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A configurational approach in business model design☆

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ABSTRACT

Although business models are an important source for competitive advantage, little research exists on the relationship between business model design and financial performance. Whereas existing studies focus on the isolated analysis of singular design themes, this work introduces a set-theoretic approach, investigating interdependencies of complementarity, efficiency, novelty, and lock-in-based business models. Thereby, this study applies a qualitative comparative analysis to a unique data set of 41 entrepreneurial firms. The empirical results demonstrate the role of three unknown specific business model configurations fostering financial performance. Introducing a configurational perspective to the business model discussion the study proves equifinality in business model design and advances theory concerning interdependencies within the business model construct.

1. Introduction

The incorporation of configurational theory into management studies is helpful in narrowing down an overwhelming mass of data into tangible theory. Taking a step back, the idea behind configurations is "that the whole is best understood from a systemic perspective and should be viewed as a constellation of interconnected elements" (Fiss et al., 2013, p. 2). Configurations allow picturing equifinality, that is, the possibility for several ways to lead to the same outcome. On this basis, this study suggests that applying a configurational perspective to business model research can be fruitful to understand more of the complexity and interrelatedness that is the foundation of business models (Amit & Zott, 2001; Morris et al., 2005)

An influential framework for explaining performance implications of business models is the NICE-framework by Amit and Zott (2001), which connects the four dimensions: complementarities, efficiency, lock-in, and novelty as value drivers for business model design. However, only two out of the four design themes of business models hold relation with firms' market value (Zott & Amit, 2007) and thus appear in further studies (Brettel et al., 2012; Wei et al., 2014; Zott & Amit, 2008). Therefore, if the NICE-framework should adequately explain performance implications of the business model concept, the framework needs rearranging because only half of the concept shows a significant effect on firm's performance or needs a different understanding that takes into account a rather configurational and interrelated logic. Current examples of highly successful companies underline this configurational view because they do rely on business models comprising various dimensions of the original concept. Apple, for instance, is famous for disrupting the music industry through its iTunes-store. By introducing a distribution channel that links the music industry and customers in novel ways, the firm relies on strong complementarities with the iPod music player. For customers, the iTunes-store is an efficient way to order music. However, customers experience a high lock-in because of the incompatibility with other devices. In any case, the complementary connection between physical products and digital content the Apple system directly distributes leads the company to realize much higher margins than any competitor. Therefore, if business models constitute a concept building on interrelatedness, their implication on entrepreneurial performance then also needs testing through a method that includes and accounts for configurational and equifinal thinking. Building on this argument, this study adopts the NICE-framework and applies a fuzzy-set qualitative comparative analysis (fsQCA) to a unique dataset of 41 entrepreneurial firms. The findings demonstrate that the framework's implications on performance, indeed, heavily depend on interrelated design themes and that viewing those themes alone biases findings, because the focus is too narrow.

2. Business model design as configurational approach

The business model construct is under research for more than two decades. Notwithstanding, a common understanding, a sound theoretical foundation and a clear separation from related constructs like strategy is still lacking and needs establishment (Zott et al., 2011). Against the background of the limited theoretical foundation of most definitions (Arend, 2013) and the call for cumulative progress in the field (Zott et al., 2011), this study employs the definition that Amit and Zott

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(2001) provide, ensuring the comparability of the results with other studies, especially with the work by Zott and Amit (2007). Building on the resource-based view (Barney, 1991), the relational view (Dyer & Singh, 1998), transaction cost theory (Williamson, 1975), the theory of creative destruction (Schumpeter, 1942) and Porter's value chain framework (Porter, 1985), Amit and Zott (2001, p. 501) define business models as "the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities." Whereas these three elements are basic building blocks suitable to describe a business model's architecture (Zott & Amit, 2010), these elements do not explain how the design of the architecture must be to create and capture value. In this context, Amit and Zott (2001) suggest four themes orchestrating business model designs: complementarities, efficiency, novelty and lock-in. The notion of complementarities refers to synergies between product/service offerings in the business model. Novelty describes new ways of organizing transaction flows between stakeholders. The minimization of transaction costs among all stakeholder groups orchestrates efficiency-based business models, whereas lock-in builds on the imposition of switching costs on different participants in the business model. However, only efficiency and novelty have an effect on financial performance when the researcher considers them in isolation using a regression analysis (Zott & Amit, 2007). In addition, studies so far largely neglect interactions among the dimensions. As previous studies de facto try to gain theoretical insights by decreasing complexity, this study argues that the complexity of the business model construct itself and the understanding of the interconnectivity between different design elements are core to the locus of the business model as a value driver. A good example to transfer this line of thought to the context of business models might be the lock-in dimension. Because this dimension builds on the imposition of switching costs on stakeholders, lock-in is the only dimension that is not necessarily beneficiary to customers/users. Therefore, firms should combine this theme with other dimensions to foster adoption and to be a significant value driver. Consequently, Zott and Amit (2007) do not find any statistically significant impact, testing lock-in-centered business model designs in isolation.

3. Data and method

To analyze the interrelatedness within business model designs, this study applies a fuzzy-set qualitative comparative analysis (fsQCA) to a unique dataset of 41 entrepreneurial firms that went public between 2009 and 2012 on the NASDAQ or NYSE. Rather than disaggregating cases into analytically distinct variables estimating the net effect of single variables, fsQCA allows for a set theoretic approach (Woodside, 2013). Using Boolean minimization, the method examines the relationship between a certain outcome (financial performance of entrepreneurial ventures) and all possible combinations of predictor variables (business model design themes), and delivers distinct configurations of variables (conditions) that cause the same outcome (Ragin, 1987). This approach follows the recommendations by Fiss (2007) and avoids the various shortcomings of different analytical methods like cluster analysis, interaction effects and deviation scores, and is able to enrich the rather conceptual discussion on business model typologies (Baden-Fuller & Mangematin, 2013).

In line with Zott and Amit (2007), this study uses the firm's stock market value in the years 2012 and 2013 as a measure for financial performance. For entrepreneurial firms the market value is an appropriate measure and is the market's perception of future value rather than just an indicator for current performance (Luo & Bhattacharya, 2006). The study calculates the average for the years as well as the average for the fourth quarter and the value for the last day of trading in 2013, to test for variance in the results and therefore robustness over time. The conditions efficiency, complementarities, novelty, and lock-in are operationalized using the scales by Amit and Zott (2001). To ensure inter-rater reliability and to gain deep knowledge about the cases, two authors measure the scales. These authors independently analyze the firms' SEC filings, databases such as Hoovers, annual reports and press releases over a period of nine months. The next step is to discuss the ratings and to agree upon one final score. The number of shares outstanding derives from the Bureau van Dijk database. After collecting measures for the conditions and the outcome, all values are calibrated to be computable in a fsQCA (Schneider & Wagemann, 2012). Regarding the conditions, the threshold for the zero-value is set at 0.1 whereas the one-value is for values higher than or equal to 0.8. In between, the study uses a linear gradation. Doing so, this study covers the full range of values between zero and one. Before, the scales for the conditions did not cover the possibility for business models to get a full score because of a high dissimilarity between the items. Vice versa, the same holds for the zero-value.

For the outcome, the zero-threshold is set at as what the U.S. Securities and Exchange Commission (2015) rates as nano-cap (i.e., the smallest group of publicly listed firms regarding their market value). According to them, the nano-cap lies at 50 million dollars. The threshold for the upper bound, the one, is set at 1.7 billion dollars, which indicates firms that belong to the mid-cap (Carrion, 2013). Again, the study uses linear gradation. Table 1 shows the truth table, the step following the calibration of all measures.

The consistency threshold is set at 0.8, which is a value that should create robust results (Fiss, 2011; Rihoux & Ragin, 2009; Schneider & Wagemann, 2012). Also, the study uses the 0.8 value with regard to the biggest gap in between the different scores going in line with recommendations in the literature on QCA (Schneider & Wagemann, 2012). This study uses a frequency threshold of 1, which the literature often recommends for theory building with relatively small samples (Crilly et al., 2012; Muñoz & Dimov, 2015). The dotted line indicates the position of the consistency threshold. A 1 indicates a condition with a fuzzy value with more than 0.5, whereas a 0 indicates a fuzzy value below 0.5.

4. Results

First, this study uses high market value as the outcome to test for certain combinations of design themes that lead to success. Second, the study uses low market value as the outcome to test configurations that firms should avoid. As first preceding result, no single design theme reveals to be necessary for the outcomes. Further, no relevant SUIN (see Schneider and Wagemann (2012) for further explanation) conditions appear.

4.1. High market value as outcome

The QCA reveals three different solution terms (Table 2). The intermediate solution, which includes the results of Zott and Amit (2007) as simplifying assumptions (i.e., novelty and efficiency should be present for the

Table 1
Truth table for the outcome high market value using the average of 2013 (non-observed terms have been excluded from the graphic).

Efficiency	Novelty	Comple mentarities	Lock-in	Incl.
1	1	0	0	0.89
0	1	0	1	0.87
1	1	0	1	0.87
1	1	1	0	0.85
1	0	1	1	0.83
0	1	1	1	0.81
1	1	1	1	0.80
0	0	1	1	0.77
1	0	0	0	0.76
1	0	1	0	0.75
0	0	0	0	0.74
0	0	0	1	0.73