisms characterize these types?*

To answer these questions, we apply a mixed methods approach. Against the background of business model, marketplace, and platform literature, we develop an integrative framework that helps us identify the elements and competing options in marketplace business models. We subsequently use the developed framework to classify the business models of 100 randomly identified marketplaces along 24 elements, employing a qualitative content analysis. In a second step, we explore the relatedness of the business models along multiple dimensions using cluster analysis techniques. The identified clusters and an in-depth analysis of representative cluster firms allow for the development of a novel taxonomy and a systematic conceptualization of marketplace business models. The study demonstrates the value of the business model concept as a unit of analysis for classifying and exploring platforms. The empirical taxonomy further contributes to the marketplace literature by shedding light on how new digital technologies broaden the options for creating, delivering, and capturing value with platforms. The article discusses how our findings relate to previous marketplace and platform literature and how they can contribute to a more integrative and holistic approach to the exploration of such novel organizational types.

2. Theory

This research focuses on marketplaces that are enabled by digital technologies. Since previous definitions often relate to marketplaces as institutions rather than businesses, we propose four conditions for classifying a firm as a marketplace. First, digital marketplaces connect independent actors from a demand and supply side (individuals or organizations) via a digital platform (Bakos, 1998). Individual actors can, however, participate in the market on both, the supply side and the demand side, and therefore do not necessarily represent different groups of participants. Second, these actors enter direct interactions with each other to initiate and realize commercial transactions. These interactions go beyond the highly automated processes in electronic commodity trading or stock markets. Third, the marketplace platform provides an institutional and regulatory frame for transactions. This criterion excludes internet portals that offer algorithmic aggregation of different marketplaces (Parker & van Alstyne, 2015). Fourth, the platform does not substantially produce or trade goods or services itself. This condition excludes business models of producers or retailers that additionally allow other parties to offer goods via their digital platform (Hagiu & Wright, 2015). Digital marketplaces in the sense of this study differ from the conceptualizations of *electronic markets or marketplaces* (e.g. Wang, Zheng, Xu, Li, & Meng, 2008) through the focus on the marketplace as a business rather than an institutional or technological phenomenon. In fact, first empirical insights suggest that these new types of digital marketplaces are far more disruptive on their industries than the first wave of internet-enabled marketplaces that primarily focused on providing more efficient B2B transactions (Parker et al., 2016).

Analyzing the business models of digital marketplaces further requires an understanding of the business model (BM) as unit of analysis. The BM concept can be distinguished from other units of analysis – such as strategy – by a holistic, boundary spanning perspective that includes firm internal as well as firm external elements (Zott, Amit, & Massa, 2011). Yet, business model research has operationalized the concept in a variety of forms, ranging from a description of elements (Abdelkafi, Makhotin, & Posselt, 2013; Johnson, 2010; Osterwalder, 2004) to identifying underlying design themes (Amit & Zott, 2001; Brettel, Strese, & Flatten, 2012; Zott & Amit, 2007). Saebi and Foss (2015) provide a good overview of the variety of business model definitions. A recent review by Täuscher and Abdelkafi (2017) reveals that the variety of competing understandings can be classified into three business model views, but that literature is far from converging towards a common understanding of the business model concept. The same holds true for business model innovation – a concept that also recently gained high interest in business administration research, but lacks a clear and widely accepted definition (Spieth, Schneckenberg, & Ricart, 2014).

Aiming at providing a traceable understanding of the employed business model concept, this research follows the definition by Teece (2010) who describes a business model as "the design or architecture of the value creation, delivery and capture mechanisms employed. The essence of a business model is that it crystallizes customer needs and their ability to pay, defines the manner by which the business enterprise responds to and delivers value to customers, entices customers to pay for value, and converts those payments to profit through the proper design and operation of the various elements of the value chain". In line with this description, researchers often refer to the distinctive business model dimensions of (1) value creation (2) value delivery, and (3) value capture (Teece, 2010).

To develop a framework for our analysis, we focus on the business model elements and their potential specifications; a common approach in business model research (Laudien & Daxböck, 2016a, 2016b; Osterwalder, 2004). This paper considers only those elements that seem to be of high relevance in the realm of marketplaces. The selection of elements and specifications follows the design principles of morphological analysis. Morphological analysis has been identified as a suitable method to gain a holistic understanding of the business model attributes and their specifications within a specific context (e.g. Im & Cho, 2013; Lee, Park, & Park, 2013; Peters, Blohm, & Leimeister, 2015; Pousttchi, Schiessler, & Wiedemann, 2009). The resulting morphological box can also serve as an artefact to identify innovative business models through new configuration of the attributes' specifications (Kley, Lerch, & Dallinger, 2011). The process of morphological analysis followed an iterative process of reviewing the literature on business models, platforms and marketplaces, exploratory expert interviews and its evaluation through coding and confirmatory expert interviews. Table 1 gives an overview of the selected business model attributes that are derived from a review of the literature on business models, platforms and marketplaces and has been refined in several

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