
The nature of business model innovation in start-up companies

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Abstract: This study aims to conceptually clarify the nature of business model innovation (BMI) in start-ups and its difference to established companies. Based on the conducted literature review, we propose a taxonomy of BMI that differentiates between four clusters where innovation can take place: 1) transformation of an established business model; 2) parallel business model; 3) pivot in a start-up business model; and 4) greenfield business model. We show that the differences in the nature of BMI in entrepreneurial and established firms are largely attributed to the distinct barriers faced by the two types of firms throughout their BMI. To establish what constitutes a BMI in entrepreneurial companies we suggest a comprehensive scale of business model innovativeness for gauging the extent of start-up BMI across three dimensions (breadth, depth, and reach). Research propositions are derived to underpin the future theoretical and empirical work on the topic.

Keywords: business model; BMI; business model innovation; business model design; business model reconfiguration; start-ups; entrepreneurship; new venture; innovation.

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1 Introduction

Business model innovation (BMI) has been gaining a growing interest of the practitioners and academics alike. According to early surveys, executives indicated new business models as a greater source of competitive advantage than new products and services (Economist Intelligence Unit, 2005) with BMI delivering a four times greater premium over the average total shareholder return than that earned by product or process innovators (Lindgardt et al., 2009). Over the past few decades, the world has witnessed a multitude of BMIs introduced in various markets. Some of the most prominent examples pertain to BMIs conceived by start-up companies. For instance, Netflix launched in 1997 as an online DVD rental service in the market dominated by Blockbuster, which operated the largest network of brick-and-mortar movie rental stores worldwide (Abraham, 2013; Rayna and Striukova, 2016). Over the course of its growth, Netflix has implemented several crucial innovations in its business model. In 1999, Netflix introduced a subscription model and started to offer ‘all you can watch’ DVD rentals via mail order for a monthly fee (Rayna and Striukova, 2016). The company also invested in building an advanced recommendation system to help consumers make rental decisions (Giesen et al., 2007; Rayna and Striukova, 2016). In 2007, Netflix launched a subscription-based streaming service, which disrupted the movie rental industry and affirmed Netflix as a leader in online video streaming for the years to come (Rayna and Striukova, 2016).

Uber is another remarkable example of a start-up company, whose BMI revolutionised the entire taxi industry (Dopfer, 2018). Uber launched its ride-sharing app in 2009. Unlike traditional taxi companies, Uber does not own any cars or employs directly any drivers. Instead, the company takes advantage of the mobile technologies and data-driven algorithms to intelligently connect passengers with drivers and automate the logistics and the order process, which allows the company to retain a share of revenues from each ride without maintaining expensive assets (Bashir et al., 2016; Cramer and Krueger, 2016; Teece, 2018). The success of Uber BMI has transformed the taxi cab industry and lead to the proliferation of Uber-like business models in various other markets (Teece, 2018). The evidence from the business world indicates the rising attention of practitioners to start-up BMI (see e.g., Torabi, 2020) and underpins the relevance of this topic for academic research, which today is still in its infancy.

The incipient study of start-up BMI can be considered a part of the overall BMI research, which, in turn, is rooted in the business model concept. A business model is commonly defined as “the design or architecture of the value creation, delivery and capture mechanisms” employed by a firm (Teece, 2010, p.191). Companies commercialise technologies and innovative ideas through their business models, which, in turn, can also be subject to innovation (Zott et al., 2011). Despite the increasing scholarly attention to innovations in business models, the existing BMI literature still exhibits characteristics of an emergent research stream lacking solid theoretical grounding (Foss and Saebi, 2017). In particular, the extant theory does not explicitly distinguish between BMI in entrepreneurial and incumbent firms.

The phenomenon of BMI in start-up companies, however, appears to be of substantial empirical relevance. Several empirical studies investigated specific aspects of BMI in start-ups. For example, Zott and Amit (2007) studied the effects of novelty-centred, as opposed to efficiency-centred, business model design on the performance of entrepreneurial firms based on a sample of 190 start-ups publicly listed on U.S. and European stock exchanges. Velu (2015) made inquiries into how the degree of BMI

affects the survival of new firms using the dataset of 129 start-ups in the US bond trading market. Bohnsack et al. (2014) conducted a qualitative analysis of electric vehicle projects undertaken by key industry players to explore how entrepreneurial and incumbent firms approach BMI and what impact path-dependent behaviour has on BMI in these two types of firms. Still et al. (2017) analysed the sources of BMI in start-ups developing multisided digital platforms based on qualitative interviews with 34 Finnish start-ups.

The growing relevance of the empirical research on the topic indicates that the phenomenon of BMI in entrepreneurial companies is already recognised empirically. Yet, the nature of BMI in start-ups has, to date, not been clarified conceptually. In particular, the extant BMI theory has paid little attention to exploring potential dissimilarities between the BMI of start-ups and mature companies. The existing studies rely on the universal theory of BMI, which in its current state, does not clearly distinguish between entrepreneurial and incumbent firms. The aim of the present paper is to conceptually enhance our understanding of the nature of BMI in start-ups and its difference to established companies by putting forward propositions, which can contribute to advancing the research on BMI in the context of entrepreneurial firms.

The rest of the paper is structured as follows: first, we make a review of the existing BMI literature and propose a taxonomy of BMI in start-ups and established firms; next, we make a theoretical inquiry into the differences between start-up BMI and that of incumbent companies; then, we proceed with putting forward a measurement scale to evaluate innovativeness of start-up business models; finally, we discuss the results of our conceptual analysis and conclude the paper.

2 A taxonomy of business model innovation in start-ups and established firms

In their comprehensive review of the BMI literature, Foss and Saebi (2017) identify the lack of well-delineated boundary conditions of BMI as one of the major gaps in the extant research on the topic. The obscure definition of boundary conditions pertains, in particular, to the question of whether BMI takes place in entrepreneurial or incumbent firms, which is not unequivocally addressed in the literature. A sizeable group of academics explicitly consider the phenomenon of BMI in the context of established companies (e.g., Mitchell and Coles, 2003; Johnson et al., 2008; Santos et al., 2009; Chesbrough, 2010; Sosna et al., 2010; Spieth and Schneider, 2016). Only a few works focused on the matters of BMI in start-up companies (e.g., Zott and Amit, 2007; Trimi and Berbegal-Mirabent, 2012; Dopfer, 2018). They, however, drew upon the same theory of BMI, which is used in the context of incumbent firms. Much of the remaining research examines BMI without clearly differentiating between the entrepreneurial and established firms (for example, Amit and Zott, 2012; Bucherer et al., 2012; Schneider and Spieth, 2013; Eurich et al., 2014).

One of the most prominent attempts to unambiguously distinguish between BMI in start-ups and mature firms has been made by Massa and Tucci (2013). According to them, BMI may be the result of either

- 1 the design of novel business models for new organisations or
- 2 the reconfiguration of existing business models.

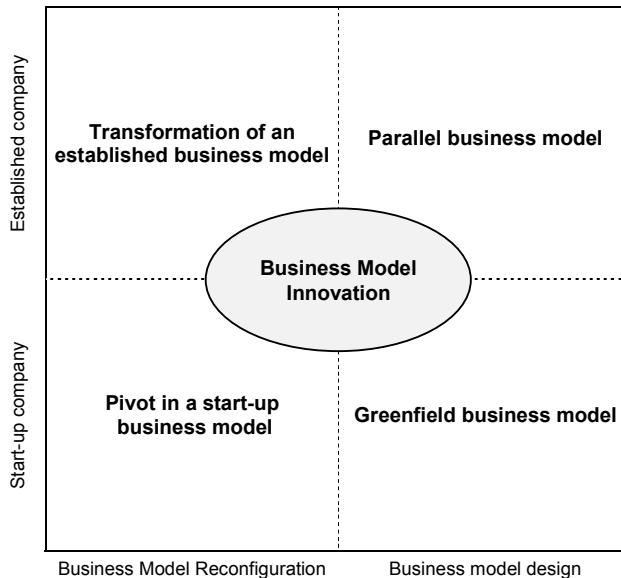
Massa and Tucci denote the first phenomenon as *business model design*, which stands for “the entrepreneurial activity of creating, implementing and validating a BM for a newly formed organisation” (2013, p.424). The authors refer to the second phenomenon as *business model reconfiguration*, which involves reconfiguration of existing and acquisition of new organisational resources by managers in order to change an existing business model (Massa and Tucci, 2013). They maintain that BMI constitutes only a subset of business model design and reconfiguration activities. That is, not every business model design or reconfiguration process entails BMI. In order to become a source of BMI, the product of the design or reconfiguration activities needs to be characterised by some degree of novelty or uniqueness.

The notion of business model design is also pertinent to established firms (Zott and Amit, 2010; Casadesus-Masanell and Ricart, 2011). Likewise, business model reconfiguration can take place in the context of young entrepreneurial companies (Balboni and Bortoluzzi, 2015). In this vein of thought, we build upon the framework of Massa and Tucci (2013) and suggest that the research on BMI shall differentiate between four clusters, based on whether the BMI takes place in a start-up or an established firm, and whether it involves the creation of a new business model (business model design) or a change in an existing business model (business model reconfiguration). Accordingly, we propose that BMI can be a result of

- 1 transformation of an established business model (business model reconfiguration in an established firm)
- 2 parallel business model (business model design in an established firm)
- 3 pivot in a business model (business model reconfiguration in a start-up firm)
- 4 greenfield business model (business model design in a start-up firm).

The obtained four clusters, where BMI can take place, are illustrated in Figure 1.

Figure 1 Business model design and reconfiguration in start-ups and established companies



2.1 Transformation of an established business model

The phenomenon of BMI resulting from a shift in the incumbent's business model is arguably the most recognised in the extant BMI literature (e.g., Mitchell and Coles, 2003; Johnson et al., 2008; Santos et al., 2009; Chesbrough, 2010; Sosna et al., 2010; Spieth and Schneider, 2016). The sustainability of any established business model can be undermined due to changes in the external environment, which may render the existing business model obsolete or less profitable (Sosna et al., 2010). Even great business models do not last forever, so companies have to constantly think how to innovate their business models in order to sustain a competitive advantage (Chesbrough, 2007). One of the most remarkable examples of a transformation in an incumbent's business model illuminated in the literature is the case of IBM. Struggling with a financial crisis and multibillion losses from its core hardware business in the early 1990s, IBM reinvented its business model by shifting its focus from being a hardware supplier to becoming a service provider, leveraging its exceptional know-how and intellectual property to regain leadership in the new market (Chesbrough, 2007; Amit and Zott, 2012).

2.2 Parallel business model

Introduction of a parallel business model, which coexists along with the original business model of a company, is discussed in the BMI literature much more seldom (Kim and Min, 2015). Doz and Kosonen (2010) emphasise the creation of a parallel business model as one of the forms of BMI. Such a pattern, in their view, allows for switching the products and market segments between different business models, which contributes to the company's strategic agility. Euchner and Ganguly (2014) presented a six-step BMI process employed at Goodyear for experimenting with and incubating novel business models, which are capable to capture value from innovation created by the company in parallel with its core business model. Consider another example of a successful parallel business model implementation by the German automotive giant Daimler AG, which in 2008 introduced a car-sharing service, car2go, thereby tapping into the rapidly expanding market for shared mobility (Bucherer et al., 2012; Bohnsack et al., 2014). The new car-sharing business model also fuelled the existing core business of the company by building a fleet of shared vehicles manufactured under Daimler's Smart and Mercedes-Benz brands.

2.3 Pivot in a start-up business model

Several authors studying BMI (Comberg et al., 2014; García-Gutiérrez and Martínez-Borreguero, 2016) refer to a fundamental change in a start-up's business model as "pivot", building upon the same notion postulated in the lean start-up approach (Ries, 2011). Ries (2011, 173) defined pivot as "a special kind of change designed to test a new fundamental hypothesis about the product, business model, and engine of growth". We will abide by the same term to capture the essence of business model reconfiguration in a start-up company. To give an illustration, consider a pivot in a start-up business model implemented by Groupon. The company was conceived as a "collective activism platform", called The Point at its inception, with the purpose to bring together people with the same cause to accomplish their shared goals (Ries, 2011). Due to disappointing results of The Point, the founders decided to make a pivot in their business model and

focus their value proposition on the group buying. This pivot gave birth to Groupon, the website advertising local businesses by offering special deals to end-customers for a limited time (Groupon, 2013). The success of Groupon's BMI made it one of the fastest-growing companies of all time (Ries, 2011).

2.4 *Greenfield business model*

As the name suggests, greenfield business models are created from scratch and are not confined by the constraints of an existing business model. Despite the practical and empirical relevance, the phenomenon of greenfield BMI is still largely disregarded in the extant theory. One of the prominent examples of an innovation resulting from a greenfield business model is that of Airbnb. The company was founded by recent university graduates who created a website to advertise air mattresses available for a short stay in their apartment in San Francisco ahead of a major conference in town (Guttentag, 2015). The entrepreneurial team cultivated their idea by offering their service for other people to advertise their shared accommodations and full residences. Owing to its rapid growth, by 2019 Airbnb has reached over 2 million in the average number of guests per night and over 6 million in accommodation listings (Airbnb, 2019). Airbnb is an outstanding example of a successful BMI evolving from a greenfield business model.

Because BMI that takes place in any of the identified four clusters is contingent on the firm context (start-up vs. established company) and the underlying activities (business model design vs. business model reconfiguration), we suggest that the nature of BMI differs across these clusters. Hence, our first research proposition:

Proposition 1: *The nature of business model innovation is different depending on whether it takes place in start-ups or established companies and whether it involves business model design or reconfiguration activities.*

3 **Different nature of BMI in start-ups and established companies**

The process of BMI in start-ups and incumbents is likely to share some commonalities. For instance, Zott and Amit (2015) propose a five-stage process of BMI (observe, synthesise, generate, refine, and implement) and maintain that such process is relevant to start-ups and established companies alike, and can apply to both business model design and business model reconfiguration. Yet, the journey along the BMI process may be intrinsically different between entrepreneurial and established firms. In particular, we argue that due to the distinct nature of start-ups and incumbents, the two types of firms will face different barriers to BMI. We examine these barriers below.

Chesbrough (2010) identified two main types of barriers to BMI in incumbent firms. The first type relates to conflicts with existing assets and business models (Christensen, 1997; Amit and Zott, 2001; Chesbrough, 2010). Such conflicts entail organisational inertia and resistance of managers to experiment with new business models, even if such are recognised. We refer to them as structural barriers (Massa and Tucci, 2013). These also include legacy management processes (Massa and Tucci, 2013) and complex organisational structure (Bock et al., 2012), which may create internal frictions that impede the transfer of innovation within the incumbent company (Freeman and Engel, 2007). At the same time, entrepreneurial firms, owing to their small size, tend to have

organic structures and lack of established routines, which makes them more flexible to change (Carayannopoulos, 2017). The second type of barrier highlighted in Chesbrough (2010) – cognitive – inhibits the ability of firms to identify novel business models in the first place, as incumbents' cognition is constrained by filtering new information through a heuristic logic of the established business model and by path-dependent behaviour (Chesbrough and Rosenbloom, 2002; Bohnsack et al., 2014). Entrepreneurial firms, in turn, are less hindered by path dependencies and do not face cognitive constraints to fit novel ideas into established business models, which allows them to develop completely new business models (Bohnsack et al., 2014).

Most start-ups are characterised by severe resource constraints (Baker and Nelson, 2005). As a result, they can only employ one business model at a time and cannot sustain experimentation with the business model for a very long period (Bohnsack et al., 2014). Failing to arrive at a viable business model will eventually jeopardise a start-up's survival. In contrast, established firms have greater resources to tolerate potential losses from unsuccessful innovations (Damanpour, 1992). Moreover, mature companies have more resources to effectively support complementary activities, such as marketing, financial planning or staffing, while start-ups' ability to attract quality workforce or conduct full-range marketing research and financial planning is likely to be limited by their resource scarcity (Hölttä-otto, Otto and Luo, 2013). Mature firms also enjoy the benefits of accumulated learning effects, which allow them to build on previously developed routines and capabilities. Entrepreneurial firms, in turn, must rapidly establish these routines and capabilities upon entry, and will initially lack some critical capabilities to benefit from innovation (Coad et al., 2016).

The deficit in resources, as well as the lag in building critical capabilities, lead to a higher level of uncertainty faced by start-ups (Hölttä-otto, Otto and Luo, 2013; Massa and Tucci, 2013; Coad et al., 2016). This may involve, in particular, market uncertainty and technological uncertainty (Moriarty and Kosnik, 1989; Song et al., 2016). Higher uncertainty arises not only from the inability of start-ups to predict customers' response to their offering and forecast future market conditions and dynamics, but also from the computational complexity associated with the creation of a new business model due to a multitude of logically possible combinations between different business model elements (Massa and Tucci, 2013). Table 1 summarises the discussed types of barriers to BMI and indicates their relative magnitude in start-ups and established companies.

Table 1 Barriers to business model innovation in start-ups and established companies

	<i>Start-up companies</i>	<i>Established companies</i>
Structural barriers	Low	High
Cognitive barriers	Low	High
Lack of resources	High	Low
Lack of capabilities	High	Low
Uncertainty	High	Low

Based on the collected insights into the barriers to BMI in start-ups and established companies, we put forward our second research proposition:

Proposition 2: *Start-ups face a larger deficit in resources and capabilities, as well as higher uncertainty, but lower structural and cognitive barriers than established companies throughout business model innovation.*

4 Innovativeness of start-up business models

Every start-up, which enters a certain market, employs a particular business model, whether it explicitly articulates it or not. Yet, not every start-up business model results in BMI. Following the notion of Massa and Tucci (2013), BMI represents only a subset of business model design or reconfiguration results. In order to elucidate what constitutes a BMI in start-ups, we need to determine how one can evaluate the ‘innovativeness’ of entrepreneurial business models.

Taran et al. (2015) identify three prevalent approaches to measuring innovation (and, by extension, BMI) in the extant research. The first approach relates to the *radicality* of innovation, which determines the extent to which innovation departs from prior business models (Linder, 2000; Garcia and Calantone, 2002; Chesbrough, 2006). Radical innovation embodies a significant novelty, as opposed to incremental innovation, which involves only minor improvements or extensions (e.g., McDermott and O’Connor, 2002). The second approach to measuring innovation embraces the *reach* of innovation, which could range from new-to-the-company, through new-to-the-market or the industry, to new-to-the-world (e.g., Garcia and Calantone, 2002). Finally, the third approach to measuring innovation pertains to the *complexity* of innovation, which can be expressed in the number of business model elements undergoing a change (e.g., Spieth and Schneider, 2016). Based on the identified approaches, Taran et al. (2015) suggest to measure the innovativeness of a new business model in three dimensions, namely, radicality, reach, and complexity.

In line with Taran et al. (2015), we propose that innovativeness of start-up business models shall be evaluated based on the three dimensions, which we denote as breadth, depth and reach. In the following, we elaborate on every dimension of business model innovativeness in the context of start-up companies.

4.1 Breadth

The breadth of BMI refers to the number of business model elements undergoing a change. Unlike established companies, which already employ an initial ‘status quo’ business model, start-up companies have not yet established a business model (Spieth and Schneider, 2016) to compare the breadth of change against. Consequently, we maintain that the reference point for measuring BMI breadth in the context of start-up companies shall be the predominant business model (or business models) present in the market. The appropriate scale to embrace the breadth of BMI ensues from the total number of elements attributed to a business model. Building on the insights from the widely used Business Model Canvas framework (Osterwalder et al., 2005; Osterwalder and Pigneur, 2010), which distinguishes nine building blocks of a business model (Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structure), we propose a scale of BMI breadth from 0 to 9.

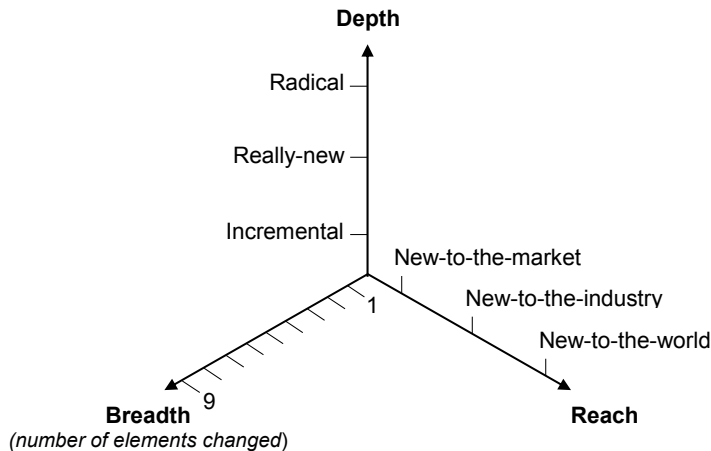
4.2 Depth

The depth of BMI pertains to how radical the change in business model is. In principle, the depth of change can be estimated for every element of the business model that was subject to change (which would lead us to an n -dimensional scale of business model innovativeness). However, for the purpose of simplicity, we suggest using this dimension of BMI as an aggregate measure of change depth across the whole business model. In line with a commonly used classification (Garcia and Calantone, 2002), we propose the following scale to describe the depth of innovation in a business model: old, incremental, really-new, and radical.

4.3 Reach

The last dimension of start-up business model innovativeness relates to the reach of innovation. Traditionally, the reach of innovation has been measured based on whether it is new to the firm, the market, the industry or the world (Kleinschmidt and Cooper, 1991; Garcia and Calantone, 2002; OECD, 2005). Following the line of argument that start-up companies do not have a status quo business model that can be used as a reference point, we maintain that ‘new-to-the-firm’ band of innovation reach is redundant in the context of start-up companies (in case of a pivot in a start-up business model ‘new-to-the-firm’ band is implicitly reached, thus, also excessive). Accordingly, we propose the following scale of BMI reach: known-to-the-market, new-to-the-market, new-to-the-industry, and new-to-the-world. The resulting three-dimensional scale of start-up business model innovativeness is presented in Figure 2.

Figure 2 The three-dimensional scale of business model innovativeness in start-ups



We maintain that innovativeness of a start-up business model is a matter of extent. While start-up companies, whose business models are located around the origin of the three axes (low breadth, depth, and reach), cannot qualify as a BMI, those start-ups that can achieve the highest breadth, depth and reach bring the most innovative business models to the market. Drawing on this argument we propose the following:

Proposition 3: *The extent of start-up business model innovativeness is driven by the breadth, depth, and reach of innovation in the business model.*

The existing inquiries into the implications of BMI on start-up performance are very scarce (but see Zott and Amit, 2007). The proposed three-dimensional scale of start-up business model innovativeness may aid future research in measuring the extent of BMI in entrepreneurial companies and investigating its impact on start-up performance. An empirical analysis of performance implications from the breadth, depth, reach of innovation in a start-up business model, and in particular, the combination thereof, could deepen our understanding of the role that BMI plays in emerging companies.

5 Discussion

The results obtained through the literature review and conceptual analysis undertaken in this paper have several implications for the theory. First, the proposed taxonomy of BMI in start-ups and established firms has illuminated several biases in the existing BMI literature. We've shown that much of the extant BMI theory has developed with a disproportionate focus on a single cluster – a transformation of an established business model. The other identified clusters (parallel business model, pivot in a business model, and greenfield business model) have received only modest attention in the previous research. We contribute to the BMI theory by incorporating start-up business models as a distinct unit of analysis (on par with established business models) and discerning the difference between the creation of a new business model (business model design) and the change in an existing business model (business model reconfiguration). The resulting four clusters may unveil new avenues of focus for future BMI research.

Second, we proposed that intrinsic differences in the firm context (start-up vs. established firm) and the underlying activities (business model design vs. reconfiguration) engender the unique nature of BMI across the four clusters. We went on to suggest that the different nature of BMI in start-ups and established firms may be largely attributed to the distinct barriers faced by the two types of firms throughout their BMI journey. We showed that incumbents often experience the pressure of structural and cognitive barriers, whereas start-ups are likely to be hampered by the lack of resources and capabilities and higher uncertainty. To the best of our knowledge, our study is among the first to draw a comparison between the nature of BMI in start-ups and established firms.

The conception of the nature of start-up BMI necessitates the understanding of what constitutes a BMI in an entrepreneurial company. Our third contribution to the theory of BMI is the proposed measurement scale to comprehensively gauge the innovativeness of a start-up business model. The scale was specifically adapted to the context of start-up companies and facilitates the measurement of start-up business model innovativeness across three dimensions (breadth, depth, and reach). The suggested measurement scale may aid future empirical work on the topic of start-up BMI. In particular, it could be instrumental in an empirical analysis of the relationship between business model innovativeness and the performance of entrepreneurial firms.

We acknowledge some limitations of the conducted study. First, our comparison of the distinct nature of BMI in start-ups and incumbent companies focused exclusively on the difference in barriers to BMI. Although the identified distinction in barriers faced by

the two types of firms appears to be salient, the different nature of BMI in entrepreneurial and mature firms is likely to be attributed to other factors as well, such as a potentially dissimilar pattern of the BMI process or, for example, different goals of pursuing a BMI in the first place. Second, we proposed that start-up BMI can be instantiated through a pivot in a start-up business model or a greenfield business model (which represent two distinct clusters in our taxonomy of BMI). Yet, we did not elaborate much further on the potential differences in the nature of BMI that takes place in these distinct clusters, which may also prove to be significant and contingent on various factors. Future research could attempt to explain further distinctions in the nature of BMI that occurs in start-ups as opposed to established firms, as well as investigate the unique characteristics of BMI resulting from the pivot in a start-up business model vs. the creation of a greenfield business model.

6 Conclusion

This study has explored theoretically the phenomenon of BMI in the context of start-up companies by making inquiries into the existing literature and developing research propositions intended to enhance our understanding of the BMI nature in entrepreneurial companies. Our literature review revealed that although start-up companies represent an important source of BMIs, extant BMI research has largely neglected the distinct nature of start-up BMI.

In the present study, we positioned the start-up BMI as a distinct and incipient unit of analysis within the larger body of BMI research by putting forward the taxonomy of BMI in start-ups and established firms. We found theoretical support to the claim that the nature of start-up BMI is inherently distinct from established firms by emphasising the difference in barriers faced by entrepreneurial and incumbent firms through their BMI journey. Finally, we proposed to use a three-dimensional scale of innovativeness for measuring the extent of start-up BMI, which may aid future empirical efforts in this research area.

We hope that the conceptual analysis conducted in the present study and the developed research propositions will draw closer academic attention to the phenomenon of start-up BMI and lay a foundation for evolving a more in-depth theoretical and empirical work on the various matters of BMI in entrepreneurial firms.

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