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Business Model Innovation: Development, Concept and Future Research Directions

Bernd W. Wirtz¹, Vincent Göttel² and Peter Daiser³

Abstract

Purpose: Although business model innovation (BMI) has gained substantial importance in recent years, there is still a limited understanding of this phenomenon. Yet, the corresponding scholarly literature has previously been characterized by a heterogeneous comprehension of the concept. This situation demands an analysis that synthesizes current scientific knowledge, uncovers research gaps and underdeveloped areas, and establishes a solid foundation for future research.

Design: The study applies an extensive quantitative and qualitative analysis of extant BMI literature, making the concept more transparent and manageable for science and management.

Findings: The study presents a set of yielding definitions of the extant BMI literature and an integrated definition to promote a common understanding of BMI. In addition, it classifies the field into six particular research areas. Given the identified dominance of exploratory research designs, future research should put more emphasis on well-founded conceptual articles that stabilize and consolidate basic research as well as confirmatory quantitative empirical investigations.

Research limitations / Implications: Given the database-centered, eclectic nature of the analytical approach, it is unlikely that every available and applicable scientific publication is included in the analysis. Furthermore, the classification of the studies according to certain criteria leads to a loss of information and sometimes cannot be conducted free of doubt since studies occasionally touch multiple criteria.

Originality / Value: Against the background of the study's focus on BMI, its comparably broad literature basis, and its quantitative and qualitative analysis approach, which provides straightforward recommendations for future research, the study caters an original contribution to the field.

Keywords: Literature Review, Meta-Study, Business Model Research, Business Model Innovation

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1 German University of Administrative Sciences Speyer, ls-wirtz@uni-speyer.de

2 German University of Administrative Sciences Speyer, goettel@uni-speyer.de

3 German University of Administrative Sciences Speyer, daiser@uni-speyer.de

Introduction

Since the beginning of the 21st century, business models have increasingly been discussed in both scientific research (Casadesus-Masanell and Ricart, 2010; Osterwalder et al., 2010; Wirtz et al., 2016) and management practice (KPMG, 2006; McKinsey, 2008). This increasing significance is not least related to intensified competitive conditions in the last two decades. If companies want to remain successful in globalized and increasingly digitalized markets, they have to be able to continually adjust to varying market conditions and to cope with a highly dynamic and competitive business environment (Johnson et al., 2008; Desyllas and Sako, 2013; Kastalli and van Looy, 2013).

Here, innovation is considered as an effective way to face these challenges (Bojoaga and Petrisor, 2013). Against this background, business model innovation (BMI) has established itself as a cornerstone of innovation—next to product, service, and process innovation (cf. Shelton, 2009; Sinfield et al., 2011; Fichman et al., 2014; Wang et al., 2015). Consequently, business model innovation (BMI) has gained its importance in the recent past, especially since successful implementation is associated with sustainable competitive advantage (Mitchell and Coles, 2003; Casadesus-Masanell and Zhu, 2013; Massa and Tucci, 2014).

Best practice companies like Google, which has consistently outperformed its competition, serve as good example of this association, when referring to their consistent and diversified BMI efforts (cf. Google, 2015). In light of such success stories, a variety of consulting firms have already focused on conducting empirical studies to generate findings and insights for management practice (e.g., Deloitte, 2002; BCG, 2009; IBM, 2009). Yet, regarding advice for companies' successful implementation of BMI, scientific research should also seek to provide a homogeneous and consistent understanding of the concept, its development and process, as well as related success factors. Unfortunately, the extant literature on BMI draws a quite heterogeneous picture, which lacks conceptual clarity and clear-cut practical advice. This is underlined by Casadesus-Masanell and Zhu (2013) and Spieth et al. (2014), who state that BMI still is a difficult-to-grasp topic since there are inconsistencies in its conceptual framework. Similarly Günzel and Holm (2013) mention

a lack of a common understanding concerning the BMI phenomenon and Carayannis et al. (2015) see room for improvement since the associated literature appears to be not well developed and “a sound theoretical foundation is still missing” (Carayannis et al., 2014, p. 440). Accordingly, empirical research including surveys with scientific experts agree that BMI is still a hot topic for upcoming studies, thus, stating the related research potential (Wirtz et al., 2016).

Considering the aforementioned shortcomings with respect to the BMI concept, understanding, and research heterogeneity, as well as the recently increasing amount of published BMI research (Zott et al., 2011; Pynnönen et al., 2012), it becomes apparent that there is a need for a comprehensive BMI literature review that creates a firm foundation for theory development and advances scientific knowledge by closing well-investigated research areas and detecting areas that need further insights (cf. Webster and Watson, 2002; Pautasso and Bourne, 2013). Based on this finding, we conducted an extensive literature analysis and identified four literature reviews that at first sight provide an overview of BMI that fulfills these characteristics (cf. Boons and Lüdeke-Freund, 2013; Schneider and Spieth, 2013; Massa and Tucci, 2014; Spieth et al., 2014).

Although the identified investigations are well-developed studies, they either pursue distinct research objectives, possess a different research scope, or the amount of literature is already outdated due to the recent increase in BMI studies, limiting their applicability for solving the matter in question. Boons and Lüdeke-Freund (2013) as well as Massa and Tucci (2014), for instance, rather conduct a systematic review that focuses on business models in the context of sustainability and innovation situations. Schneider and Spieth (2013) systematically reviewed 35 scientific publications to identify BMI characteristics and to develop a theoretical BMI framework. In their special issue introduction, Spieth et al. (2014) head towards a role-based approach to present an overview of BMI research and to structure the content of this particular special issue. Therefore, they cluster a set of 74 articles into three roles: explaining the business, running the business, and developing the business. Given the aim and scope of their introductory article and the fact that high-quality scientific BMI research has meanwhile more than doubled,

we believe that it is time for a current, comprehensive BMI literature review that provides a quantitative and a qualitative analysis of extant scientific knowledge to establish a firm foundation of the status quo, to bring out existing opinions, tensions and differences, and to deduce clear directions that help to guide future BMI research.

To achieve this, we scrutinized 178 English-language, peer-reviewed BMI publications. This dataset formed the starting point for the performed literature analysis that served as the basis for identifying future research challenges and opportunities. For this purpose, the paper continues as follows: After discussing different BMI definitions, we present the methodological proceedings of the investigation. The next section outlines the development of BMI literature, which hands over to the literature analysis that presents the results of the quantitative and qualitative analyses. Finally, the findings and implications are summarized in the discussion and conclusion section.

Business Model Innovation – A Comparative Definition

There are various scientific peer-reviewed articles that offer a definition of BMI as an add-on in the text but only few in which defining the concept is central. Not least, this may also be a reason for the so far heterogeneous understanding of BMI in the literature. The first identified explanation of the BMI phenomenon comes from Malhotra's (2000) characterization of BMI as a paradigm shift, which involves a fundamental rethinking of the respective company instead of only changing the business process and workflow level. Similarly, other definition developments describe BMI as the complete replacement of the existing business model by a novel one (Mitchell and Coles, 2003), or the reinvention of a business model by means of identifying an entirely new customer value proposition (Johnson et al., 2008). This comprehension is, in turn, also in line with the notion of Gambardella and McGahan (2010, p. 263) who state that "business-model innovation occurs when a firm adopts a novel approach to commercializing its underlying assets". Regarding this commercialization and the related newly developed value creation and proposition logics, Casadesus-Masanell and Zhu (2013) further define BMI as providing the basis for a resulting

sustainable competitive advantage or business success. Massa and Tucci (2014, p. 2), in turn, represent a process perspective and define BMI "as the activity of designing—i.e., creating, implementing and validating—a new BM and suggest that the process of BMI differs if an existing BM is already in place vis-à-vis when it is not."

Altogether, considering the different approaches introduced for defining BMI, the heterogeneity of the term's use in the literature becomes once more apparent. Therefore, it stands to reason to analyze the existing definitions of the BMI field with regard to content and thus provide an overview of their most important and recurring elements. To this effect, concerning the subject of BMI, we state that existing definitions for the most part point to an involved change in the structure of the current business model. Yet, hereby it is controversial which innovation degree justifies the term BMI. While certain definitions already consider relevant the innovation of single elements or components (e.g., Markides, 2006; Johnson et al., 2008; Bucherer et al., 2012), others acknowledge only a comprehensive change of the business model as BMI (e.g., Voelpel et al., 2004; Schindehutte et al., 2008; Schneider and Spieth, 2013). Nevertheless, the literature largely agrees on the crucial transformation of the existing value proposition and/or constellation as an essential subject of BMI (Johnson et al., 2008; Casadesus-Masanell and Zhu, 2013).

In addition, concerning the function of BMI and thus a teleological orientation of the definitions, we assert that authors of the field mainly describe BMI as a means for creating new business models or service offers respectively—irrespective if a an existing business model is in place or not (cf. Massa and Tucci, 2014). Thus, BMI may occur in any stage of a company's lifecycle. Lastly, the predominant goal of BMI, as identified in existing definitions, seems to be the generation or conservation of a sustainable competitive advantage. Against this background and to establish a better understanding for the remainder of this article, we define BMI following Wirtz (2016, p. 189): "Business model innovation describes the design process for giving birth to a fairly new business model on the market, which is accompanied by an adjustment of the value proposition and/or the value constellation and aims at generating

or securing a sustainable competitive advantage.”

Methodology

We conducted a systematic query via EBSCOhost using three leading scientific databases (Academic Search Complete, Business Source Complete, EconLit with Full Text) in January 2016. This analysis was restricted to publications in peer-reviewed English-language academic journals because these are high-standard, up-to-date research sources that play a key role in disseminating scientific research knowledge (Webster and Watson, 2002; Arduini and Zanfei, 2014). After multiple test queries and result verifications, we conducted a title and abstract search with the following key words “business model innovation”, “business model dynamics”, “business model evolution”, “business model reinvention”, and “business model development”. Thus, the query identified any article that contains any of these search terms in the title and/or abstract, which should ensure to capture a meaningful census of the extant academic knowledge on BMI. This analysis led to a total of 215 search results. These articles were screened to identify those publications that address issues relating to BMI, leading to a final set of 178 scientific BMI publications, covering the period from 2000 to 2015.

A key challenge of any literature review is to classify articles according to common criteria. On the one hand, this approach usually requires several repetitions of allocating, denominating, and aggregating article characteristics and—by its very nature—leads to a loss of information. On the other hand, the final classification provides a transparent picture of an otherwise unmanageable amount of knowledge, which—given the purpose of a literature review—compensates for the potential deficiencies. The definition of the thematic classification started with category input from the business model books of Osterwalder et al. (2010) and Wirtz (2011) since both provide a widespread classification of the business model phenomenon.

Several categories could be used and adapted for an initial BMI categorization, which were aggregated and filtered in various runs, while constantly challenging them against the identified set of articles. Having reached a point of saturation, meaning that a good balance between solidarity within the studies of the categories and demarcation between the studies of

different categories had been achieved, six categories remained, which we used for thematically structuring the identified set of articles into BMI research areas: Definition & Types, Design & Process, Drivers & Barriers, Frameworks, Implementation & Operation, and Performance & Controlling. Furthermore, we classified all 178 articles according to the class of research (conceptual or empirical and qualitative or quantitative), the applied statistical method, and the method used for data collection. Summarizing, the established data set provides a solid starting point for a fine-grained analysis of the extant scientific BMI literature.

Development and Current State of BMI Research

Regarding the extant BMI literature, a heterogeneous field of studies has developed over the years. This is also comparable to the superior field of literature about business models in general, which comes along in separate research silos across different disciplines (Zott et al., 2011; Schneider and Spieth, 2013; Wirtz et al., 2016). In light of this heterogeneity, we initially illustrate the development of the BMI concept in the course of time, presenting a literature synopsis of the BMI research field and illustrate the related main patterns, contents and methods across different streams and development phases. Furthermore, we identify the particular existing research areas about BMI and their respective allocation in the research field which paves the way for their closer inspection in the further course of the article.

Just like with the business model concept itself, the Internet hype has led to an increased significance of BMI in both corporate practice and scientific research. One can identify different research streams corresponding to corporate strategy, innovation and technology management, as well as entrepreneurship in the BMI literature (Schneider and Spieth, 2013; Spieth et al., 2014). Figure 1 presents an overview of selected BMI publications in the different research streams over time.

This overview provides benefit by visualizing the BMI concept’s particular development phases as well as the research streams of different importance within them. Since the early development phase of BMI, we can initially state a consistent strategic orientation in the rel-

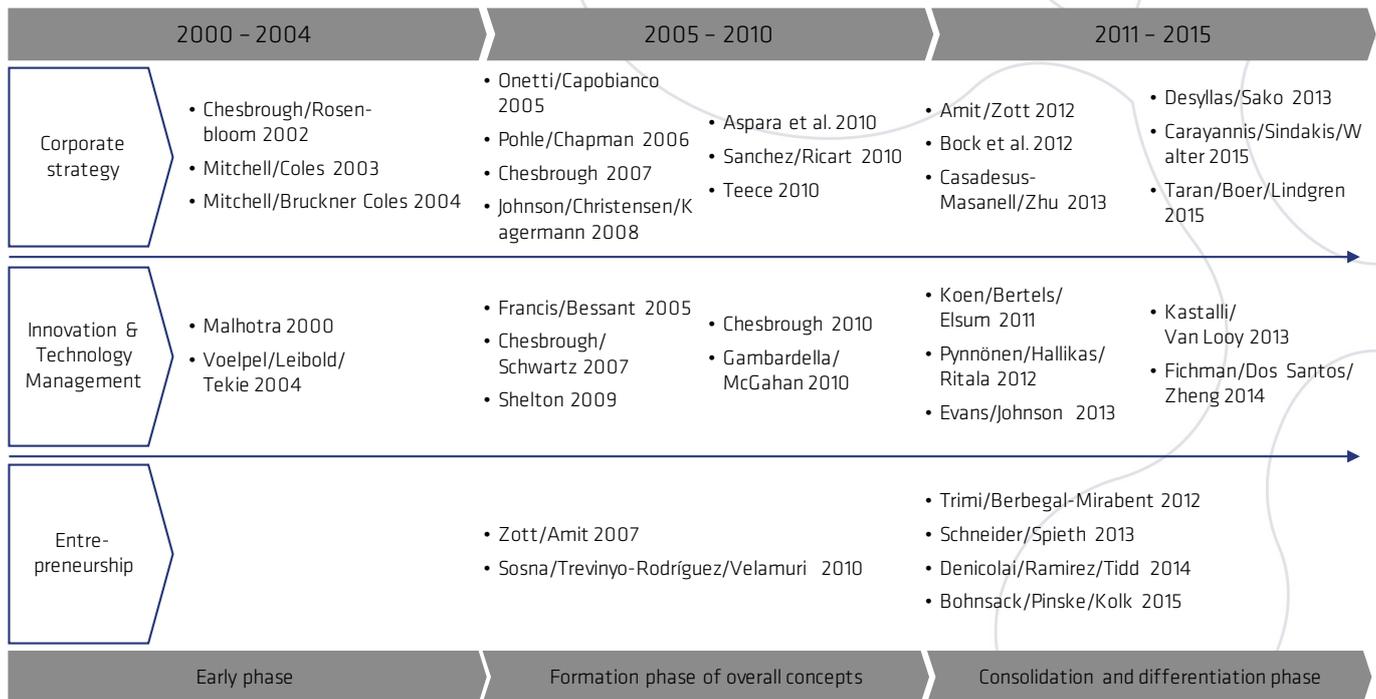


Figure 1: Literature Synopsis of BMI Research

evant literature to date. This connection to corporate strategy definitely stands to reason when thinking of the notion that “a business model is the direct result of strategy” (Casadesus-Masanell and Ricart, 2010, p. 212) and transferring this thought to BMI. In more detail, if business models result from the formulation of strategy, BMI will be related to either the reformulation of incumbent firms’ corporate strategy or the novel creation of new market entrants’ strategy.

However, the viewpoint of innovation and technology management likewise plays a significant role in the BMI research field. This development is also plausible since—once BMI is strategically developed and pushed—the respective businesses are concerned with achieving a proper implementation and hence the management of related according business operations (Kastalli and van Looy, 2013). Yet, in comparison to the other two research streams in the literature, only in more recent years have the logics of entrepreneurship gained in importance for BMI. Accordingly, the entrepreneurial perspective has so far been lacking sufficient treatment when compared to the other two currents in the literature and thus seems to offer the greatest potential for additional research (cf. Spieth et al., 2014).

Regarding the development of previous literature, authors of the early phase initially try to establish the connection between business models and innovation (e.g., Chesbrough and Rosenbloom, 2002), predominantly dealing with the conceptual development of BMI definitions and frameworks (e.g., Voelpel et al., 2004) but also already mentioning the potential of BMI for achieving competitive advantage (e.g., Mitchell and Coles, 2003). Subsequently, within the following formation phase of overall concepts, on the one hand, researchers further emphasize the need for BMI instead of a mere technology innovation (Chesbrough, 2007) or, more frankly, point out that “business model innovation matters” (Pohle and Chapman, 2006, p. 34). On the other hand, authors focus on further conceptually enhancing BMI by presenting more elaborate guidelines and handbooks for practitioners (e.g., Johnson et al., 2008) and start using case studies to exemplify BMI in more detail from all of the three mentioned research perspectives (e.g., Onetti and Capobianco, 2005; Sosna et al., 2010).

Furthermore, while in the still lasting consolidation and differentiation phase, which likewise includes all of the research streams, authors have indeed made an effort to consolidate certain previously identified aspects of

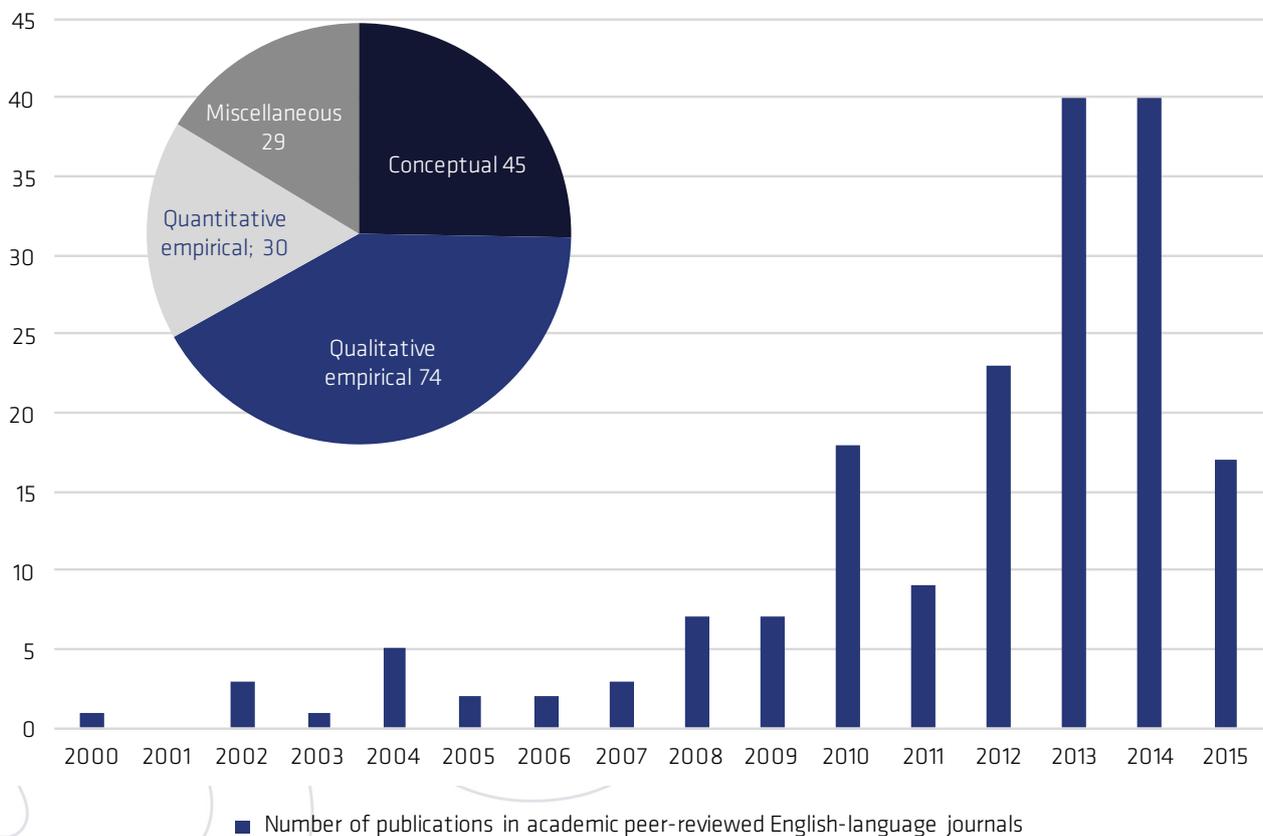
the BMI concept: new ideas and other empirical methods are added to the picture, leading to an anew concept differentiation. In this connection, Kastalli and van Looy (2013), for instance, investigate servitization or service BMI as a specific case or subcategory of BMI by applying econometric models. Thus, a homogenization of the BMI concept in the literature is not yet to be expected in the near future, but even more desirable as a further phase of the literature and concept development.

Quantitative Analysis of the Identified Article Set

To gain further insight into advances in conceptual and empirical research into the BMI topic, an extensive quantitative analysis of the extant literature was conducted. Figure 2 illustrates the publications of the article set in number of publications over time and according to their respective type of research.

BMI began to gain popularity in scientific research after the millennium and soared after 2010 with up to 40 publications in 2013 and 2014. This development more or less parallels the increasing prominence of the business model concept. Considering the BMI literature development then further with specific regard to previous research types, we identified 45 conceptual, 74 qualitative empirical, and 30 quantitative empirical studies, as well as 29 miscellaneous articles (e.g., reviews, editorial notes, etc.). The following analyses focus on the conceptual (45) and empirical studies (104) since the miscellaneous articles cannot be allocated to a particular research are and/or do not provide a new factual contribution. Comparing the number of conceptual studies with the number of empirical studies, there is a ratio of 30:70. Breaking down the field of empirical studies according to the primary method of data collection applied, six distinctive methods can be identified: case study, secondary database analysis, interview,

Figure 2: Number of Publications over Time and Type of Research



questionnaire, observation, and meta-analysis. The results of the quantitative literature analysis in terms of research orientation and primary method of empirical data collection are summarized in Figure 3.

Hancock and Mueller, 2010). The largest data collection category is case study, representing 61.5% of the total number of empirical studies identified. The next largest data collection categories are secondary database

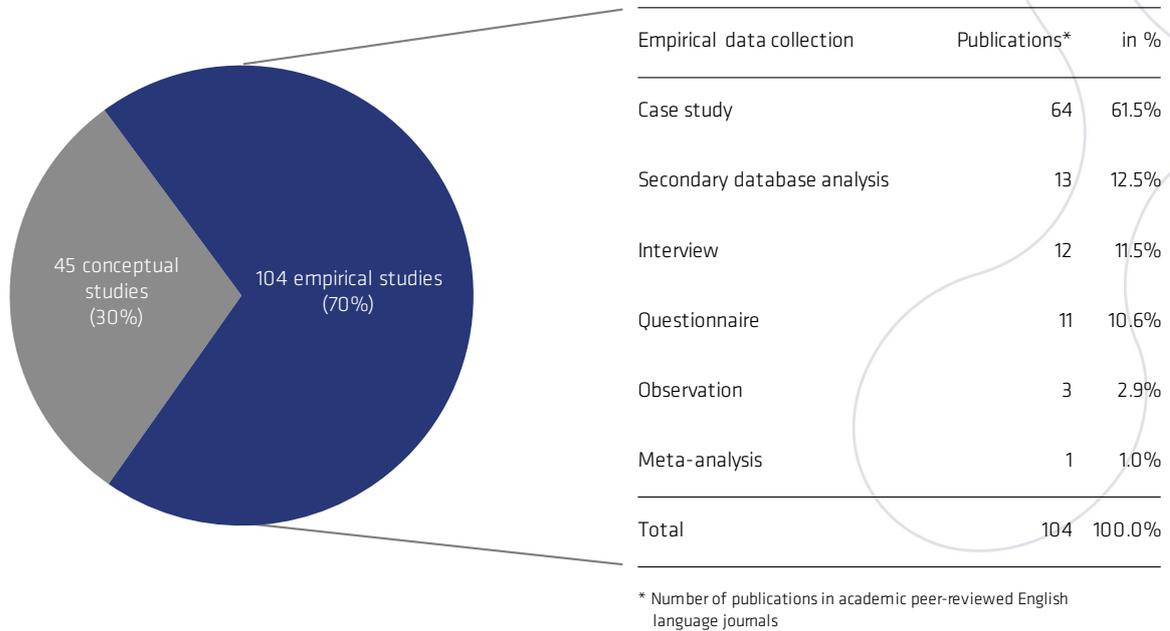


Figure 3: Research Approach and Primary Methods of Empirical Data Collection

The vast majority of the empirical studies (88%) use primary data sources (case study, interview, questionnaire, and observation). With the exception of the questionnaire-based studies, which are partly exploratory (finding structures) or confirmatory (hypotheses-testing), these empirical studies generally follow an exploratory research objective (cf. Lei and Wu, 2007;

data (12.5%), interview (11.5%), questionnaire (10.6%), observation (2.9%), and meta-analysis (1.0%). Breaking down the quantitative empirical studies according to the statistical method used for elaborating the key results of the studies identified delivers a more fine-grained picture. Figure 4 illustrates the corresponding analysis results.

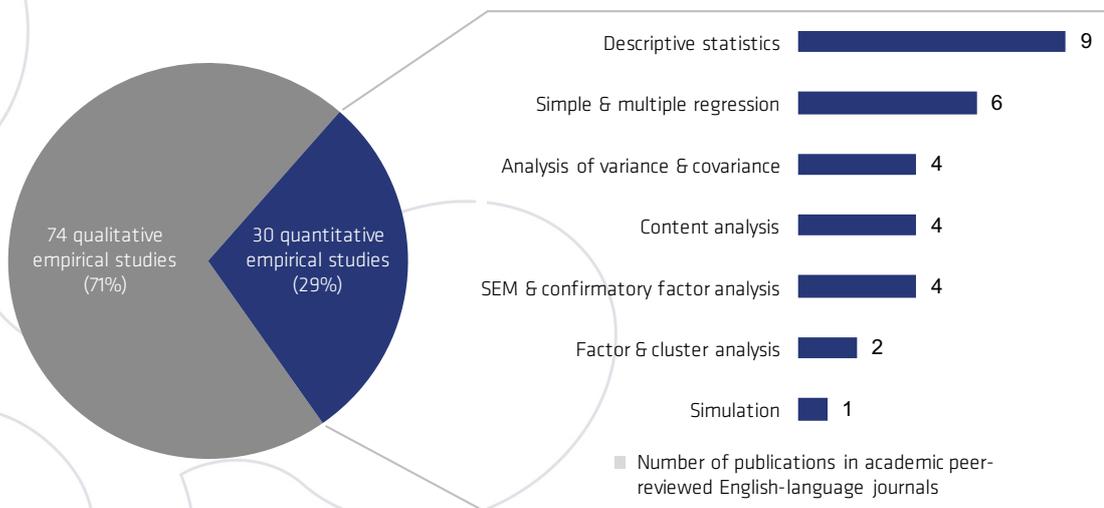


Figure 4: Statistical Method Used for the Key Results of the Studies Identified

Since data collection and statistical method show certain linkages, the results of the data collection breakdown are also reflected in the examination of the applied statistical methods. Of the identified studies, nine apply descriptive statistics, six simple & multiple regression, four analysis of variance & covariance, four content analysis, four structural equation modeling & confirmatory factor analysis, two factor & cluster analysis, and one study uses a simulation technique. When comparing the research design of these studies, we identified 18 exploratory and 12 confirmatory approaches. Given the total number of 149 conceptual and empirical studies, it can be stated—as expected for an emerging field—that the vast majority of BMI research follows an exploratory research design, showing a potential need for confirmatory quantitative empirical approaches.

Having presented the development of the BMI research field, we continue by pointing out in more detail the field's particular research areas. Table 1 shows the al-

location of existing articles to the respective areas as well as their absolute and relative share in the total BMI research field. While in this regard there may be articles that are also tangent to another research area, we focus on the prevailing salient connection to one specific area to guarantee an allocation without any overlaps (cf. Wirtz et al., 2016). Furthermore, for every area we also present a corresponding differentiation regarding the applied scientific research approach.

By means of the conducted analysis of the research field, we identify six substantial research foci, of which the first three BMI research fields (Definition & Types (15.4%), Design & Process (24.8%), Drivers & Barriers (13.4%)) rather cover theoretical and conceptual issues, while the following three deal with implementing and running BMI (Frameworks (20.1%), Implementation & Operation (16.8%), and Performance & Controlling (9.4%)).

When looking at the share of the individual research

Table 1: Allocation of the Analyzed Articles for the BMI State of Research

	Key Content	Conceptual	Empirical (Qualitative)	Empirical (Quantitative)	Total
Definition & Types	<ul style="list-style-type: none"> Basic definition of BMI concept and differentiation from existing concepts Differentiation of certain BMI types 	10 (43.5%)	10 (43.5%)	3 (13.0%)	23 (15.4%)
Design & Process	<ul style="list-style-type: none"> Ex-ante BMI development Steps and phases of BMI 	12 (32.4%)	19 (51.4%)	6 (16.2%)	37 (24.8%)
Drivers & Barriers	<ul style="list-style-type: none"> Drivers of BMI Barriers of BMI 	7 (35.0%)	13 (65.0%)	0 (0.0%)	20 (13.4%)
Frameworks	<ul style="list-style-type: none"> Unbundling of BMI concept Categorization of concrete parameters 	12 (40.0%)	13 (43.3%)	5 (16.7%)	30 (20.1%)
Implementation & Operation	<ul style="list-style-type: none"> Arrangements for BMI implementation Running BMI business operations 	3 (12.0%)	16 (64.0%)	6 (24.0%)	25 (16.8%)
Performance & Controlling	<ul style="list-style-type: none"> Ex-post measurement of BMI feasibility, profitability, and sustainability 	1 (7.1%)	3 (21.4%)	10 (71.4%)	14 (9.4%)
Total		45 (30.2%)	74 (49.7%)	30 (20.1%)	149 (100.0%)

foci, this distribution makes sense when thinking about how crucial it is to cautiously design or develop an innovative business model ex-ante instead of imprudently designing and implementing it in parallel. Moreover, having a stepwise illustration of the course of action can helpfully serve as instructions or at least guidelines for practitioners. Therefore, researchers may also dedicate the largest amount of articles to this research area. Similarly, research that deals with BMI frameworks appears to be of particular interest since these studies unbundle the BMI concept and try to provide readers with concrete BMI parameters. Also the research interest in Definitions & Types seems plausible, given the importance of a clearly defined BMI concept. Moreover, the differentiation between different BMI Types is salient in the literature, which adequately serves practitioners' need to determine which type of BMI is relevant for their particular business.

Having defined the theoretical and conceptual foundations of a BMI endeavor, the next step concerns the arrangements for BMI implementation and operations. Further, also authors' interest in the research area Drivers & Barriers stands to reason when considering this subject's significance and examination across a broad range of research fields and the related simple but important questions about what fuels and what impedes BMI. Lastly, also the research interest in Performance & Controlling of BMI is plausible given that the ex-post measurement of BMI feasibility, profitability, and sustainability seems crucial for ensuring long-term competitive advantage.

To further illustrate this circumstance by means of the previously applied research approaches in the literature, Table 1 also shows that there is a solid but not excessive base of conceptual work (30.2%) and a predominant position of qualitative empirical research (49.7%), whereas the quantitative empirical research (20.1%) shows a deficit, indicating a research potential. Yet, the described methodical apportionment explains itself since BMI still represents a comparably new research field (see Figures 1 and 2), which usually lends itself first to conceptual work that generates a theoretical foundation, followed by more explorative empirical research that includes case studies or interviews, for instance. Not until having established an appropriate knowledge base in this regard, confirmatory empirical work including quantitative multivariate analyses can start to develop and accordingly test the previously derived knowledge (cf. Wirtz et al., 2016).

To enrich the quantitative part of the literature analysis with further meaningful estimates, we collected the Google Scholar Citations (GSC) of the articles. This metric is expected to provide additional insights concerning the scientific influence of the particular research areas since the GSC score, which counts the number of articles that have cited the respective publication, allows to draw conclusions on the visibility and impact of articles in the scientific literature (cf. Google, 2016). Table 2 presents an overview of the Google Scholar Citation results.

Research Area	Sum of average GSC per year*	Sum of average GSC per year in %	Number of publications	Number of publications in %	Average GSC per year / Number of publications
Definition & Types	808.0	36.3%	23	15.4%	35.1
Design & Process	275.2	12.4%	37	24.8%	7.4
Drivers & Barriers	301.8	13.5%	20	13.4%	15.1
Frameworks	551.1	24.7%	30	20.1%	18.4

Implementation & Operation	168.1	7.5%	25	16.8%	6.7
Performance & Controlling	123.4	5.5%	14	9.4%	8.8
Total	2,228	100%	149	100%	15.0

This analysis is based on average GSC scores to reduce the distortion effect that results from varying publication periods. Therefore, we divided the total GSC score, which represents the number of citations over the entire publication period, by the number of years past since the publishing of the article. Comparing the different research areas based on the average GSC scores, Definition & Types is the main field, representing 36.3% of the total average GSC. The next largest research areas are Frameworks (24.7%), Drivers & Barriers (13.5%), and Design & Process (12.4%), which are followed by Implementation & Operation (7.5) and Performance & Controlling (5.5%). This view shows a different emphasis than the evaluation based on the number of publications. While Definition & Types, for example, represents 15.4% of the publications, it accounts for 36.3% of the total citations. Looking at De-

sign & Process as well as Implementation & Operation provides a contrary picture. Here, the average GSC score indicates less scientific attention than the number of publications. Given the Average GSC per year divided by the number of publications, Definition & Types (35.1), Frameworks (18.4), and Drivers & Barriers (15.1) seem to be the research areas with the highest scientific impact. This result appears reasonable since these areas provide fundamental conceptual contributions.

However, one has to keep in mind that there are a couple of highly cited elementary studies and journal issues that have a considerable impact on the GSC score distribution. This can—to a large extent—be visualized when plotting the average GSC score and the number of publications over time (see Figure 5).

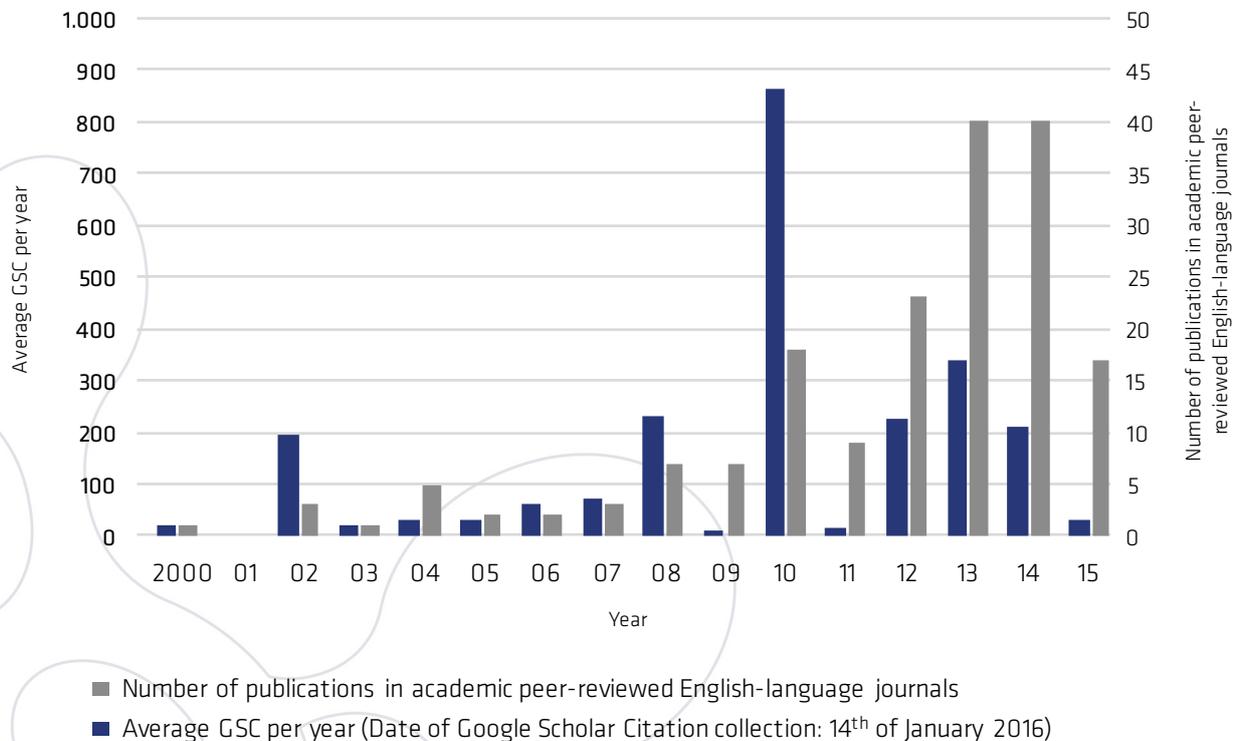


Figure 5: Comparison of Average Google Scholar Citations and Number of Publications over Time

In particular, the years 2002, 2008, 2010, 2013, and 2014 are interesting. While 2002 and 2008 are largely driven by individual highly cited BMI research studies (e.g., Chesbrough and Rosenbloom in 2002 with a GSC total score of 2,764 and Johnson et al. (2008) with 1,411), the high GSC score of 2010, 2013, and 2014 can mainly be attributed to special issues on business models and BMI (e.g., 2010: Long Range Planning, 2013: International Journal of Innovation Management, International Journal of Product Development, 2014: International Journal of Entrepreneurship and Innovation Management, R&D Management). Summing up, BMI research still is a concentrated field that experiences substantial impact from highly cited individual publications and special issues. In combination with the quantitative analysis of the identified BMI literature, it also stands to reason to conduct a qualitative analysis of the research field, to complement the structural findings with content-related issues and observations.

Qualitative Literature Analysis

While the quantitative analysis of the BMI literature rather provides a macro perspective concerning the field's development, knowledge distribution, and applied methodologies, the subsequent qualitative analysis of the research areas shall complement these findings with additional insights that reflect the inherent tensions and differences of the specific research areas. Thus, this section describes the similarities of the distinctive research areas, differences and tensions, as well as identified future research indications.

Definition & Types

Within the research area 'Definition & Types', the authors agree that BMI is a complex, time-consuming process that requires particular skills and an appropriate attitude to be successfully conducted (Markides, 2006; e.g., Chesbrough, 2007; Gebauer and Saul, 2014). This is underlined by Schneider and Spieth (2014), who state that dynamic capabilities are a crucial factor that companies should possess to achieve the desired targets with the BMI. In this context, Koen et al. (2011) claim that BMI can be a significant opportunity for established firms but also a major challenge. A key reason for this circumstance is that BMI cannot be assessed in an abstract manner. Usually experimenting is necessary until a company reaches its goals, increasing risk, cost, and time-to-stabilization (Chesbrough and

Schwartz, 2007; Teece, 2010; Lambert and Davidson, 2013). However, BMI is generally seen as a substantial source of value creation (Sánchez and Ricart, 2010; Lambert and Davidson, 2013).

Although this field shows many similar opinions, there are tensions and disagreements concerning various points. An ongoing discussion is concerned with the BMI concept itself and how the relationship between BMI and strategy is going to take place. While Markides (2006) rather sees BMI from a strategic innovation perspective, Teece (2010) claims that BMI and strategy are two different things. This is supported by DaSilva and Trkman (2014), who also point out that BMI needs to take into account the overall company strategy, and Abraham (2013), who emphasizes that BMI has its limitations and thus a company needs both a business model and a strategy.

A further discrepancy is concerned with the role of BMI. While for Chesbrough and Rosenbloom (2002) the ultimate role of BMI is to ensure that an innovation delivers value to the customer, other authors emphasize a BMI's role for adapting to internal and external dynamics (Byerly, 2014; Schneider and Spieth, 2014; e.g., Bezeznoi, 2015). Given the situational component of these two directions, BMI may possess several roles depending on the particular circumstances. Apart from that, BMI generally assumes a reciprocal nature of value propositions in business relationships. Here, Simmons et al. (2013, p. 746) try to take a new direction by suggesting to "focus on communication practice integrating exchange activities, relationship development and knowledge renewal". And while some authors proclaim a path-dependent behavior (Chesbrough and Rosenbloom, 2002; e.g., Bohnsack et al., 2014), Gebauer and Saul (2014) hope that research moves away from a simple outcome-based perspective on how to capture value and rather investigate BMI from a process-based perspective.

Speaking about BMI research, the current state of understanding is regarded highly context dependent and underdeveloped (Teece, 2010; Taran et al., 2015). DaSilva and Trkman (2014) recommend that researchers should first clarify the term BMI. This approach clearly pushes forward to answer the questions that are related to the still fuzzy BMI term and concept. In

contrast, Spieth et al. (2014) argue that the roles and functions of BMI should be in the center of attention to provide further insights. Bocken et al. (2014) come from a BMI type perspective. They claim that research should first establish mainstream BMI types to harmonize and structure the currently disparate silos. Since available BMI classifications and categorizations are built on past examples, they also see the problem of a past orientation. However, the advantage of having a common structure should be greater than the disadvantages.

Design & Process

From a conceptual perspective, the studies of the BMI research area 'Design & Process' see BMI as an additional method for innovation, next to product, service, and process innovation (Sinfield et al., 2011; e.g., Fichman et al., 2014; Wang et al., 2015). In this context, the BMI design provides a simplified representation of a firm's business logic that shows how it makes money on an abstract level (Buur et al., 2013; Enkel and Mezger, 2013). Using a business model perspective helps managers and entrepreneurs to look beyond their company's existing system and encourages systematic and holistic thinking (Amit and Zott, 2012). Against this background, BMI design is an effective tool to innovate a company's activities (Zott and Amit, 2007; Amit and Zott, 2012), set boundaries of the business, and define the product and service offer (Trimi and Berbegal-Mirabent, 2012). Nevertheless, designing new business models is a challenging managerial and entrepreneurial task (Eppler and Hoffmann, 2012; Eurich et al., 2014; Gobble, 2014) that requires profound organization and governance competencies (Carayannis et al., 2014). Nevertheless, company leaders have to rise to this challenge since the increasingly complex and dynamic business environment obligates organizations to continually rethink and enhance their business models (Giesen et al., 2010; Huarng, 2013). From a resource perspective, BMI design is rather seen as a group and collaboration process than an individual task (Eppler et al., 2011; Eppler and Hoffmann, 2012; Buur et al., 2013). And for this process, artifacts, such as templates and sketches, are considered to be helpful tools to structure the phases of creativity and idea generation (Eppler and Hoffmann, 2012).

Despite the research area's general commonness, it

also shows dissimilar opinions, especially concerning the BMI design procedure. We determined four distinct approaches: (1) linear approaches that follow a sequential step-by-step procedure, (2) semi-structured approaches that proclaim the necessity for a basic systematic structure, but explicitly mention the need for inspiring, creative process steps, (3) mixed approaches that liberally combine procedures from linear and semi-structured approaches, and (4) method-oriented approaches that emphasize the methods and techniques applied instead of focusing on a processual perspective. Although the studies that suggest a systematic, linear process share common grounds concerning their general procedural development, which is subdivided into steps or phases, the individual steps or phases show disparities (Trimi and Berbegal-Mirabent, 2012; e.g., Enkel and Mezger, 2013; Girotra and Netessine, 2013; Eurich et al., 2014). While Eurich et al. (2014), for instance, recommend a six-step approach, Girotra and Netessine (2013) suggest four phases, and Enkel and Mezger (2013) propose three stages.

The authors that proclaim a semi-structured approach also see a need for a basic structure that guides the BMI design process, but they put a stronger emphasis on its creative aspects (e.g., Giesen et al., 2010; Sinfield et al., 2011; Tuulenmäki and Välikangas, 2011; Hoveskog et al., 2015). These semi-structured approaches apply questioning techniques and usually imply experimental trial-and-error loops. Hoveskog et al. (2015), for example, suggest to use the nine business model CANVAS elements as an experimenting structure, while Tuulenmäki and Välikangas (2011, p. 33) recommend early prototype building to get reactions and—based on this feedback—"change the business process and see what happens". Sinfield et al. (2011) define clear target questions that are supposed to guide the BMI design process and suggest business model experimenting to come up with new, creative ideas.

Günzel and Holm (2013) propose a different approach, which we call mixed-approach. They divide BMI in front-end (externally-oriented) and back-end (internally-oriented) innovation and suggest to use an experimental trial-and-error approach for front-end innovation and a linear, structured process for back-end innovation. Finally, we identified a set of studies that primarily investigate creative methods and techniques for systematic

idea generation and BMI (Eppler et al., 2011; Eppler and Hoffmann, 2012; e.g., Buur et al., 2013; Seidenstricker and Linder, 2014).

In particular, these different perspectives on the processual design of BMI provide various directions for future research. Are BMI design processes, for instance, rather linear or organic, iterative approaches? Are there particular circumstances or conditions that favor one approach over the other? How can different approaches (e.g., front-end and back-end innovation) be managed and coordinated? Trimi and Berbegal-Mirabent (2012) see future research potential concerning the connection between firm performance and business model design and how business model design can increase marketplace impact, especially for start-up companies. In this context, an analysis of the interrelation between a technology shift and the chronological sequence (before, during, and after) of BMI design (Tongur and Engwall, 2014) as well as exploring the integration possibilities of technology transfer knowledge into BMI design and processes seem interesting (Carayannis et al., 2014). Similarly, further insights on the relation and interaction between product, service, process, and business model innovation appear helpful to clarify the differences and similarities of these concepts (Wang et al., 2015).

Drivers & Barriers

As in research across a broad variety of scientific thematic contexts, the examination of drivers and barriers has also been an important part of the extant BMI literature. More specifically, different researchers have tried to answer the related questions about what fuels and what impedes BMI. The studies identified head in a similar direction since they share a rather uniform view on the following opinions: Although BMI is of great importance, it is very difficult to implement since powerful barriers exist that hinder its realization. Overcoming these barriers requires knowledge sharing, organizational learning, and comprehensive thinking and acting. On the other hand, there are particular drivers that foster BMI (Chesbrough, 2010; Koen et al., 2010; Sosna et al., 2010; e.g., Berglund and Sandström, 2013; Eichen et al., 2015).

Apart from these generally acknowledged assumptions, the field shows a heterogeneous picture that

leads to different conceptions and perspectives. While some studies follow an industry-independent approach (e.g., Chesbrough, 2010; Koen et al., 2010; Laukkanen and Patala, 2014), many authors investigate BMI related drivers and barriers from different perspectives and industry backgrounds, such as aviation (Schneider et al., 2013), food (Roaldsen, 2014), telecommunication (Anderson and Kupp, 2008), solar photovoltaic (Richter, 2013b), and print media (Wikström and Ellonen, 2012). Similarly, the investigated drivers and barriers are still rather heterogeneous and go in different directions. Anderson and Kupp (2008), for instance, identify value chain reconfiguration, collaboration with non-traditional partners, and the building of local capacity as influential factors for successful BMI but also stress competition in itself to be a significant driver. Roaldsen (2014) focuses on dynamic capabilities as drivers of BMI and, in particular, identifies intra-management cooperation routines, collective learning, advantage-seeking capability, trust-advancing capability and operational process planning. Chesbrough (2010) in comparison regards experimentation, effectuation, and organizational leadership as BMI fostering opportunities and Laukkanen and Patala (2014) suggest entrepreneurial activities, knowledge development, knowledge diffusion through networks, guidance of search, market formation, and mobilization of resources and creation of legitimacy as measures for overcoming BMI barriers.

Concerning impediments or barriers of BMI, Koen et al. (2010), for instance, mention paradoxical leadership in terms of managerial deficiency, organizational complexity, conventionally inflexible innovation management processes, financial uncertainty, and biased team members acting only on their prior knowledge. Richter (2013b) identifies lack of products and services, lack of customer demand, lack of competencies, and lack of profitability. Eichen et al. (2015) elaborated conceptual categories, namely awareness-related, search-related, system-related, logic-related, and culture-related barriers. Here, Laukkanen and Patala (2014) take a more comprehensive approach by introducing a broad range of barriers across technologically, socially and organizationally oriented sustainable BMIs and summarize these barriers under the umbrella terms of regulatory barriers, market and financial barriers, as well as behavioral and social barriers.

The variety and diversity of the mentioned industries, drivers, and barriers is a good illustration of the heterogeneity of this research area. Here, we see a great chance for future research. For example, establishing a particular set of drivers and barriers and comparing these within different industries as well as between young start-ups and long established companies. In addition, investigating the questions of what are the competencies and capabilities that companies need to overcome specific barriers and how management and leadership styles affect BMI seem to be fruitful approaches.

Frameworks

Developing BMI frameworks has been an important element of the extant research. In summary, the studies of this research field agree that business models are strategic management tools that visualize a company's key activities, resources, competencies, processes, and structure in a simplified manner, and thus provide a holistic picture of how the company creates value and delivers it to the customer (cf. Johnson et al., 2008; Teece, 2010; Zott et al., 2011). BMI is considered as an effective countermeasure to react to shorter innovation cycles and increasing dynamism and uncertainty of the business environment, and as a key source for competitive advantage (Lindgren et al., 2010; Yunus et al., 2010; Frankenberger et al., 2013; Matzler et al., 2013; Carayannis et al., 2014). In this context, BMI frameworks are seen as a structured trial-and-error process that needs to be managed and developed over time to anticipate and react to external and internal changes and to use it as a potential source of market opportunities (Demil and Lecocq, 2010; Bucherer et al., 2012; Schneider and Spieth, 2013).

When scrutinizing the framework-related articles we also came across distinctive perspectives and approaches. As Onetti et al. (2012) already mentioned, some authors investigated BMI in particular industries (e.g., Hwang and Christensen, 2008; Hsiang et al., 2011; Wu et al., 2013), while others followed a more generic approach (e.g., Malhotra, 2000; Johnson et al., 2008; Yang et al., 2014). In addition, available frameworks mainly consider two perspectives: the resource perspective (customer, product, service, organization, infrastructure) and the value perspective (value proposition, value creation, value delivery, value capture, value

network, value communication) (e.g., Voelpel et al., 2004; Habtay, 2012; Abdelkafi et al., 2013; Matzler et al., 2013; Carayannis et al., 2014). Although these two perspectives are not contradictory since they rather use different terms and approaches to explain similar opinions and circumstances, they illustrate an ongoing weakness of the field, which leads to several disagreements and tensions: heterogeneity of the BMI concept.

The term BMI remains largely unspecified in the scientific literature (Richter, 2013a), a generally accepted definition is missing, and the related literature is still considered to be fragmented (Onetti et al., 2012; Frankenberger et al., 2013). Moreover, it is surprising that despite the importance of the customer and the customer value (Lee and Ho, 2010; Habtay, 2012; Johnson et al., 2013), we did not encounter any study in the article set that—aside from processual concepts (e.g., Pynnönen et al., 2012; Frankenberger et al., 2013)—explicitly presents an integrated customer-driven BMI framework.

Demil and Lecocq (2010) identified two views on the business model concept: a static approach that, for example, supports the description and classification of BMI and a dynamic view that addresses change and transformation. Although they argue that these views fulfill different functions, which makes both of them useful, most of the extant research has so far focused on the static view (Frankenberger et al., 2013). Apart from that, there are different opinions concerning the intensity of the BMI. While some authors argue that a new business model must be a game-changing, radical innovation (e.g., Markides, 2006; Johnson et al., 2008; Bucherer et al., 2012), others agree that an evolutionary approach and a gradual development alongside the traditional business may also be a successful strategy (e.g., Voelpel et al., 2004; Schindehutte et al., 2008; Schneider and Spieth, 2013). So far, mainly two sources of inspiration have been used for investigating BMI frameworks: organizational learning and innovation research. While the former is rather applied in evolutionary approaches, the latter is used to analyze radical change (Richter, 2013a). However, there is still no consensus. Here, Demil and Lecocq (2010, p. 243) headed in a similar direction when stating that they see the concept “as suffering from an under-theorized approach, or from a fragmented theorization”.

With regard to future research in the BMI framework area, Frankenberger et al. (2013) identified a general lack of comprehensive frameworks that support managers in BMI. Concerning the importance of the customer for BMI, we were surprised that we could not encounter any particular customer-driven BMI frameworks. This has also been noted by Pynnönen et al. (2012, p. 5), mentioning that “despite the many good attempts to define business models, there are a limited number of frameworks that are capable of taking customer-driven change into account”. Given the widely used static approach to BMI, it seems reasonable to extend BMI research from a dynamic perspective. In this context, research should also consider the suggestion of Schneider and Spieth (2013) and investigate drivers, enablers, and success factors that have an impact on BMI frameworks. Furthermore, Bucherer et al. (2012) encourage researchers to conduct quantitative empirical research with large samples that allow statistical generalization and that serve as a basis for normative statements.

Implementation & Operation

When implementing BMI, a company usually “adopts a novel approach to commercializing its underlying assets” (Gambardella and McGahan, 2010, p. 263). As charming as this sounds, BMI usually demands significant reconfigurations of the value chain, the organizational structure, and the resource base of a firm (Mezger, 2014). Against this background, BMI implementation is a complex activity that carries various difficulties that firms can experience and that is fraught with risk (Moingeon and Lehmann-Ortega, 2010; Evans and Johnson, 2013; Euchner and Ganguly, 2014). However, if successful, the reward is worth the risk. Success from BMI provides the ground to outperform the competition and is expected to last longer than product, service, and process innovations since these can quickly be copied (Mitchell and Coles, 2003). Likewise, BMI “plays a key role in survival and growth of enterprises” (Francis and Bessant, 2005, p. 171).

The studies dealing with BMI implementation and operation in general agree that this competence is a crucial strategic issue that requires particular capabilities that allow business model design as well as strategy formulation and execution (Francis and Bessant, 2005; Evans and Johnson, 2013). BMI can also mean to acquire

new skills and competencies (Ferrucci and Picciotti, 2012). Apart from that, many studies provide a step-wise approach to BMI (e.g., Mitchell and Coles, 2003; Mitchell and Brückner Coles, 2004; Euchner and Ganguly, 2014). Many follow a sequential process, starting with identifying the potential for value creation and ending with implementation (Euchner and Ganguly, 2014). However, these processes show substantial differences, ranging from implementation concepts that follow a linear sequence (design and implement new business model) to dynamic, iterative implementation processes (Dmitriev et al., 2014).

While Euchner and Ganguly (2014) suggest a six-step approach (demonstrate value creation, generate business model options, identify risks for each option, prioritize risk, reduce risks through experiments, organize for incubation), Mezger (2014) presents a rather abstract, capability-based approach that passes through the phases sensing, seizing, and reconfiguring. Although the implementation approaches differ with regard to their design and arrangement, most of them show an experimental component since BMI implementation and operation is generally believed to be a process that is based on experimentation and learning (e.g., Moingeon and Lehmann-Ortega, 2010; Andries and Debackere, 2013). However, Khanagha et al. (2014, p. 337) also note that in “cases of transition to nondisruptive and less radical business models, it may prove to be easier to form a strategic intent toward the new business model and to implement it”. Furthermore, BMI that results in a temporary or lasting co-existence of two or more business models is a matter of debate. While authors like Moingeon and Lehmann-Ortega (2010) describe a successful case study that applies spatial separation through the CEO, which is in accordance with other previous results, the findings of Khanagha et al. (2014) indicate that spatial separation should only be used in certain situations.

In this context, Moingeon and Lehmann-Ortega (2010) as well as Khanagha et al. (2014) propose further research to better understand the phenomenon of maintaining multiple business models. Concerning the various approaches to BMI, a study that analyzes and synthesizes the associated extant knowledge would be a helpful guidance to academics and practitioners. Similarly, studies that investigate the required skills

and competencies for successful BMI seem reasonable. In addition, investigating measurement of BMI readiness (Evans and Johnson, 2013), links between structural change during BMI and firm performance (Bock et al., 2012), as well as differences between small start-up enterprises and incumbent businesses (Massa and Testa, 2011) seem to be fruitful approaches.

Performance & Controlling

Increasing global competition and faster innovation cycles are constant threats to incumbent companies (Kastalli et al., 2013). Here, innovation is considered as an effective way by which companies can face the resulting challenges and create competitive advantage (Bojoaga and Petrisor, 2013). In particular BMI is seen as an instrument that creates value and allows rather quick delivery of results (Pohle and Chapman, 2006; Desyllas and Sako, 2013; Kastalli and van Looy, 2013). Moreover, Bustinza et al. (2013) suggest to rather exploit BMI than traditional business strategy to deal with market uncertainty and to use BMI to recover lost customers. Despite these expected benefits, firms face serious BMI implementation issues that require them to use performance and cost management systems that take into account innovation activities (Huang et al., 2012; Kastalli et al., 2013; Kastalli and van Looy, 2013; Nair et al., 2013).

Although the field generally suggests a positive BMI impact on firm performance, this topic remains an open issue since there are only few empirical studies and conclusive empirical evidence is sparse (Aspara et al., 2010; Desyllas and Sako, 2013; Denicolai et al., 2014). This claim is particularly important against the background that Aspara et al. (2010) empirically identified situations in which BMI did not lead to superior performance. According to their study, superior performance of large firms may rather come from business model replication than innovation and large incumbent firms may even experience lower financial performance if they rely on BMI. In contrast, there are studies that identified a positive relationship between BMI and firm performance (Pohle and Chapman, 2006; e.g., Huang et al., 2012). While Cucculelli and Bettinelli (2015, p. 346) also noted a generally positive relationship, they restricted their findings by stating that a “winning BM [business model] does not exist and that changing BM is not necessarily a winning strategy if this is not ac-

companied by innovation and by complementary activities that help the firm to differentiate itself in the market.” In addition, Desyllas and Sako (2013) propose that BMI by itself is not enough. They recommend to protect constituent components of new business models through formal intellectual property protection—if possible in the respective country. This way, firms increase BMI protection and may extend the duration of the associated competitive advantage.

Concerning the prevalent tensions and differences with regard to the relationship between BMI and performance and the mentioned lack of confirmatory empirical studies, additional research is needed. This view is underlined by several authors who also hope for further empirical research in this field that examines, for example, the particular source of the value creation and investigates if it is really BMI or if there are other circumstances, such as internal and external characteristics, customer relation, economies of scale, and/or learning effects (Camisón and Villar-López, 2010; Kastalli and van Looy, 2013). Furthermore, it is interesting if there are further options to deliver and capture value (Denicolai et al., 2014). Apart from that, big data and longitudinal studies about BMI and performance as well as influencing factors (Aspara et al., 2010; Camisón and Villar-López, 2010) and how business opportunities may be explored in real-time (Bøe-Lillegraven, 2014) are regarded as fruitful research opportunities.

Discussion and Conclusions

The starting point of this study has been the increasing relevance of BMI in both management and scientific research against the background of the given shortcomings with respect to the BMI concept, understanding, and research heterogeneity. In approaching a comparable research endeavor, this article initially presents a set of yielding definitions of the extant literature as well as an integrated definition of BMI to establish a common understanding of BMI in this study. While this definition has a comprehensive character, there may certainly be more detailed or specialized definitions. In the synopsis of the literature and concept development that adapts research stream categories of Schneider and Spieth (2013) and Spieth et al. (2014), the study yields the existence of the three different research streams: corporate strategy, innovation and technology management as well as entrepreneurship.

The latter constitutes the so far least applied research stream and thus seems initially appealing for upcoming research. Moreover, by chronologically dividing the BMI literature development into certain phases, we state that the literature resides simultaneously in both a consolidation and differentiation phase, which has prevented a homogenization of the BMI concept so far. We encountered a very heterogeneous field that offers plenty of varying definitions, concepts, and approaches. Thus, an according subsequent phase focusing on this homogenization would be desirable in the future since without an accepted paradigm that guides research, knowledge generation becomes blurry and flawed as there is no tacit agreement that governs researchers to focus on particular research problems, building on the work of others to achieve a systematic, continuous, accumulating knowledge generation process (Crane, 1972; Price, 1986; Eisend, 2015). In addition, researchers should look at well-established related fields, such as innovation management and strategic management, to make use of potential transfer knowledge and to systematically generate insights from these areas, which may also provide transferable guidance for specific BMI phenomena.

The core of the study is the extensive quantitative and qualitative literature analysis concerning scientific peer-reviewed English-language publications that essentially deal with BMI. Given the early stage of the BMI research field, the first finding that arrested our attention was the comparably high amount of empirical studies. Usually young research fields are characterized by a dominance of conceptual articles that mark the field and provide a solid theoretical foundation. When looking at the number of case study-driven approaches (64) that makes up 43% of the conceptual and empirical studies, this indicates that BMI is a research field with a strong practical focus. For the most part, case studies follow an exploratory research aim describing rather unique characteristics of a particular case. However, they are normally not suitable to produce generalizable results and conduct theory-confirming studies. This may be a reason that the concept still appears heterogeneous despite the meanwhile achieved number of scientific research investigations.

This tendency towards exploratory research also pertains to quantitative empirical studies, in which only

12 of the 30 studies identified followed a confirmatory research aim. The vast amount of exploratory research that is, to a large extent, based on selective empirical cases and the lack of confirmatory work leads to a blurring and splintering of the field. Thus, future research on BMI should reduce its efforts to produce further case study-based investigations and rather head towards well-founded conceptual articles that stabilize and consolidate basic research as well as confirmatory quantitative empirical investigations, especially large-scale quantitative multivariate methods that allow generalization and disconfirmation of misleading concepts and conclusions to rationally test theoretical knowledge according to critical rationalism (cf. Popper, 2002).

Further interesting findings result from the analysis of the Google Scholar Citations as well as their comparison with the number of publications over time. There are only a few highly cited articles that have a massive influence on the field and the majority of studies experience only little notice. Apart from that, we could identify several trigger points (2002, 2008, 2010, 2013, and 2014) that produced a couple of highly influential BMI research studies. In 2002 and 2008 this effect can be attributed to particular articles (e.g., Chesbrough and Rosenbloom (2002) and Johnson et al. (2008)), while in 2010, 2013, and 2014, several special issues (e.g., 2010: Long Range Planning, 2013: International Journal of Innovation Management, International Journal of Product Development, 2014: International Journal of Entrepreneurship and Innovation Management, R&D Management) have received substantial attention and provided an important contribution to pave the way for further BMI research. In light of this situation, BMI research is still a highly concentrated field of reference. Apart from that, the article continues by analyzing the previously occupied research areas of BMI, namely Definition & Types, Design & Process, Drivers & Barriers, Frameworks, Implementation & Operation, and Performance & Controlling, from a content perspective. The studies of the area Definition & Types emphasize that the complexity and dynamism of BMI should not be underestimated. BMI requires particular skills and an appropriate culture and attitude. Moreover, experimenting is seen as an indispensable component. Therefore, BMI is seen as a major opportunity and a major challenge at the same time. Concerning the fundamental

character of the Definition & Types research area, it seems reasonable that future research tries to identify a common basis and follow the field's upcoming tendency towards a homogenization of the BMI phenomenon to create a common understanding of BMI and its potential impact. Furthermore, future research may investigate whether there are universal BMI types that can be adapted to the specific situation and industry. From the Design & Process area perspective, BMI reflects an additional method for innovation, next to product, service, and process innovation. Although the BMI perspective helps managers and entrepreneurs to think about their business in a systematic and holistic way, creating new business models is a challenging task. Despite the common consent on the general direction of the research area, there are several questions that could not have been sufficiently answered yet: What is the difference between BMI and other forms of innovation? What are the relationships and interactions between product, service, process, and business model innovation? Is BMI more important or valuable than other forms of innovation? What is particularly new about BMI? What makes BMI particularly special and value driving? And where does BMI end—can we think of entirely new business models that change the way business has been conducted so far? Apart from that, there are manifold unanswered issues concerning the variety of BMI design processes (e.g., linear, organic, iterative). Are there universal approaches to BMI design? Are there particular circumstances or conditions that favor one approach over the other? How can different approaches (e.g., front-end and back-end innovation) be managed and coordinated? And finally, is there a significant relationship between BMI design and performance?

In the research area of Drivers & Barriers we have identified a broad variety of drivers and barriers in the literature, ranging from drivers like experimentation and trial-and-error-learning to product and service integration as well as regulatory, market, financial, behavioral, social barriers, and many more. While our approach of consulting scientific peer-reviewed publications already offers a comprehensive overview of BMI drivers and barriers, especially in this research area the consultation of more practice-oriented studies may be of further value in the future. Research objectives could be to establish particular sets of drivers and barriers

and comparing these within different industries or between young start-ups and long established companies, as well as investigating required competencies and capabilities that companies need to overcome specific barriers and how management and leadership styles affect BMI. In addition, several scientific authors of the extant relevant literature regard BMI drivers and barriers in a generic context, whereas others refer to particular industries in doing so. Thus, a further research direction for BMI could also lie in exploring if an according differentiation is necessary in BMI research or if authors should rather follow the generic approach. Furthermore, there exists little knowledge about the drivers of BMI. Gaining further insights into the drivers of BMI seems to be of particular importance since these may provide manifold opportunities for value-added innovation.

From the Frameworks research perspective, BMI is considered as an effective countermeasure to face shorter innovation cycles as well as increasing uncertainty and environmental dynamism. Moreover, BMI is generally seen as a key source of competitive advantage and the BMI frameworks serve as a kind of guided trial-and-error process to anticipate and react to external and internal changes and use BMI as potential source of market opportunities. However, there is a great heterogeneity concerning the peculiarities, directions, and manifestations of BMI frameworks. Furthermore, there is a general lack of BMI frameworks that specifically take into account the customer. These are key issues that should be addressed by future research.

BMI implementation and operation is seen as a dynamic, complex, and risky activity that carries various difficulties. Nevertheless, effective BMI brings along considerable advantages. Firms that successfully conduct BMI are expected to outperform their competitors. In addition, BMI is expected to last longer than product, service, and process innovations since these can quickly be copied. But innovating an existing business model usually leads to the situation of managing two or more business models at the same time—at least temporarily. This phenomenon is primarily investigated from an ambidextrous organization perspective. However, we could not identify conclusive results or approaches in this context, and thus see considerable future research potential in this research area. Does BMI, for instance,

force companies to manage multiple business models in particular situations? What are the management strategies that companies can apply in these situations? What are the risks (e.g., cannibalization, lack of business focus) that result from organizational ambidexterity in a BMI context? Furthermore, studies that analyze and synthesize the variety of BMI implementation and operation approaches as well as the required skills and competencies for effective BMI management are regarded fruitful. Some authors (e.g., Bock et al., 2012; Evans and Johnson, 2013) also address the unsolved issues of how to measure BMI and BMI readiness as well as the relationship between successful BMI implementation and operation and firm performance. Last, we also dedicated one section to the research area of BMI performance and controlling, which with further progress of BMI's importance for practitioners can only become more meaningful in the future. Concerning this matter, in the literature we again identify the difference between either considering BMI benefits in general, measured by certain key performance indicators, or certain BMI constraints regarding particular industries, which further supports the aforementioned research recommendation for the future. Although the field generally assumes a positive relationship between BMI and firm performance, this topic remains an open issue since there are only a few empirical studies and conclusive empirical evidence is sparse. So, is it really BMI that provides a competitive advantage or are there other circumstances, such as internal and external characteristics, customer relations, economies of scale, and/or learning effects?

Overall, this literature review includes particular insights on the extant BMI knowledge and "closes areas where a plethora of research exists, and uncovers areas where research is needed" (Webster and Watson, 2002, p. 8), making the concept of BMI more transparent, comprehensible, and manageable for both scientists and practitioners, creating a firm foundation for future research and thus contributing significant added value for the topic's conceptual progress. Moreover, given the literature's previous lack of conceptual unambiguity, our analysis is supposed to guide practitioners who so far may have had problems in appropriately grasping a clear meaning of the BMI concept.

Despite its manifold insights for scientists and practitioners, this study also has its limitations. Given the database-centered, eclectic nature of the analytical approach, it is unlikely that every available and applicable scientific publication was included in the analysis. In particular since the query was limited to peer-reviewed English-language publications, excluding studies in other languages. Apart from that, it is possible that other relevant publications exist that do not mention any of the search terms. Given the size and quality of the article set compared to previous studies and the systematic search approach, the sample should nevertheless provide a meaningful census of the extant BMI literature and provide a solid foundation to advance BMI knowledge. Furthermore, the classification process of the studies according to certain criteria leads to a loss of information and sometimes cannot be conducted free of doubt since studies occasionally touch multiple criteria. These constraints are common obstacles when conducting a literature analysis. Concerning the primary aim of a literature review (create transparency in a complex field), these are generally accepted since the reward outweighs the restrictions. Considering that the authors were conscious of these limitations and that the study has built the classification system based on established categories from scientific literature, the associated degree of risk should be acceptable.

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About the Authors

Professor **Bernd W. Wirtz** holds the Chair for Information and Communication Management at the German University of Administrative Sciences Speyer. He has published widely on issues pertaining to business models, electronic business, strategic management, media management, and marketing.



Vincent Göttel is a doctoral student at the German University of Administrative Sciences Speyer.



Peter Daiser is a doctoral student and research assistant at the German University of Administrative Sciences Speyer. Before that, he worked as a Manager at PwC.



Exploring Value as the Foundation of Value Proposition Design

Taman H. Powell¹ and Mathew Hughes²

Abstract

Purpose: Business models define the activity system that an organization employs to create and capture value. As such, business models are essentially the application of strategic management. The term business model, however, suffers from definitional ambiguity which makes the construction of effective business models problematic. We argue that this ambiguity is largely due to a lack of clarity around value. This paper seeks to provide clarity around value and in doing so aid in the development of effective business models.

Design: Theoretical paper that deconstructs value into use value and exchange value and develops these concepts.

Findings: We deconstruct value into use value and exchange value to explain the micro-conditions of value creation and capture. In doing so, we also provide an explanation of how VRIN and non-VRIN resources can be traded for gain as well as opening up greater strategic options for managers in their development of business models.

Originality / Value: Against the background of the study's focus on BMI, its comparably broad literature basis, and its quantitative and qualitative analysis approach, which provides straightforward recommendations for future research, the study caters an original contribution to the field.

Keywords: Business Models, Value, Rent Appropriation, Competitive Advantage, Resource-based View

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¹ Cardiff Business School, Cardiff University, powellth@cardiff.ac.uk

² Durham Business School, Durham University, mat.hughes@durham.ac.uk

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Introduction

Business model is a term that is widely used in boardrooms, by managers in organizations, by consultants, by commentators of business, and even on radio and television programs aimed at the general public. Indeed it is more widely used than almost any other concept in strategy (Baden-Fuller and Morgan, 2010). The ubiquity of the term and its uses suggest that business models are profoundly important to the work of organizations.

Business models define how an organization delivers value to customers, entices customers to pay for that value, and how this value is shared between the customers and the organization (Blyler and Coff, 2003; Zott and Amit, 2007; Amit and Zott, 2001). Or more simply, *“a business model is a framework or recipe for making money – for creating and capturing value”* (Afuah, 2014). It is suggested that a “good” business model yields value propositions that are compelling to customers, achieves advantageous cost and risk structures, and enables significant value capture by the business that generates and delivers the products and services (Teece, 2010).

As is evident from these definitions, value and value proposition design is central to business models (Osterwalder et al., 2015). Yet, despite the prominence, we contend that value is poorly defined and under theorised, and this is hindering business model development.

In the following we highlight the issues surrounding value. We then expand on value creation and value capture via developing the use value and exchange value constructs in ways that enable us to resolve this confusion. Via clarifying the issues, and developing constructs that help to resolve this confusion, we hope to aid the understanding of value and in doing so business model construction.

The Problem with Value

Value is typically treated as an outcome of business activity (Conner, 1991), and even recent theoretical advancements maintain the same standpoint: that *“there is minimal theory explaining ‘how’ managers/*

firms transform resources to create value” (Sirmon et al., 2007, p. 273). Instead, “value” is used as a catch-all term focused on value for the consumer and wealth for the organization. This is problematic. For example, Porter defines value as *“the amount buyers are willing to pay for what a firm provides them. Value is measured by total revenue ... A firm is profitable if the value it commands exceeds the costs involved in creating the product”* (1985, p. 38); and Barney notes that a firm’s resources and capabilities *“are valuable if, and only if, they reduce a firm’s costs or increase its revenues compared to what would have been the case if the firm did not possess those resources”* (1997, p. 147, emphasis added). We contend that both of these definitions are limited and inadequate as the first employs revenue, and the second profit, as a proxy for value. These definitions do not locate the drivers of value creation, explain how value is created, or who captures the value and why. Moreover, they do not define the nature of the value that is generated and captured either. These issues have been repeatedly neglected (Alvarez and Barney, 2004; Coff, 1999).

While studies have considered the erosion of resource stocks (Dierickx and Cool, 1989) and changes in the value of resources (Miller and Shamsie, 1996), there is ignorance about how value is created from the acquisition or development of resources and resource combinations.

More problematically, the notions of value creation and competitive advantage risk being a tautology under its present definition. If value creation begins by providing value to consumers, the firm that produces greater value to consumers then enjoys a competitive advantage providing increased organizational wealth (Hoopes et al., 2003; Powell, 2001; Sirmon et al., 2007). Yet, providing value to the consumer does not necessarily translate to the organization generating profit from this value as it is entirely possible that the resource provider or consumer may capture much of the surplus (Coff, 1999).

Furthering these problems, advantage may not accrue to the firm holding the most resources as bounded rationality leads to difficulties in realizing the value among resources. Bromiley & Fleming (2002) argue that given the same set of resources, the causal chain

linking those resources to performance remains ambiguous and depends on decisions managers make—some will use resources well, other will squander them, and managers may respond differently to opportunities and threats in the markets regardless of resources held. Framed in the context of value, if it is assumed that value derives from the possession of resources, such an assumption negates the problem of how managers connect resources together and it further negates a view that the value of resources connected together may be greater than the simple sum of those resources in the context of the market. In other words, value may come from the integrated web of ties among resources being connected together, i.e. the constructed business model, whether acquired or held internally or both. Thus, the manner in which resource are orchestrated or arranged can create quite different outcomes (Sirmon et al., 2011; Holcomb et al., 2009).

Together these theoretical problems give rise to important research questions about business models: What forms does value take as a resource undergoes a process of transformation into a product or service? And does the linking or chaining of resources hold the potential to intensify value creation and capture?

Unpacking Value

We contend that value is not only poorly defined but poorly theorized. We develop the constructs use value and exchange value in ways that enable us to resolve this confusion. Use value is the benefit received from resources and capabilities and exchange value is the money that change hands when resources, products, or services are traded (Lepak et al., 2007; Bowman and Ambrosini, 2000). The internal assets and activities of the firm, is the domain of use values. In contrast, exchange value is a function of market relationships between economic agents. Problems arise when we fail to distinguish between these two forms of value. For example, in treating value as a single body or single item, we fail to distinguish at what point particular resources and activities become valuable and in what ways.

Our theorization of value in terms of use value and exchange value provides a basis to understand how the broader resource base of the firm and its market interactions can contribute valuable properties to a final

good or service that provides a defensible advantage in comparison to competing alternatives. This understanding is fundamental to the construction of a firm's business model.

We focus our theoretical development on resources and how their use defines market position, viewing the sourcing and orchestrating of resources across the firm as the business model. In doing so, we seek to integrate resources formally in established views of business models. Business models have been defined as representing the substance and configuration of “*transactions*” - capturing how the firm engages in “*economic exchanges*” to create value (Amit and Zott, 2001, p. 511; Zott and Amit, 2007, p. 181). We contest these economic exchanges are primarily to source resources as the basis to shape products and services from which value flows, and where linkages among resources create an inimitable web of value that makes a business model hard to replicate.

Many scholars emphasize the importance of firm differences in explaining heterogeneous performance among firms, and conceptualize firms as unique bundles of resources and capabilities to this end (e.g., Penrose, 1959; Wernerfelt, 1984; Barney, 1986; 1991). Under the principles of the resource-based view, “RBV resources” are ones that possess characteristics of being valuable, rare, inimitable, and non-substitutable - a set of characteristics commonly known as the “VRIN” criteria. Under these criteria, non-VRIN resources - or resources deemed as readily available or not unique - are seen as trivial to value creation because they can either be readily copied or acquired.

While it is generally argued that VRIN resources are critical to firm performance, the trading of these resources is difficult as a firm can conceivably end up paying out the entire value of the resource to the seller (Dierickx and Cool, 1989). Given traditional economic assumptions made about actor rationality and optimization behavior, it has been argued that only through luck or superior foresight can a firm “gain” in the trading of RBV or VRIN resources in strategic factor markets (Barney, 1986). Relying on “luck” is a sub-optimal solution in itself and others posit that if a firm cannot gain from buying such resources, it should instead invest in developing such resources internally (Dierickx

and Cool, 1989).

These traditional assumptions about rationality and optimization have been contrasted by a behavioral logic which argues that, owing to constraints of bounded rationality and causal ambiguity, different perceptions may exist among managers and firms about the nature of a resource (e.g., whether it is a VRIN resource or not) and its use (whether it is seen as valuable or relevant to the firm or not) (Bromiley and Fleming, 2002). Employing such behavioral insights, a buyer of a resource may then conceivably gain value should a firm owning a resource not detect its VRIN properties in comparison to a buyer who can see its value potential.

Whilst these behavioral insights are informative, we believe that the underlying “economic/rational” foundations can be built upon more fully to explain how advantage can be gained via resource transfer. We suggest that this economic structure should be more fully articulated prior to overlaying the behavioral insights. In doing so we can have a fuller understanding of the micro-conditions of value creation, value capture and business model construction.

We propose that treating a resource in isolation misunderstands its value creating potential. We posit that use value is driven by resource combinations, rather than the resource in isolation: it is how a resource is combined with a firm’s other resources and capabilities that creates use value (Moran and Ghoshal, 1999; Adegbesan, 2009, Vargo et al., 2008). An acquired resource in combination with the existing resource base of the firm enables resources that are VRIN or otherwise to be traded for advantage without luck. These ideas speak to recent developments in the RBV about resource orchestration (Sirmon et al., 2007; 2011), which advocates the bundling, structuring, and leveraging of resources into combinations which are then seen as the vessels containing value. However, the work on resource orchestration so far does not explain the causal mechanisms behind value creation and value capture in terms of the interrelationships among individual resources at the value level.

In addition to resource value being driven by resource combination providing an explanation of how (VRIN and non-VRIN) resources can be traded in a manner

where both firms can gain, this also removes the necessity of resource ownership. Resources do not need to be owned as it is the interrelationships between and among resources that delivers the value. Our view is that a substantial amount of value is generated by and tied up in the usage and not the ownership of the resource, and not in the VRIN or non-VRIN nature of the resource itself. We propose that as a resource is brought into the firm (acquired or developed) its linking with another resource adds use value. As the chain of resource connections build (such as in a process of orchestration), the overall use value grows further, adding VRIN properties to even simple resources (if treated in isolation) and will expand the body of value created beyond the amount of value held by any one resource. We see this argument as significant as it provides clarity around value creation and capture and in doing so opens up new options for the strategist in the construction of business models.

The theoretical development that follows seeks to build on ideas contained in resource transfer and resource orchestration arguments by explaining the causal mechanisms of value. Our logic sits between the RBV transfer perspective and recent works on resource orchestration as we seek to explain how resources can be traded for gain and, because of this logic, how resources do not need to be solely traded for value creation and can be orchestrated to unlock value as well. The result, we argue, is a more complete understanding of value that enables the informed construction of business model activity systems.

To clarify the concept of value, and develop our argument, we investigate use value and exchange value in the context of a business-to-business (B2B) market scenario. A B2B market scenario is one where a productive resource is sold from a supplier to a buyer in a strategic factor market. The trading of productive resources in strategic factor markets has received much attention in the resource-based literature (e.g. Barney, 1986) and its exploration and clarification is central to the arguments put forward in this paper. A productive resource is one that may or may not be currently in use by the supplier and can be put into use by the buyer in a way that will achieve greater value. This could be the case of purchasing a machine, a brand name, a drug formula or similar. The primary idea is that the resource

is traded to a firm that can achieve a higher use value and therefore pay a higher exchange value than the use value achieved by the seller. This results in positive gains for both parties and higher overall levels of value from the resource. We will start by analyzing the transaction from a use value perspective.

Use Value

The use value (UV) of a resource is the benefit achieved by a firm via the addition of the resource. Use value is therefore synonymous with value creation. As noted previously, there is much discussion in the resource-based literature around what characteristics make particular resources valuable (Barney, 1986), though there is less written about how and why this is so (Bowman and Ambrosini, 2000). We propose that use value is driven by resource combinations, rather than the resource in isolation (Moran & Ghoshal, 1999). It is how a firm combines a newly-acquired resource with its other resources and capabilities that creates use value. This can be seen as a similar concept to the notion of value co-creation (Vargo et al., 2008).

Despite much of the RBV literature focusing on resource characteristics (e.g., VRIN) as the driving force behind resource value, a central argument of the resource-based view is that firms are bundles of heterogeneous resources and are therefore themselves capable of heterogeneous outcomes (Barney, 1991; Hughes and Morgan, 2007). From the perspective of resource combinations then, as firms are different resource bundles, they will obtain different use values from the same new resource because the subsequent combination with its current resource base will differ. As such the use value of a resource is specific to the firm in question (Adegbesan, 2009).

In other words, given the addition of an identical single resource, the use value achieved will be different for different firms as the remainder of their resource bases will be different, as held within the assumptions of the RBV. Thus, while a resource may hold some intrinsic use value, this value grows as the resource is linked to other resources and capabilities in the firm and this combined value is what we describe as “use value”.

There is no absolute need to distinguish resources based on whether they appear to be VRIN or not be-

cause these qualities will differ between buyers who can employ different (and subsequently VRIN) combinations of an isolated resource when combined with their firm's existing ones. This observation invalidates simple pricing schemes as a means to determine value. By way of a simple example, a saw handle has no value without a blade. The value created is not then attributable to the saw handle or the blade but rather to the combination of the two—because it is at that point when value is generated. Without accepting this principle, we would have to suspend the acceptance of the view that firms have different use values. In this sense, not only are firms heterogeneous bundles of resources for value creation purposes, they are also heterogeneous in terms of the combinations they are capable of making (Moran and Ghoshal, 1999).

The sequence of resource linking is not important at this stage; rather, it is the bringing of resources together (value between resources) and then the collective addition of resources with other ones in the conversion process (value among resources) that shapes the body of use value.

In monetary terms, use value can be defined as the price the buyer is prepared to pay for the resource if there is a single source of supply (Collis, 1994). It has been put forward that use value can be estimated through a thought experiment where a buyer purchases a resource from a supplier. If the buyer is interested in purchasing a resource from the supplier, we can first imagine that the resource is given to the buyer at no cost. The buyer must find this situation preferable to the original situation when they were without the resource:

Now start taking money away from the buyer. If only a little money is taken away, the buyer will still gauge the new situation (product [i.e. resource] minus a little money) as better than the original status quo. But as more and more money is taken away, there will come a point at which the buyer gauges the new situation as equivalent to the original status quo. (Beyond this amount of money, the buyer will gauge the new situation as worse.) The amount of money at which equivalence arises is the buyer's willingness-to-pay [i.e. use value] for the quantity

of product [i.e. resource] in question. (Brandenburger and Stuart, 1996, p. 8)

The notion of use value being driven by resource combination is significant for two reasons. First, it allows the trading of resources to occur while achieving benefits for both parties. Second, it allows competitive advantage to be gained via the trading VRIN resources. This distinction is important because trading of such resources for competitive advantage appears to be nominally impossible when use value is attributed to resources in isolation vis-à-vis resources in combination.

A real-world transaction of this type could be the sale of a new drug compound. In this case, the supplier could be a small R&D company. A large pharmaceutical company could purchase this compound, and combine it with resources and capabilities that the supplier does not possess—such as the ability to go through clinical trials rapidly, along with a global marketing/sales force and distribution—and would be able to achieve greater use value from the compound than the supplier who lacks these complementary resources and capabilities. As the resource's use value is driven by resource combinations, some of the incremental use value will be delivered by the buyer's current resources and capabilities. Indeed some of the incremental use value must be driven by these existing resources and capabilities for the resource to deliver different levels of use value in different firms. For simplicity, we allocate all the incremental use value to the new resource, in terms of its UV. This is because the overall incremental use value would not be achieved without the addition of the new resource to the buyer's current resources and capabilities. Although as exemplified earlier the use value truly derives from the combination of the new resource with an existing resource, but we contend that such a combination could not have been realized without the new resource and therefore for the sake of simplicity it is easier to allocate the value created to the new resource. Expanding on the second point, much of the RBV literature has focused on resources and capabilities in isolation driving competitive advantage. Essentially resources meeting VRIN criteria are judged to deliver competitive advantage (Barney, 1991). Focusing on the benefits from a resource in isolation brings up the challenge of how to purchase such a resource without

transferring the entire use value of the resource to the resource seller and thereby not gaining from the transaction. The arguments of how to benefit from such a purchase have centered on superior foresight and luck or the need to avoid the market entirely and develop a similar resource internally instead (Dierickx and Cool, 1989). Moving the locus of use value from resources in isolation to resources in combination makes it feasible to purchase a resource that may not be particularly VRIN in itself but can be added to existing resources to create a VRIN resource combination. Or purchase a resource that is VRIN but becomes more so when combined with the buyer's complementary resources and capabilities. As the benefit from the purchased resource is partially already owned by the buyer, the resource can be purchased below the use value that the resource delivers to the buyer. Such a transaction, as highlighted in the previous example, can benefit both firms involved.

Exchange Value

Exchange value (XV) is the price paid by the buyer to the supplier of the resource. Essentially it is the value that is captured by the supplier from the use value that is created via the buyer combining the resource with their existing resources and capabilities. The exchange value of a resource will be driven by the competitive dynamics of the market for the resource in question (Iveroth et al., 2012). These markets have been termed "strategic factor markets". The exchange value of the resource needs to be higher than the use value of the resource to the supplier (UVs), otherwise the supplier would have no reason to sell the resource. Outside this constraint, the exchange value will be set by the competitive dynamics of the market.

Figure 1 is used to stylize the strategic factor market that the supplier and buyers compete in. Here it can be seen that the supplier and the three firms interested in the resource place different use values on the resource. The resource's use value to each firm represents the expectations of how much use value will be delivered when the resource in question is added to their current unique resources and capabilities. As noted previously, this is not an estimation of the use value of the resource in isolation but rather of it in combination. As each firm is different in terms of resources and capabilities, each firm will have a different use value from

the addition of the new resource.



Figure 1: Use value for different firms

In a normal bidding situation, Firm B would purchase the resource as they place the highest use value on the resource (\$5). As Firm A can only achieve a use value of \$3 from the resource, they would not be willing to bid above this price. Therefore, Firm B would be expected to pay no more than \$3 for this resource as this is the maximum that the firm with the next highest use value estimation (Firm A) would be willing to bid.

Importantly, the supplier is willing to sell the resource as it only achieves a use value of \$1 when combined with the supplier's other resources and capabilities. Therefore, Firm B could expect to purchase the resource that it values at \$5 for around \$3 and would expect to benefit from the purchase once the resource is integrated with its current resources and capabilities. So essentially, while the "market value" of the resource is \$3, the use value to Firm B is \$5. Firm B is thereby able to purchase the resource and expects to gain from the transaction. The supplier also gains from the sale

of the resource as they are only achieving a use value of \$1 from the resource. So the supplier sells the resource for around \$3 and loses \$1 of use value thereby gaining \$2 through the transaction. Firm B purchases the resource for around \$3 and gains a use value of \$5 thereby gaining \$2 through the transaction. As such both parties gain from the transaction (Figure 2).

Use Value and Exchange Value Interaction

The incremental use value achieved from the resource by Firm B vis-à-vis the supplier can be seen as value creation. The exchange value paid for the resource defines how this value created is shared between the parties. As such, the combination of use value and exchange value determine the value capture in terms of the surplus that goes to each party.

The minimum exchange value that the supplier would be willing to transact on would be slightly greater than the use value that the resource delivers to the supplier. Similarly, the maximum exchange value that the buyer would be willing to transact on would be slightly less than the use value that the resource delivers when combined with the buyer's resources and capabilities.

There is the risk that if the seller knows (or can deduce) the buyer's use value for the resource, they will seek to extract additional exchange value closer to the buyer's use value. However a rational seller would sell the resource to the highest bidder in the market as long as that bidder pays an exchange value higher than the seller is able to achieve in terms of their own use value. Under normal circumstances, one would expect sufficient ambiguity on the part of a seller in predicting the potential use of the resource by the supplier to result in different beliefs towards the value of that resource. The large incremental use value achieved by the buyer, versus the use value achieved by the supplier, would indicate that the use value of the resource is driven more from the buyer's resources and capabilities than the additional resource. If the incremental use value was lower, this would indicate that the use value is driven more by the resource in isolation as both the buyer and supplier are placing high use value on the resource.

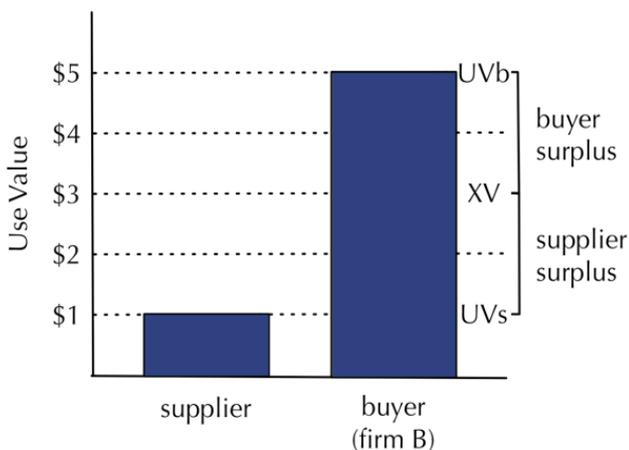


Figure 2: Sharing incremental use value

In a normal market scenario there are many buyers and suppliers of "resources". Each buyer and seller will

make an assessment of the use value that the resource can deliver and the exchange value that will need to be paid to secure the resource. Importantly, the resource purchase will be dependent on the interrelationship of both use value and exchange value in the form of buyer surplus and supplier surplus. If we focus on the buyer perspective, they are not necessarily primarily interested in purchasing a resource that they can achieve the highest use value from, but instead the resource that they will achieve the highest buyer surplus from - this being a combination of both use value and exchange value (i.e. UVb - XV). In effect then, firms are competing in the strategic factor market based on surplus. This surplus is based on the interaction of use value and exchange value.

Discussion

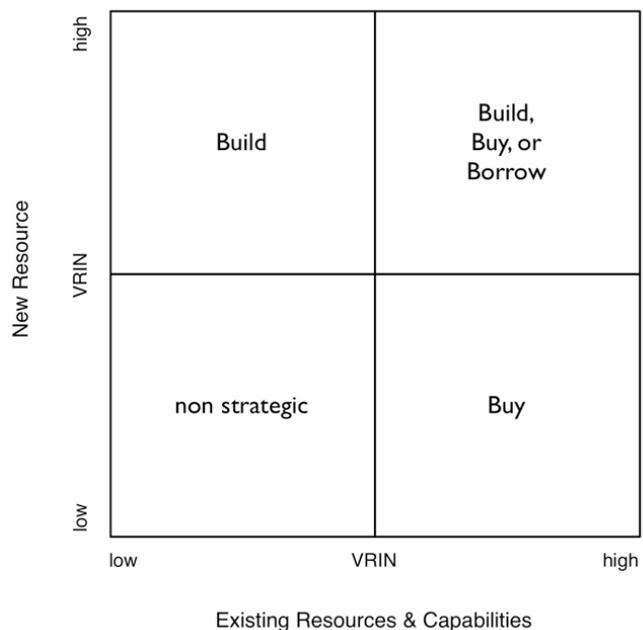
Central to our discussion is that traditional resource-based explanations focus on the VRIN nature of the resource in isolation, while we suggest that it is the VRIN nature of the resource in combination with the buyer's existing resources and capabilities that is more important for understanding value creation and capture. The key reason that the firms have different use values for the same new resource is due to these firms being different bundles of heterogeneous resources and capabilities (VRIN or otherwise) and are therefore able to construct different activity systems, or business models, with the new resource. In contrast, if the use value was driven by the resource in isolation, it would be expected that the firms' predictions of use values would be far more aligned. In this case, the variation in use value would be driven by differences in the firm's ability to estimate the resource's use value, which is bounded rationally (Bromiley and Fleming, 2002). While this variation in the ability to estimate use value for a resource is still present when use value is driven by the perceived resource combination - and it is arguably an even more complicated calculation - seeing use value as dependent upon the combination of the new resource with other resources and capabilities existing within the buyer provides an alternative explanation for variation in use value and therefore value creation, value capture, value proposition design, and business model construction.

We put forward this argument as an explanation of how firms can purchase VRIN or non-VRIN resources

and not pay out all of the benefits associated with the resource, thereby gaining from the transaction. We also show how a VRIN or non-VRIN resource can increase its VRIN properties when it is linked or chained with other resources - generating a higher use value than the resource in isolation would be capable of.

This is not to say that we disagree with the notion that resources in isolation can be particularly valuable nor that all firms have some existing valuable resources and capabilities. Figure 3 combines both scenarios relating the VRIN nature of the new resource and the VRIN nature of the existing resources and capabilities of the firm. Understanding the nature of the resource base of the firm in question along with that of other relevant resources is central to a firm constructing a competitive business model.

Figure 3: VRIN Combinations



The left hand side of this diagram highlights the more traditional resource-based perspective where it is the new resource that is driving the use value. In such a scenario, it has been noted that it is difficult to profitably purchase the resource without superior foresight or luck (Barney, 1986), and the advice is to build such a resource internally (Dierickx and Cool, 1989). The right hand side of the diagram relates to when the buyer firm has existing VRIN resources and capabilities that can be combined with the resource. In such a scenario

it has been argued in this paper that the resource can be profitably purchased. In the scenario where both the resource and the firm's resources and capabilities are VRIN, the upper right quadrant, it follows that either building, buying, or borrowing in some form of joint venture may be appropriate.

Rather than considering resources as absolutely VRIN or non-VRIN, they can instead be seen as on a continuum between the two extremes. By implication, whether a resource is VRIN or not depends on the value its properties and uses hold for one firm over another, and may hold when combined with its existing resources or capabilities. In terms of use value versus exchange value, it is worth noting that the more the supplier's use value is attributed to the resource in question, versus the resources and capabilities of the buyer, the less incremental use value (i.e. $UV_b - UV_s$) can be achieved by the buyer via the transfer of the resource. This in turn will mean that more of this use value will be transferred to the seller of the resource in the form of the exchange value payment as the exchange value moves closer to the buyer's use value.

Via the addition of use value being created through resource combination to the traditional perspective we can see that additional options emerge for the strategist for the development of their business model (i.e. Figure 3). They are no longer caught in the dilemma of relying on luck or superior foresight to profitably purchase resources. Nor are they forced to develop these resources internally to avoid this dilemma and create and capture value. Instead firms have options ranging from purchase, alliance to internal development. These options are available prior to overlaying insights from the behavioral perspective which in turn provide further options and explanations for variation in value creation and capture.

The nature and composition of the mix of resources and capabilities brought together creates a potentially difficult-to-replicate business model that can withstand competitive erosion.

Our work contributes to research on the resource-based view, use value and exchange value but especially so to the burgeoning literature on business models. Traditionally, a business model has been conceived of as a

system of components, linkages between those components, and the dynamics among those components (Afuah and Tucci, 2000); defining how customers are provided with valuable and meaningful products and services (Mitchell and Coles, 2003), and defining how a firm gains value from the economic exchanges it engages in and the substance and configuration of these exchanges (Amit and Zott, 2001; Zott and Amit, 2007). Until now, the notion of resources, their features, and orchestration as well as market forces in leveraging value has been absent. Our work offers insight that both clarifies the current debate on value creation within business models and extends the debate in new directions. By situating the value problem in business models in the same sphere as the RBV and value research, a more comprehensive understanding can be brought to bear on how and why some firms succeed at generating valuable business models and also the starting points to understand why some business models cause complex rigidities for firms when environmental and market change happens.

Conclusion

The objective of this paper was to provide clarity around value creation and capture as the foundation of a firm's business model. In doing so, the intention was to develop an understanding of what value is, what forms it takes, where it is located, and how value is generated from (a) transactions among actors in strategic factors markets and (b) the escalation of use value through combining an acquired resource with existing resources and capabilities en-route to finishing a product or service that can be taken to the market by the buyer. Value is historically poorly conceptualized and is operationalized in highly problematic ways. Seen as a function of total revenue and increases in total revenue, the information lost and information hidden by this proxy prevents scholars from understanding the integrated basis of value underpinning a firm's competitive advantage and prevents managers from understanding the chain among resources and market decisions that are integral to its performance.

We put forward two forms of value. The first, use value, stems from the utility a resource offers when combined with a firm's existing resources and capabilities. The second, exchange value, is the monetary amount that a firm will pay for a resource based on its

use value. Use value and exchange value closely relate to value creation and capture. By conceptualizing value in this way, it is possible to foresee how traditionally non-VRIN resources can prove valuable in generating organizational wealth. Moreover, it offers scholars and managers a clear basis and mandate from which to make judgments about how a firm accrues value, in what ways, and the interrelationships among sources of value.

Future Challenges

In this work we show that use value and exchange value are not necessarily mutually exclusive but dependent in raising each other's relative levels. But what we do not consider is the nature of the strategic decisions made by a firm, only how, where, and in what ways value may accrue from decisions made.

It is apparent in our framing of use value and exchange value that the more obscure the causal chain linking together a new resource with existing resources and capabilities, and, the more bargaining power is located in either the buyer or the supplier, the greater the scope for variance in value creation. This is perhaps inevitable in strategic management in that ultimately its purpose is to maximize the amount of value that the buying firm generates, but this may come at the expense of a supplier. There is also the issue that the true value or utility of a resource and its market exchange may only be realized in the future and be more or less valuable than expected. Our analysis does not address this asymmetry problem because it does not change the nature of the forms of value accrued, merely their numerical worth. But in an age of sustainability and responsible action, it does raise questions about how value can degenerate into a different form of zero-sum game than through competitive erosion—the manipulation of value derived by one party (e.g., a buyer) at the expense of fair value to another (e.g., a supplier) owing to differences in the ability to price the future value of the resource or know in advance the real value of a resource when combined with existing assets.

These challenges do not detract from our ability to conceptualize the presence of use and exchange values. Rather, they further underscore how total revenue or increases in income are entirely inadequate ways to conceptualize value. Not only do such proxies risk con-

siderable measurement malaise (Dalton and Aguinis, 2013) they also offer dubious construct validity (Ketchen et al., 2013) with respect to sufficiently capturing the multifaceted nature of value, let alone sufficient information about value itself. We believe our conceptualization offers firmer ground for understanding how or why some firms outperform others and understanding how interrelationships among resources (especially seemingly innocuous ones) and market decisions come together to generate value and secure competitive advantage. Our theorization of use and exchange values provides a basis to understand how the broader resource base of the firm and its market interactions come together to great a causally complex set of valuable properties that contribute a defensible advantage to a final good or service in comparison to competing alternatives. We believe our work offers the basis for greater rigor and specificity in the study of value, value creation, and value capture by firms and encourage further debate to move away from the unsatisfactory manner in which value is currently defined, depicted, and measured.

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About the Authors

Dr. **Taman Powell** is Lecturer in Strategic Management & Innovation at Cardiff Business School. His research addresses how organizations create and capture value with a specific focus on knowledge related practices and how organizations can influence these practices to achieve this value creation and capture. He has completed an MBA (with distinction) at INSEAD, a PhD at Warwick Business School, and was an ESRC Post-Doctoral Fellow at Warwick Business School and Harvard Business School. Prior to academia, he worked for 10 years in management, starting in brand management with Procter & Gamble and then moving to management consulting with Accenture.



Dr. **Mathew Hughes** is Reader in Entrepreneurial Management at Durham University Business School. Mat's areas of expertise and research interests lie in firm-level entrepreneurship and its management. His research has focused on such topics as entrepreneurial orientation, building the innovative organization, social capital and network-based learning, and top management change. His work is published in such journals as Strategic Entrepreneurship Journal, Journal of Product Innovation Management, British Journal of Management, Journal of World Business, and Journal of Business Research. Mat is also a currently-serving member of the editorial boards of the Journal of Management Studies and the International Journal of Entrepreneurial Venturing.



Building Interpersonal Trust in Business Networks: Enablers and Roadblocks

Mila Hakanen¹, Leïla Kossou² and Tuomo Takala³

Abstract

Purpose: This study examines how interpersonal trust forms in business networks and anchors relationships. Trust can be seen as a required factor and enabler for co-creation that is needed when business models are created. This study draws on empirical data from a case study of a Finnish business network in the healthcare and pharmaceutical industries. It seeks to answer the research question: How does interpersonal trust start to develop at the business network level and how it can be supported?

Design: This article draws on a case study of a Finnish business network which was developed through theme interviews and observation conducted in 2012.

Findings: The findings support existing research on interpersonal trust, and emphasize three key characteristics of interpersonal trust building: (1) It is a slow process that can be easily discontinued by definite roadblocks. (2) It requires that the parties have knowledge about one another and a rapport; that they show respect and fairness, keep their promises, and most importantly, communicate effectively. (3) It should be based on shared responsibilities among the network members. The key finding is the importance of informal meetings that is not highly noticed in the research field. Informal meetings support more the building of we-spirit and crazy ideas that are important when new business models and innovations are built.

Research limitations / Implications: This case study considers one business network in Finland. Further research would be required in order to generalise the findings on a larger scale or to other contexts.

Originality / Value: Despite the significant attention given to interpersonal trust in management literature, less research has focused on understanding how it forms in inter-organisational settings. Moreover, the focus is usually in dyadic relations in network studies but this study focus on the level of whole network.

Keywords: Business networks; Business Modelling; Communication; Distrust; Networking; Social Capital; Trust

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1 School of Business and Economics, University of Jyväskylä, Finland; mila.hakanen@ju.fi

2 Market Intelligence Manager and an independent Academic Researcher

3 School of Business and Economics, University of Jyväskylä, Finland.

Introduction

The increasing relevance of business networks has led to burgeoning theoretical and empirical research over the past couple of decades (Miles & Snow, 1986; Nohria, 1992; Sydow, 1992; Klein, Palmer & Conn, 2000; Lorino & Mourey, 2013). Growing interest is towards intra- and also inter-organizational network dynamics (Van de Bunt & Groenewegen 2007). Business modelling is an important area in networking. The business modelling includes business model tools, such as Balanced Score Card or the Value Prims that concentrates on offered service, customer segments etc., in addition, the concentration should also be on business collaboration aspects, such as trust (Heikkilä et al. 2014).

Interpersonal trust has long been regarded as the backbone of business partnerships (Deutsch, 1958; Blau, 1964; Oxendine, Borgida, Sullivan & Jackson, 2003). According to this literature, interpersonal trust can be seen as the legitimate anchor of trust more generally (Lewicki & Bunker, 1996; Williams, 2001; cited by Simon, 2007). Initiating interpersonal trust appears to be a challenge in many business networks. The elusive nature of trust (Abrahams, Cross, Lesser & Levin, 2003) and the fear of sharing information in a context of potential conflict between individual and collective interests, (Dussauge & Garette, 2009; Le Roy, Yami & Dagnino, 2010) may impede the success of business networks, including the process of business modelling. Newly established business networks require initial interpersonal trust. It is therefore crucial to understand how interpersonal trust forms in business networks, before tackling the issue of how to maintain it.

A few researchers have demonstrated the strong correlation of interpersonal trust with variables such as cooperation and communication (Whitener, Brodt, Korsgaard & Werner, 2006). However there has been very little research on the links between interpersonal trust and business networks (Malhotra & Murnighan, 2002) or on the initial formation of interpersonal trust in such settings. The literature has instead focused on the initiation of inter-organisational trust (Akgün, Byrne, Keskin, Lynn & Imamoglu, 2005; McKnight, Cummings & Chervany, 2006; Whitener, Brodt, Korsgaard & Werner, 2006) and interpersonal trust within organisations (Abrahams, Cross, Lesser & Levin, 2003).

This study is intended to advance understanding on how interpersonal trust starts forming within business networks, in the level of whole network that is not so well-researched area. Usually the main attention in trust building research is in dyadic relations. Human and Provan's (2000) study founded that it is important to focus on internal and external legitimacy and support in the early stages of evolution of networking and they argued "*At present, network researchers in business, public management, and health care services have only a marginal understanding of whole networks, despite their importance as a macro-level social issue.*"

This study draws on a qualitative case study of a Finnish business network in the health and pharmaceutical industries. The discussion provides theoretical and managerial insights on interpersonal trust formation, which found that it is a slow and fragile process, requiring definite interpersonal elements, and involving responsibility. This study highlights the importance of informal meetings and personal chemistry. This article also provides practical guidance and recommendations to business networks about the nature of interpersonal trust formation.

Theoretical Background

Trust, enabler of cooperation and networking

Trust has been identified as a major area of social capital, if not its most essential element within business network processes (Putnam, 1993; Ilmonen, 2001; Erdem, Ozen & Atsan, 2003). Social capital exists in connections among individuals with trustworthiness and reciprocity (Putnam 2000), and affects the performance of business networks (Batt, 2008) by promoting productivity (Coleman, 1988) but also by facilitating the development of knowledge and innovation (Productivity Commission, 2003) that are two important areas in the networked business models (Solaimani & Bouwman 2012). Social capital can be seen including the levels of trust, the density of network relations, knowledge of the relationships and obligations and expectations inside the network (Pennington & Rydin 2000).

Trust is defined in a dictionary as a firm belief in the reliability, trust and strength of a person: a confident expectation and a reliance on the truth of a statement without examination (OED. 1996). Like social capital,

trust is also a wide concept. It can be examined from many perspectives and at several levels: individual, organisational, network and societal (Batt, 2008). Trust starts to build through communication and cooperation (Harisalo & Miettinen, 2010: 23-29) and typically develops over a long time (Barnett et al., 2010: 647). Sigfusson & Harris (2012) study dialed with the international entrepreneurs and they defined that: *"Trust is the individual, personal trust between the IE (international entrepreneur) and the relationship, reflecting a calculation of the trustworthiness, knowledge of the party involved and affection between the parties - trust always - included aspects of knowledge of the other party, such as honesty, value and reliance, or affective qualities, such as closeness and family ties."* Lee and Choi (2011: 97) developed a theory of trust as having initial and on-going forms. Initial trust is based on an assumption that *'being a member of the organisation is enough to assess the trustworthiness of an individual'*. It does not relate to experience of the individual actions of others, as trust towards the group generates trust towards its individual members. On-going trust is dynamic and changes over time, based on a belief about the partner's reliability and integrity. Calculus-based trust focuses on assessments of the benefits or

costs involved in deciding whether to trust and cooperate, and is not based on emotional or intuitive factors (Deutsch, 1962). Generalized trust concerns of affiliation or reputation instead of direct knowledge. This kind of trust can be referring to trustworthiness. De Wever et al. (2005) have divided trust into fragile (calculated) trust and resilient trust and they stated that the resilient trust is more positively related to network effectiveness than fragile trust - for example, less strategic resources are gained. They also divided trust into another category: to dyadic and generalized trust and they argued that dyadic trust have better influence to network effectiveness than generalized trust. When partners have a direct knowledge about each other, they are more willing to share and transfer knowledge and resources. (De Wever et al. 2005.)

Figure 1 (below) integrates the areas of social capital and trust. Trust is one dimension of social capital with communication and community. Trust can be divided into levels of individual, network, organisational and societal. This study only concentrates to individual and network level. Individual trust includes initial, on-going, calculus-based, generalized, fragile and resilient trust.

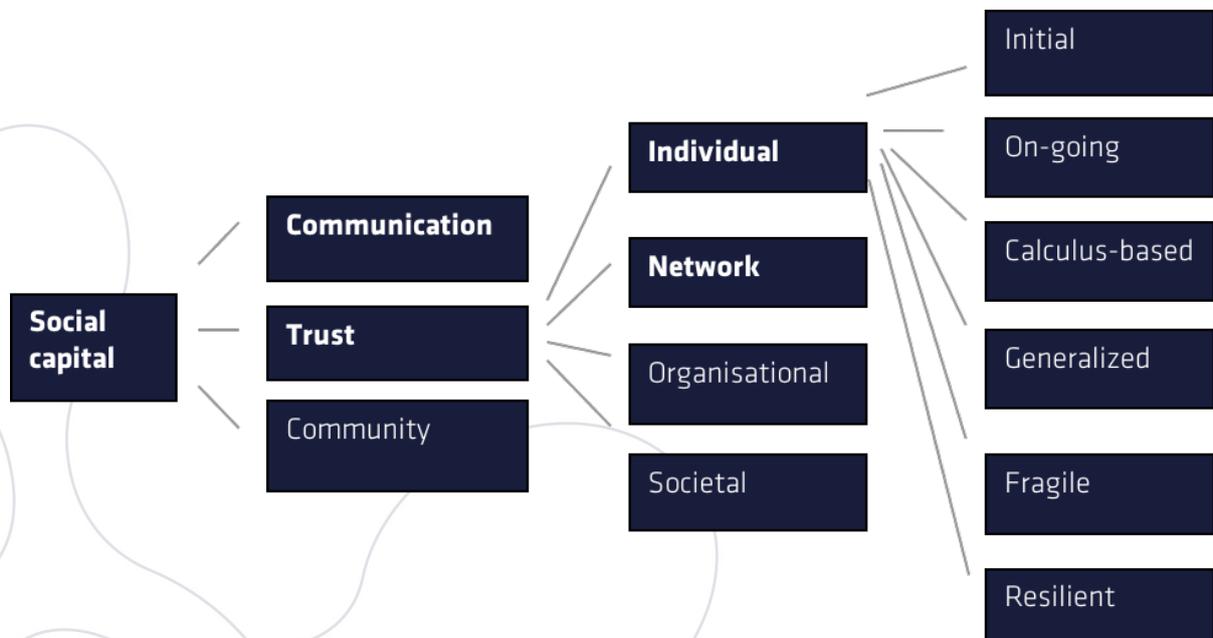


Figure 1: From social capital into the dimensions of trust

There are many definitions for networking because it is very broadly research area in many disciplines, for example in strategic management, organizational theory and business studies. "Research has shown that business relationships and their subsequent networks are as diverse and complex as the individuals who participate in them" (de Lurdes Veludo et al. 2006). Trust is a needed factor when companies decide to join business network and create a new business model. Trust is an enabler for transferring and receiving resources (De Wever et al. 2005.)

Trust and openness provide the basis for developing a strategic partnership and the strategic network needs constant communication between its members to work effectively. It is important that the partners have the same understanding about the current state of the network as well as its vision and targets that are among the most important areas in business modelling. The network will be under on-going development (Valkokari et al., 2009).

Interpersonal trust at business network level

Initial formation of interpersonal trust

Trust is a broad concept, so this study focuses particularly on interpersonal trust, which is seen as a central characteristic of knowledge creation and sharing needed in business development (Abrams et al., 2003). Interpersonal trust needs behaviour that is not only guided by self-interest, but also by their partner's wellbeing, which needs to be acknowledged (Lindenberg, 2000; Nooteboom, 2002). In much of the literature, interpersonal trust is defined as the willingness of a party to be vulnerable. Benevolence is one of the most important dimensions in interpersonal trust and is based on caring for others and being interested in their wellbeing and goals. Time is an important aspect in trust building: "As time goes by the relationships tends to become deeper and the uncertainty between the parties decreases." (Camén et al. 2012).

Enablers and roadblocks of interpersonal trust

"The management of relationships is an important issue that actors need to consider." (de Lurdes Veludo et al. 2006). The study reveals how trust building can be supported in network where organisations differ in generalised trust: 1) frequent communication between network members that can be enabler for knowledge-

based trust, 2) common platform for communication and 3) presence of intermediaries that understand the both cultures if the organisations are from different cultures (Gerbasí & Latusek 2015). Also 'rightness' is a key element of trust building that can be seen in the manner the partners share, their methods and processes, and their communication style. Trust is very high linked with commitment. When parties are committed, they invest to cooperation which improves trust. The risk of opportunism reduces. Some trust level supports that the commitment will be made in the first place but it can be decided also without trust. (Wuyts & Geyskens 2005). In trusted relationships, it is easier to express constructive criticism (Barnett et al., 2010: 647). Evidence of commitment to a long-term relationship encourages trust building. Reciprocal relationships require both cognitive and affective aspects of trust (Barnett et al., 2010).

With the presence of trust, the partners are willing to take a risk and transfer available strategic resources (De Wever 2005) and focus on the general logic of business, including the areas: business value, the customer segment, service, organisation, technology and financing (Bouwman et al. 2008).

Communication as an enabler for trust

In an atmosphere of trust, people share their opinions and ideas more freely but also warn about potential threats (Harisalo & Miettinen, 2010: 38-41.) Distrust is the biggest barrier to effective communication (Harisalo & Kilpi, 2006). Communication raises awareness of people's identities and can also explain the reasons underlying their choices and viewpoints (Harisalo & Miettinen, 2010: 61). Dialogue is the most advanced form of communication that requires trust. It contains open communication and idea sharing that generates new knowledge (Harisalo & Miettinen, 2010: 88) that is needed element in business modelling (Heikkilä et al. 2010). It is important that individuals can share not only the facts but also their feelings, needs and desires (Barnett et al., 2010: 652). However De Wever et al. (2005) argued that in the certain point of frequency of interaction, the interaction can become distracting when partners focus too much to development and maintaining of interaction so that the focus is not more in strategic resources.

Distrust

Distrust means a lack of trust that is based on experience or information. It can grow as a consequence of insufficient communication (Harisalo & Miettinen, 2010: 48). Unjustified criticism about others can lead to distrust. Moreover, avoiding one's responsibilities, stealing others' ideas and revealing their secrets encourage distrust to grow (Reina & Reina, 1999: 144).

In business networks, distrust has strong negative effects on results. It grows when actions are inconsistent with words and promises, as partners cannot trust one another's words or assume reliability. Unintended distrust can arise when the parties have a different understanding of the aims and vision of the enterprise. As the process goes forward, distrust starts to solidify among the parties and people begin to avoid the distrusted persons, causing members to grow apart. Even trivial matters can be difficult to resolve (Harisalo & Miettinen, 2010). Distrust increases the frequency of unforeseen events because consistency deteriorates and this reduces the likelihood of innovation and productivity (Harisalo & Miettinen, 2010: 52-53).

Harisalo and Miettinen (2010: 53-55) outline the ideal process from distrust to trust as comprising six phases: 1) open communication, 2) constructive debate, 3) listing the causes of distrust, 4) solutions, 5) transferring to action, and 6) continual assessment. At the outset, the parties should be honest and ready to genuinely listen without prejudice. They should be willing and able to express how they have experienced and interpreted things, then they can express their viewpoint on given situations and explain the reasons for their actions. The third phase implies listing together the causes for distrust. The next phase is about co-creating ideas for resolving and strengthening the relationship. Thereafter, the ideas have to be put into action. The last phase includes a continual assessment of the relationship.

Building Trust in a Business Network in the Finnish Healthcare and Pharmaceutical Industries: A Case Story

Context of the case

This study draws on a Finnish government-funded re-

search project that started in June 2011 and ended in May 2014. It focuses on a Finnish business network involving companies in the pharmaceutical and health care industries. The network started the business creation process in the fall of 2011, aiming to deliver sustainable business solutions for contemporary health, exercise and wellbeing (HEW) problems, in Western industrialised countries. Two of the case companies are small size and other two large size. Some of these companies have also other shared business activities that are begun before this new cooperation model.

This network is mainly concerned with preventing health problems (such as obesity and type 2 diabetes) by developing products and service innovations, such as "exercise prescription". The network examined is creating business models and developing growth ventures with Finnish HEW expertise.

Methodology

Typically, a case study produces in-depth description of one phenomenon (Robson, 2011:40) and concentrates on the dynamics within single settings (Eisenhardt 1989). In this study, the dynamics were studied by concentrating on the meanings expressed by interviewees about these dynamics so the main focus was in the actor's own perspective. The main aim of this study was to find out how network partners felt about the initial phase of networking, and more precisely, their views about interpersonal trust at this stage. The case network was chosen to research object and this pragmatic case study was implemented in a Finnish business network to provide tools and guidelines about interpersonal trust building for the studied network. This study followed a case study protocol that comprises five sections: the purpose of the study, data collection, report outline, question outline and evaluation (Yin 2014). Because the object was to understand the interpersonal trust in a specific business network, the interviewees were chosen by this project were the network was in the early-stage. One of the interviewees was the project manager from the university team and the others were from the management level of network partners. The results could be utilized in practical management by taking into account the enablers and roadblock of initial trust building in network level when the company is starting a new network-level cooperation.

The main research data was collected through interviews with representatives of the companies in the network and the secondary data was collected by non-structural observation. Thematic interviews are usually relevant when research aims to study and describe the interviewee's own experiences, feelings and emotions. These interviews covered a few selected themes in a semi-structured style (Merton, Fiske et Kendal, 1990; Hirsjärvi & Hurme, 1995). Themes were chosen by analysing the experiences of the interviewees and examining the earlier studies. The interviews were held in the fall of 2012. They were semi-structured, face-to-face interviews which lasted one hour on average. Four depth-interviews were conducted consisting of three main themes: the current state of interpersonal trust, enablers of trust building, and inhibitors and road-blocks.

The data was analysed by theme-based content analysis. Thematic coding can be used as a realistic or constructive method. In this study, a realistic method was chosen to report the interviewees' meanings and experience about the phenomenon. (Robson 2011.) The data collection and analysis overlapped in the research process.

Findings and Discussion

The current state of interpersonal trust

Some of the network partners spoke about positive experiences they have had with their partner organisations where they have reached win-win situations together: 'The building of trust is based on shared success and also actions matching with words.' Trust is developed through shared successful operations and promise-keeping. 'We have kept our promises.' This study revealed that where initial trust was not based on shared experience with individual representatives from partner companies, it was derived from a perceived sense of trust towards the other organisations. The others appear trustworthy because they are members of a trustworthy organisation (Lee & Choi, 2011).

Small talk and informal atmosphere

One interviewee did not like small talk, and preferred to focus on topics that were suited to a fact telling approach. However, small talk helped when building trust as individuals share their lives and opinions and in doing so reveal some of their personality and character. In

the case study network, the partner relationships were quite new and developing, but interactions were still in a very formal state. One interviewee highlighted that this formal atmosphere does not really help to build interpersonal trust: 'Still I see that that the meetings are far more formal than they should be, thinking about trust building and conduct, and that communication could be more open.' "Now job titles increase the gaps", said the one interviewee. Such gaps need to be actively minimised by encouraging more personal interaction. Network partners need to meet in a more informal atmosphere to encourage more casual interaction which helps to foster interpersonal trust (Barnett et al. 2010).

Communication

In general, the interviewees felt that the communication has not been active at the network level but those infrequent discussions have been good. One interviewee felt that this may be because either in the early state of networking, the partners want to listen and observe others before making a move, or the organisations' representatives did not have a mandate to proceed. Business networks could be tighter and more productive. One interviewee thought that trust starts to build when the partners share information that is not usually available to the others.

Interpersonal trust building in the initial phase of business networking – enablers and road-blocks

People should act as they have promised, in other words, they should 'walk the talk', as trust can be lost if promises are not kept. The words and actions should be parallel (Christopher et al., 2008).

One interviewee revealed that straight talk was needed. "I long for straight talk where everyone could say exactly what they want and expect." Network members should be able to communicate their interests freely, however the meetings were overly formal and focused on the past. Active communication would better support trust building and encourage a future focus (Barnett et al., 2010). The network members did not fully understand the pieces of the puzzle, that is, they could not see the whole business model or the particular roles of each of the network partners. The benefits of synergy were not yet fully assimilated within the network.

Another interviewee commented on the importance of informal meetings and how the environment can help to create a more casual setting which encourages making personal acquaintances and building team spirit. Informal meetings eliminate the competitive position (Christopher et al., 2008) and foster outside-the-box thinking and even unconstrained ideas that can lead to new innovations. One interviewee felt that at informal events it was easier to get more information about the feelings and opinions of network partners. Also network members could disclose more clearly the reasons why they chose to take part in the network. One interviewee highlighted the importance of environment and atmosphere in trust building, noting that one of the network meetings in particular was better than the others. This meeting was held in a different and neutral environment in Vierumäki, Finland. This environment did not contain any distractions, whereas all other meetings were held in the head offices of the network companies. However one network partner felt that formal meetings could also be reframed so that the atmosphere was more casual and better able to support trust building.

This network member also reflected on how trust can be lost or damaged through being too self-interested. Furthermore, an overly positive image of circumstances can break trust. Distrust reduces communication and information exchange, and this prevents progress (Harisalo & Miettinen, 2010).

This study also supports earlier research findings that it takes time to create trusted relationships between network members. After a while, members should shift from addressing one another on last name terms to using first names. One interviewee noted that the important aspects of trust building are genuine listening, objectivity and adding value. Personal rapport is also needed. Tense and short interactions do not engender trust building and cooperation. Another interviewee claimed that 'if you think about the most trustworthy persons in your life, they are those whom you are dealing with the most'. The network members should have an in-depth understanding of the business of the other network members. Without this understanding, it is not possible to create business model that is based on value creation (Zott & Amit 2008). Also, network members should focus on collective decision-making

processes. Partners possess different viewpoints, and these need to be negotiated. But before they are fully ready for the stage of negotiation, they need better level of trust, in another words, they need more consistent experience of the behaviour towards each other. (Lewicki & Bunker 1996.)

A major challenge in business creation is time. An interviewee pondered how much time the representatives have to invest in business creation, as they have other daily duties. In the case study network, this business creation goal can be seen changing from a planning mode into action. Definite, successful steps will, in turn, build trust amongst network partners, supporting the network's operations and reinforcing their shared vision.

Figure 2 combines the enablers for interpersonal trust building in business networks that are collected from this study. The five main elements are: earlier positive experience, trustworthy actions, communication, personality and trust at the network level. Earlier successful operations build positive experiences which is a good starting point for trust at the network level. Trustworthy actions are needed, so trust is tested by how actions match words and how promises are kept. Communication should be active. Straight talk and genuine listening is needed. Small talk helps to get to know each other at the personal level and an informal atmosphere helps to build trust between people. Trust needs personal knowledge and rapport to grow. In addition, the environment and atmosphere play a role in trust building. Informal meetings can help in developing team spirit and personal acquaintances. In cooperation between network members, decision-making processes should be fair and negotiation is needed so that the different viewpoints are heard. Trust starts to build at the network level after concrete, successful steps have been achieved.

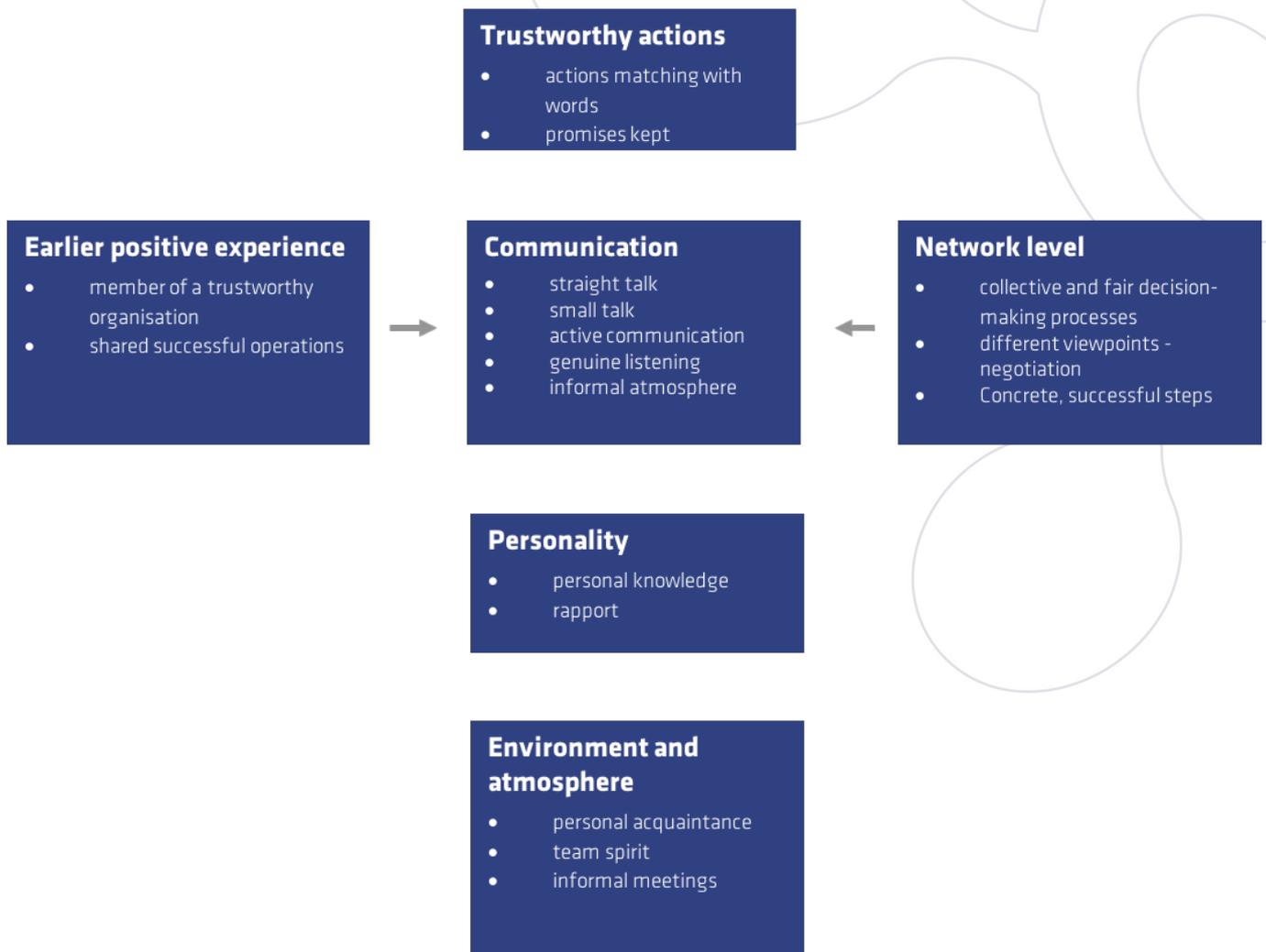


Figure 2: Enablers for interpersonal trust in business networks

Conclusion and Future Research

This research revealed that interpersonal trust building, based on emotions and a belief that the others are trustworthy, is essential when business networks are being established. This study supports earlier research findings that effective networking is not possible without trust (Holmlund & Törnroos 1997) because people cannot (or will not) share the ideas that can lead to new business models or innovations (Harisalo & Miettinen, 2010). Direct knowledge of partner creates willingness to share and transfer resources (De Wever et al. 2005). Shared interests support trust-building at the network level. Trust appears through the willingness of partners to propel their shared interests through developing the network. The case study provides an example of a val-

ue creation network is creating a new business model. This network is still in the development phase where the members are getting to know one another. The interviews highlighted that participants in this phase are cautious in their interactions. The formal atmosphere does not support trust building, whereas informal meetings would be more likely to invite interpersonal dialogue and foster a belief that cooperation is not based only on self-interest (Christopher et al. 2008). The key findings in this research is the importance of informal meetings that offers more casual surroundings that support more the development of we-spirit and active, free discussion that could contain also crazy ideas. The crazy ideas are important when the partners are developing the new business. Equal surroundings

and atmosphere support to reach the personal level in discussions.

This study focused on finding the guidance and suggestions for interpersonal trust building in the initial phase, noting that the trust-building process is slow and complex. The process follows Goffman's (1959) model of frontstage behaviour to backstage behaviour, where trust is needed so that people can take their mask off and reveal their true personality. This study also supports that the atmosphere and environment of interactions affects the trust-building process, and that it is not irrelevant where network members meet. Common platform for communication is needed in business network level and it is missing also in the case network (Gerbası & Latusek 2015).

In a business network, the responsibility of trust building must be shared. Trust builds through shared experiences, active communication, openness, and mutual respect. Moreover, face-to-face interaction and personal knowledge are needed. Trustworthy relationships enable communication where personal ideas and critical information can be revealed. Also, without trust, opinions, questions and improvement ideas are not always taken into account by network members. Interpersonal trust requires the following factors:

- personal acquaintance and chemistry;
- respect;
- fairness;
- keeping of promises;
- communication; and
- words matched by action.

Communication can be seen as one of the most essential areas and it is enhanced by trust. To be successful, full and open communication is essential when building a business network. Communication should include the following elements:

- genuine listening;
- straight talk;
- knowledge sharing;
- facts;
- needs;
- desires;
- feelings and emotions.

A climate of cooperation is required, where differing opinions can be voiced and acknowledged. It is important that the inevitable differences are not set aside or ignored (Cook, 2009).

This study also supports the view that trust is needed to encourage business partners to fully commit to the development of business networks. This business development consists of co-creation on many levels. For example, in business modelling, trust is a crucial factor for members to be willing to share their personal ideas and critical information. The shared vision and desired targets should be internalised by each and every network member and they should all take part in the discussions and be open to hearing others' opinions. In a business network, everyone is responsible for building trust.

This study is practical oriented and to main focus was to give guidance and support for the early stages of networking how trust starts to form. The guidance is for network partners and - creators but also for business consultants. We suggest that trust formation should be supported and the responsibility should be shared among network members. It is crucial to recognise the enablers and roadblock for trust building. The main enablers, such as, effective communication, promise keeping, fairness, respect and personal knowing can be seen as a corner stones for trust

This research focuses on one business network embedded in the Finnish context. Additional research would be needed to determine if the findings can be generalised on a larger scale, or to other contexts. This study has concentrated on the development of interpersonal trust in business. Further in-depth research could be conducted focusing on the design of tools and operational models that aim to support the building and maintenance of trust in business networks. Also the research could be focused to, is it possible to manage trust. There are not enough studies in this area.

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About the Authors

Mila Hakanen is a researcher and PhD candidate at the Jyväskylä University School of Business and Economics, Finland. Her research focuses on the areas of interpersonal trust, communication and trust building, trust management and business networking.



Leïla Kossou is a seasoned Market Intelligence Manager and an independent Academic Researcher. Leïla's versatile background has led her to convey her strategic management expertise in international colloquia, books and papers, with a focus on strategic intelligence, clusters and cooperation.



Tuomo Takala is a Head of Management and Leadership at the Jyväskylä University School of Business and Economics, Finland. His research areas are: responsible business & management, leadership & narratives and charismatic leadership.



Initial Configurations and Business Models in New Technology-based firms

Hanna Rydehell¹ and Anders Isaksson²

Abstract

Purpose: The purpose of the paper is to analyse founders' perceptions of initial configurations and business models in new technology-based firms (NTBFs).

Design: Case studies were performed using semi-structured interviews and interactive techniques involving open questions and activity cards to capture perceptions of activities that form the firms' business models.

Findings: The Business Model template, commonly referred to as the Business Model Canvas, is frequently used among these companies and seemed to have shaped the business model discourse in our case companies. Our findings also indicate that founders of NTBFs perceive their customer value proposition as the most valuable element of their business model. We also recognized signs of the influence of financial partners on the founders' perceptions of the initial business models. Furthermore, findings show that some NTBFs create parallel business models within their firms to ensure survival in the start-up phase.

Originality / Value: The paper adds value to business model research by describing how NTBFs' structure their initial business activities and the elements of their initial business models perceived to be as more crucial during the early years as well as how these perceptions change.

Keywords: Business Models; Initial Configurations; New Technology-based Firms, Founder Perception

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¹ Technology Management and Economics, Chalmers University of Technology, Sweden; hanna.rydehell@chalmers.se

² Chalmers University of Technology, Sweden; anders.isaksson@chalmers.se

Introduction

New technology-based firms (NTBFs) are important for the long-term development and growth of an economy (Storey & Tether, 1998; Spencer & Kirchhoff, 2006) through employment, research and development, and innovation (Bollinger et al., 1983). Yet, many of these firms do not succeed in the market during the first years of start-up. In order to better understand why some firms succeed and remain in the market while others fail, researchers have studied the impact of founding conditions on firm growth including, for example, social capital and knowledge acquisition of the founding team, resource management, and the business environment (e.g., Yli-Renko et al., 2001; Löfsten & Lindelöf, 2003; Brinckmann et al., 2011; Clarysse et al., 2011). Research has demonstrated that a firm's future prospects for development are affected by decisions made initially by founders and that configurations established in the early start-up phase are difficult to change later on (Boeker, 1989). Hence, understanding the initial configuration and structure of business activities becomes important to recognize the consequences that these decisions may have in the future. One way to capture the initial business configurations made by founders is to investigate their initial business models.

The business model of a firm is a way of structuring business activities to achieve corporate objectives (e.g., Amit & Zott, 2001; Chesbrough & Rosenbloom, 2002; Magretta, 2002; Teece, 2010; Zott et al., 2011) and is a simplified depiction of how the elements of the business work together (DaSilva & Trkman, 2014). The benefit of a good business model is that it delineates how all parts of the firm will work together to deliver an important advantage (Magretta, 2002), specifically, by capturing value from innovation (Chesbrough & Rosenbloom, 2002; Teece, 2010). Chesbrough and Rosenbloom (2002) showed that technology-based spin-offs capture economic value through evolving their business models and unlocking cognitive dimensions from previous and old business models. In this sense, the business model constitutes an important element for (new) technology-based ventures.

Furthermore, the business model has been recognized as a cognitive instrument for founders and managers (Baden-Fuller & Mangematin, 2013) to use in order to

configure their businesses and to understand how the firm can create, deliver, and capture value.

The cognitive approach highlights that advantages of the business model lie not only in how it is developed, but also how founders are able to change it. Extant business model literature has demonstrated the importance of this for business model innovation (Chesbrough, 2010; Achtenhagen et al., 2013) and for the establishment of firms and start-ups. Experimentation and adaptation of early business models enhance the chances of business success (Morris et al., 2005; Andries & Debackere, 2007).

Andries and Debackere (2007) studied NTBFs and the relationship between business model adaptation and firm performance. They found that adaptation is valuable and reduces the frequency of failure in industries that are developing, rapidly changing, and capital intensive, which are often the characteristics of industries with NTBFs. Concerning business model adaptation, founders need to perceive and recognize changes in the market to be able to adapt properly. Early perceptions that influence founders' decisions are important to emphasise in order to understand connections between the business model and firm success. However, we still do not know enough about founders' perceptions. How founders perceive their initial business models during start-up and how they configure and structure their business activities (what they focus on) have not been fully addressed by existing research, making it unclear how these perceptions might influence the success of NTBFs.

This study aims to address this research gap on initial business models. The main purpose of this study is to analyse founders' perceptions of initial configurations and business models in NTBFs.

The study is based on a case studies of Swedish NTBFs in the early years of their start-up, analysing founders' perceptions of their businesses and their configurations. The study contributes to the business model literature by exploring how founders perceive their businesses in the start-up phase and describing their focus in their initial business models. Moreover, the study gives input to and suggestions for future research on quantitative measurements of initial business models,

which might contribute to clarifying the consequences of these initial configurations.

The remainder of the article is organized as follows. Section 2 presents a brief summary of the literature on the business model concept and how it has been studied within the entrepreneurial process. Section 3 describes the research methodology for the study and Section 4 presents the results and analysis. This is followed by a concluding discussion of the findings and recommendations for future research.

Theoretical Framework

A business model is an outline of the configuration of business activities, depicting how the value delivered to the customer can be converted into an economic value for the company (Chesbrough & Rosenbloom, 2002; Magretta, 2002; Baden-Fuller & Morgan, 2010). Such activities include: providing offers to customer segments; identifying how to reach customers and which distribution channels to use; structuring what resources are available internally and what is needed externally; and, understanding the company's costs (e.g., Chesbrough & Rosenbloom, 2002; Dubosson-Torbay et al., 2002; Magretta, 2002; George & Bock, 2011). In general, business models are defined through how firms create, deliver, and capture value (Chesbrough & Rosenbloom, 2002; Teece, 2010; Richardson, 2008; Zott et al., 2011). Thus, a business model is a current picture of how the different dimensions of a firm interact to create business value (DaSilva & Trkman, 2014). Accordingly, a business model can be viewed as the underlying architecture of the firm. This view of the business model provides a description of how firms are structured depending on their business environment (i.e., the context). From that perspective, the business model is more like a road map or plan of how different elements and linkages between them interact to create a customer offer (product or service) and how value is captured through payment. Approaching the business model as merely the architecture of the firm, consisting of the configuration and structure of different elements and the linkage between them, has engendered the development of several frameworks (see, e.g., Hedman & Kalling, 2003; Morris et al., 2005; Shafer et al., 2005). However, although most frameworks consist of similar elements, they also differ by including differ-

ent aspects such as competitive strategy (Chesbrough & Rosenbloom, 2002; Morris et al., 2005). Table 1 presents a selection of business model elements in extant literature.

However, inclusion of a competitive strategy as an element of the business model has led to confusion about the terminology of the business model concept. Thus, while there is a consensus about the relevance of the business model in capturing value from a customer offering, "there is no universal consensus of what a business model actually is" (Lambert & Davidson, 2013, p. 669). Hence, researchers have used the concept of a business model for different purposes, referring to differing aspects of a business such as its strategy and revenue (Morris et al., 2005).

In terms of strategy, the business model comprises strategic elements such as how the firm will make money. However, this does not mean that a business model is the same as a strategy (Magretta, 2002; Morris et al., 2005; Shafer et al., 2005; George & Bock, 2011). The business model can be seen as a way of communicating a firm's strategic choices (Shafer et al., 2005; Richardson, 2008), focused on its opportunities, whereas its strategy aims to address how it will handle competition (Magretta, 2002; George and Bock, 2011). However, as the strategy deals with competition, the business model should fit with the strategy in order for the firm to perform well (Zott & Amit, 2008). The business model can be described as a reflection of what the firm is currently, while the strategy addresses what the firm wants to become (DaSilva & Trkman, 2014). The strategy is the way a firm positions itself in the market and where and how it decides to compete, whereas the business model seeks opportunities to exploit in its markets and how to achieve its strategy (Casadesus-Masanell & Ricart, 2010). Actually, as argued by George and Bock (2011), the business model only exists when there is a business opportunity to exploit.

Moreover, the business model is not the same as a revenue model, although they are complementary as described by Amit and Zott (2001): '*A business model refers primarily to value creation whereas a revenue model is primarily concerned with value appropriation*' (p. 515). Simply put, the revenue model can be seen as a sub-concept of the business model. The revenue model

Table 1: Business Model Elements

Author (year)	Business Model Elements
Amit & Zott (2001)	Content of transactions, structure of transactions, governance of transactions, and value creation design
Chesbrough & Rosenbloom (2002)	Value proposition, market segment, value chain structure, cost structure and profit potential, value network, and competitive strategy
Morris et al. (2005)	Offering (value proposition), market, internal capability, competitive strategy, economy (cost, profit), and growth/exit
Osterwalder et al. (2005)	Value proposition, target customer, distribution channel, relationship, value configuration, capability and core competences, partnership (partner network), cost structure, revenue model
Tikkanen et al. (2005)	Strategy and structure, network, operations, finance and accounting, reputational rankings, industry recipe, boundary beliefs, products
Richardson (2008)	Value proposition (offering, target customer, competitive advantage), value creation and delivery system (resources and capabilities, value chain, value network), and value capture (revenues, costs)
Teece (2010)	Value proposition, market segment, revenue streams, cost structure, strategic engagement, 'isolating mechanism', resources/dynamic capabilities, value chain and value delivery
Baden-Fuller & Mangematin (2013)	Identifying the customer, customer engagement, monetization, and value chain and linkage

can be defined as the way the firm gets compensated for what it delivers and it consists of revenue streams describing how the firm is being paid.

The confusion that exists around interchangeable terms used for the business model concept could be argued to be the result of the different perceptions of founders and managers about what the business model is. Hence, the business model can be seen as not merely an architecture of the firm but as the configuration of the business in the mind of the founder; thus, emphasizing the business model as a cognitive instrument (see, e.g., Tikkanen et al., 2005; Baden-Fuller & Mangematin, 2013).

A cognitive perspective of the business model emphasizes that founders use the business model to make sense of their business within the business environment (Vargas & McCarthy, 2010). This perspective of business models further highlights the linkage between the business model and technology development and transfer (Baden-Fuller & Haefliger, 2013), which is of specific interest in the context of NTBFs since they build their businesses around commercializing a technology. The technology development is, thus, dependent on the decisions and focus within the business model based on the perspective of the founder. Moreover, for NTBF founders especially, the business model represents an on-going, changeable tool to use

to structure their businesses to target perceived opportunities and achieve competitive advantage (strategy) over the long run. Further, cognition guides what founders perceive and believe to be an appropriate business model (Tripsas & Gavetti, 2000), influencing their decisions and the business activities that are focused on. Thus, this paper draws on the research regarding business models as the cognitive instruments of founders, facilitating the structure of business activities to create, deliver, and capture value.

Although business modelling is regarded as the cognitive process of founders in this paper, frameworks providing elements of the business model, such as the Business Model Canvas (Osterwalder & Pigneur, 2010) or the entrepreneur's business model (Morris et al., 2005), are still useful in understanding how entrepreneurs configure and form the underlying architecture of their firms to exploit opportunities in the market. Thus, using such frameworks could facilitate an understanding of where practitioners draw the line between strategy and the opportunity-centred business model (George & Bock, 2011), which might facilitate finding the answers to questions about how founders' perceptions of initial configurations and business models influence how they structure their business activities.

Business models and the entrepreneurial process

Examining the business model as a cognitive instrument, it appears that the development of the business model will change during the start-up phase as founders understand their business environment better and what and how they can create value. Experimenting with business models during start-up has been recognized as important for new firms in adapting their businesses to changes in the environment, thus influencing the success of their firms (e.g., Morris et al., 2005; Andries & Debackere, 2007; Chesbrough, 2010; Andries et al., 2013).

Andries et al. (2013) demonstrate that simultaneous experimentations are important for technology-based ventures to cope with uncertainty and for long-term survival. They also show that experimentation implies a heuristic logic and involves several business models that firms experiment with before settling on one. Hence, during the start-up phase, firms may not fo-

cus solely on one business, thus experimenting with the initial business model could result in parallel business models (Clausen & Rasmussen, 2013; Nenonen & Storbacka, 2010). Parallel business models would further facilitate founder experimentation with different options and enhance their competitiveness in the market. As argued by Markides and Charitou (2004), several business models can be used in the same market to adapt to changes and to introduce innovations creating a competitive advantage for the firm. Introducing new business models is a further way to handle changes created by competitors' innovations (Markides & Oyon, 2010). However, regarding technology-based ventures, which are usually outsiders disrupting established markets and creating new niches, elaborating on parallel business models is more of a way for founders to understand their businesses better – what value to create, how to create it, and for whom. Additionally, it is important to recognize that new ventures are experimenting and changing their business models in different ways compared to established firms (Ahokangas & Myllykoski, 2014; Iivari, 2015). Moreover, several business models offer different emphasis on the business activities, thus different perceptions of the initial business might affect the configuration of the start-up in different ways. With a cognitive approach to business models, decisions made when founders better understand their business and business environment could be studied through a different focus within the business model and changes within it could be detected as well as any changes that include experimentation with parallel business models.

The focus during the entrepreneurial process of a new firm may further change depending on external influences, thus suggesting that the external environment or external people (stakeholders) involved could impact the founder's perception and the focus in the business model.

Research has stressed the importance of focusing on customer development and relationships for firm success and the fit of firms' value propositions with customer needs (Blank & Dorf, 2012; Osterwalder et al., 2005; Osterwalder et al., 2014). Although several tools have been developed for entrepreneurs to use to configure business activities and develop their own business models, new firms still struggle to survive during

the early years of start-up. Apparently, the value proposition and customer needs are not always the focus of founders. George and Bock (2011) studied how practitioners perceived a business model and how to use it, demonstrating a divided view on the concept with different understandings of the word. Thus, there are still gaps to be filled when it comes to founders' perceptions of their initial business models and how that influences how they structure their businesses during start-up. Further, with more knowledge about initial business model structures, researchers might be able to address unanswered questions about the early activities of start-ups such as 'Are unique business model characteristics correlated with improved survival or performance?' (George & Bock, 2011, p. 106).

Methodology

The study empirically investigates perceptions of initial configurations and business models in NTBFs in the first years of start-up. The topic is theoretically limited, but since the business model literature has been developed over the years, theory will be used for studying the initial configurations and the business models of NTBFs, for example, in understanding what questions to ask and in developing the interview guide. To dig deeper into the perceptions and initial business configurations a case study approach is appropriate. The case study approach makes it easier to analyse and compare data within and between cases, and is appropriate when the context is of a complex nature (Eisenhardt & Graebner, 2007). The later applies to the business model context (Baden-Fuller & Morgan, 2010).

Selection of cases

This study is interested in NTBFs due to their potential for long-term development and economic impact, as stated in the introduction. However, since NTBFs are highly technology-based they compete in highly uncertain environments (Brinckmann et al., 2011). Additionally these firms are based on assets such as technological knowledge (Vargas & McCarthy, 2010), may lack resources, and are dependent on interactions with stakeholders within their business environment. Thus, founders of these firms need to consider the configuration of their firms to be able to survive in the market, which implies adaptation of their initial business mod-

els (Andries & Debackere, 2007). In that sense, these founders are more likely to reflect on the development of their business models.

The selection of each case was based on three criteria: industry classification, age, and location. Initially, we used the Retriever Business database as a filtering tool to provide a list of potential NTBFs. Retriever Business is a database containing financial and legal information on all Swedish companies (Retriever Business, 2016). Based on the criteria, a search in the Retriever Business database filtered out firms that did not meet the criteria. First, for industry classification the Statistical Classification of Economic Activities in the European Community (NACE) codes (Eurostat, n.d.) were used to select firms that operate in high-tech and medium high-tech manufacturing or knowledge intensive industries. NACE codes have been used to classify high-tech firms such as NTBFs (see, e.g. Wennberg et al., 2012) and cover industries used in previous research (see, e.g., Yli-Renko et al., 2001).

Second, the age of the firms was used in order to identify firms that could be perceived as 'new' and in their early start-up phase. Firms selected for the study were founded and registered between the years 2010 to 2013. In our initial contact with the firms, we confirmed that the firms were newly established and not re-registered enterprises that existed for several years.

Third, to provide easy access to the case companies, firms were also selected based on their location in the Gothenburg region. The Gothenburg region is also an industry dense area with many technology-based start-ups related to both the University Hospital (Sahlgrenska) and Chalmers University of Technology.

Final selection was then made using convenience sampling, where firms were called and asked if they would consider participating in the study; if they said yes, the firm was included in the research. Table 2 presents the final eight firms selected for the study.

Table 2: Presentation of selected cases

Case	Founders interviewed	Description of NACE code	Year of founding	Empirical (Quantitative)
A	1	Engineering, technical testing and analysis	2012	Develops dental disposable saliva absorption under the tongue
B	2	Computer programming	2013	Develops software to streamline production: software that can manage production planning
C	1	Information services	2010	Develops software for companies to take advantage of online products. In the area of "Internet of things"
D	1	Video and television program production	2011	Films and broadcasts live performances and concerts in movie theaters
E	1	Computer programming	2012	Helps photographer to make improvements by offering and developing an Internet-based community for social learning
F	1	Video and television program production	2010	Post production where services are provided to create products that customers can make money
G	1	Engineering, technical testing and analysis	2011	Develops computer-based simulator for training and maintenance of intubation skills
H	1	Advertising and market research	2013	Develops a terminal to easily collect customer feedback. Helps service industry to become better at customer satisfaction and customer service

Data construction

The study was based on semi-structured interviews (Bryman & Bell, 2011) to let the respondents explore the topics and explain their thoughts and business focus. The interviews were recorded for later transcription of the data.

To ensure that each interview captured the focus of the NTBFs' business models, an interactive interview guide was developed including both semi-structured questions as well as 'assignments' where respondents were asked to think about and consider the business activities they completed during start-up.

As already discussed, the business model concept is not a crystal clear concept (George & Bock, 2011; Lam-

bert & Davidson, 2013; DaSilva & Trkman, 2014). Thus, only using interviews might make it difficult to capture the perceptions of the founders (Silverman, 2007) and the focus of their business models. Further, using the term 'business model' might be perceived as asking the firms to reveal their unique strategies and competitive advantage; meaning, this could be seen as a 'threat' to the respondent. Therefore, the term 'business model' was left out of the first part of the interview guide. Later it was used to let the respondents offer their own definitions of a business model. Hence, this enabled a better understanding as to how the founders perceived and defined the concept of a business model and how they talk about it when relating it to their own businesses.

The interviews could be seen as instrumental dialogues (Kvale, 2006) that provide descriptions and explanations of what we want to understand. However, when conducting case studies some bias in the results is unavoidable as this kind of research design is somewhat subjective. This concern is especially true in the interview situation where the researcher has to decide which questions to ask in a semi-structured interview as well as the way respondents' answers are interpreted. To avoid creating too much bias during the interview, and to ensure the respondents expressed their business in their own words, the interview guide started by asking the respondents open questions about their business; what they do; and, how far they have come. Subsequently, the respondents were given a sheet with a timeline and asked to fill in important activities during start-up and through today. During the timeline activity, questions were also asked about any difficulties in the process, what other actors had been involved, and if examples could be given explaining some activities in more detail. The timeline provided an understanding of the founders' perception of their business and also enabled the respondents to talk more openly about their business models without the words 'business model'

being mentioned.

After filling in and talking about the timeline, the word 'business model' was mentioned for the first time, asking respondents about their perceptions of a business model. To proceed to the topic of the firm's specific business model, cards depicting different activities were used (see Figure 1). These activities build on the Business Model Canvas (Osterwalder & Pigneur, 2010) and to some extent the work of Morris et al. (2005). The Business Model Canvas was especially useful as it gives a clear visualisation of important business activities.

The cards were presented as different business activities that could form different business models, and the respondents were asked to review and think about them and then rank them according to what they spent most time and focus on during the start-up process. This procedure enabled the respondents to describe what they perceived as most important in the start-up phase and describe the mistakes they made in the beginning. After the first round of ranking the cards, questions were asked about what had been most time

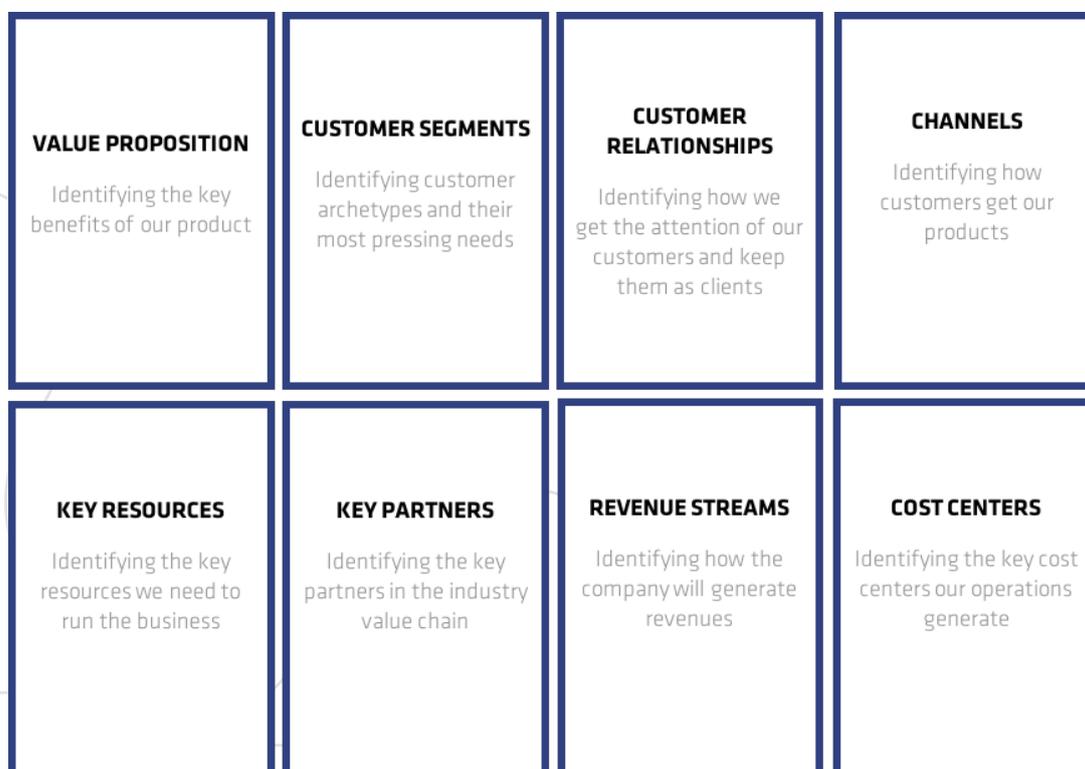


Figure 1: Business Model Activity Cards used in Interviews

consuming and difficult; if other actors had been involved during the different activities; and, what they did differently from their competitors (i.e., the uniqueness of their business models). The card ranking was photographed for later analysis.

The interviews ended with questions about the founders' expectations for their business progress in the next three years (the future), and closing questions about what they would have done differently if they could start over. The final questions aimed at getting more examples of early mistakes (some already mentioned) from new angles. In general, the average interview time was about 45 minutes.

Coding and analysis

When analysing the empirical data, the first step focused on transcribing the recorded interviews. Since parts of the interviews were focused on the timeline and the activity cards, the transcribing needed to include statements of what the respondents had written and how they structured the activity cards. The transcribing resulted in 67 pages of text, including statements from timelines and activity cards. After transcribing the interviews, it was coded based on thematic coding (Flick, 2009; Braun & Clarke, 2006). Thematic coding is used to identify patterns (i.e., themes) in the data and can be based on the purpose of a study or theory (Braun & Clarke, 2006). Specifically, thematic coding facilitates the comparison of people's perceptions and experiences (Flick, 2009) as well as a comparison between theory and practice. Based on the purpose of this paper and the theoretical assumptions of a business model being a cognitive instrument of the founders, themes were identified with this in mind. Thus, one theme identified was based on the cognitive perspective of the founders' perceptions of their business models. This included how words or concepts were used to describe their business, how they defined it, and if they were able to reflect on the value-creating and value-capturing process that constituted a business model.

Furthermore, cognition guides decisions made about the configuration of business activities and founders' focus in the business model (Baden-Fuller & Mangematin, 2013), such as customer relationships (Blank & Dorf, 2012; Osterwalder et al., 2014), which could provide inputs to aspects of success. In addition, the focus

may change due to founders experimenting with their business models and learning from mistakes, which appear as patterns identified using thematic coding. Hence, themes captured were 'early focus in the business model', 'activities not focused on', and 'changes in the initial business model'.

During the process of thematic coding, patterns occurred around if and how the firms were selling their initial products; this pointed to the existence of parallel business models within the firms that supported other revenue generation. Thus, the theme 'parallel business models' was included in the coding and analysis of the data.

After identifying the relevant themes, coding and analysis were completed in two steps. First, within-case analysis (Eisenhardt, 1989) was conducted. Each interview transcript was read thoroughly and coded based on the themes in order to obtain a familiarity with it. To reduce the risk of missing important details in the data, the authors tried to keep an open mind during coding. When structuring the data into a table the different interviews were reviewed to examine if the labels occurred in several cases, and if these were related to any of the themes based on theory.

Second, the themes along with each interview were ordered in a table and the results from the cases within each theme were presented using pure descriptions, providing a rich overview of each case and facilitating the search for cross-case patterns (Eisenhardt, 1989).

Results and Analysis

Analysing the data resulted in five general themes. Table 3 gives an overview of the five themes used for structuring the analysis.

Emphasising a cognitive perspective of a business model includes the founders' perceptions of their initial business model, which implies how they define it and how they reflect on the value-creating process that constitutes the business model. Thus, when analysing perceptions it seems that perceptions, in some cases, include discussions and definitions of the Business Model Canvas, which are analysed and detailed more thoroughly under the 'Perceptions of the business

Table 3: Data analysis of case studies

Themes	Case A	Case B	Case C	Case D	Case E	Case F	Case G	Case H
<i>Perception of business model concept</i>	Ways to approach the market and how to sell	Business model canvas	How customers pay for the product - payment periodicity an important component	Business model canvas	Business plan	Provide services that both we and our customers can make money on	How to make money on the product and what the product is, knowing what the customer wants	Business model canvas
<i>Early focus</i>	Distribution channels, value proposition, customer segments and customer relationships	Customer segments and customer relationships	Identify customer segments and create customer relationships and customer partnerships. Costs were decisive.	Identify the need (most importantly), then find customers/customer segments, create relationships and distribution channels	Identify needs, find customers, distribution channels, create customer relationships, create access to resources (financial) and finding partners (investors)	Create relationships with customers, then find partners to work with, revenue streams and resources (human- and financial capital)	Identify customer needs and create customer relationships	Identify customer needs, identify customer segments and create relationships with customers, distribution channels
<i>Activities not focused on</i>	Partners (investors) are not important	Financial partners (investors), also revenue streams and distribution channels	Partners (investors)	Revenue streams	Costs and revenue streams	Identify customer segments and identify how to reach out to them (distribution channels)	Financing (resources) and partners (investors)	Financing (resources) and partners (investors)
<i>Changes in the initial business model</i>	More focus on customer involvement and relationships with distributors (partners in the value chain)	Iteration with how to involve the customer. More focus on revenue sources and distribution channels	Still focus on customer relationships	Focus on marketing and production, and how to make money. That means more focus on resources (partners), but all goes back to the customer's preferences	More focus on monetization models (revenue streams), and on customer involvement	More internal production and human resources	More involvement of the customer in the development process. More focus on sales and marketing and start looking for investors	More focus on finding partners who can provide resources (financial, human and socially). Focus on revenue streams
<i>Parallel business model</i>	Having parallel business model within the same firm: Shares of the revenues come from other activities (e.g. consultancy)	Having parallel business model within the same firm: Shares of the revenues come from other activities (e.g. consultancy)	Having parallel business model within the same firm: Shares of the revenues come from other activities (e.g. consultancy)	No	No	No	Having parallel business model within the same firm: Shares of the revenues come from other activities	Having parallel business model within the same firm: Shares of the revenues come from other activities (e.g. consultancy)

model concept'.

Further, since decisions about how to configure the business are based on founders' better understanding, activities that are (or are not) focused on within the business model could be analysed based on how founders reflect on and describe their business model. Additionally, changes made within the business model, specifically analysed from the timeline, could be used to understand how different elements and activities in the initial business model are changed to adapt to the founder's learning process and changed perception of the business. Thus, these could provide indications of relations between the initial business model and firm performance and survival. Related to model changes is the phenomenon of a parallel business model. These are analysed to provide an understanding of how founders handle uncertainty, which could relate to the success and survival of the NTBFs.

Perceptions of the business model concept

Viewing the business model as a cognitive instrument for founders to use to better understand their business environment and their overall business (Baden-Fuller & Mangematin, 2013), their perceptions represent important input regarding how they understand their business and accordingly, configure their business activities. Hence, the perception of their initial business model during the start-up phase would influence its structure.

When asking founders to describe their business activities during the early years of start-up, many of them defined a business model as the Business Model Canvas developed by Osterwalder and Pigneur (2010). Founders also described how they learned about the Business Model Canvas from business coaches at incubators and Science Parks; only one (Case F) out of the eight founders interviewed had not been in contact with incubators. The study can, therefore, recognize the Business Model Canvas as commonly used by incubators and Science Parks as a useful tool to describe business models. However, that is not to say that it is the same as the founder's perception of the concept, but since part of the coding of perception included definitions of business models, the Business Model Canvas could still partially reflect how business models are generally perceived.

Moreover, in some cases it was obvious that external investors had a huge influence on the founder's perception of a business model. Founder E viewed business models as out-dated based on his discussions with venture capitalists in financing the business.

This [business models] is something that is very outdated in our line of business [...] What they ask for is metrics, demographics, data, where users come from, how many do you have, how many are active, percent, percent, percent. That is what they are interested in. The vision, the team rather than a document on what you believe. Founder E (referring to external investors)

Thus, one perception of the business model is that it is an instrument to be used to communicate with financial partners. However, founder E referenced parts of the value-creating elements of the firm, such as customers, relationships, and target segments, and further mentions that a physical document is not what builds the business model. Hence, this implies that a business model is more of a cognitive picture that exists in the mind of the founder but still needs to be communicated to partners and stakeholders.

Furthermore, perceptions about the business model also involved perceptions about business modelling, and how different business model components and their activities are perceived by the founders. George and Bock (2011) argue that practitioners have different perceptions of business models and they demonstrate this through the different words used to describe them. Analysing the perceptions of the founders of NTBFs of their business models, the contact with external people and organizations, such as incubators, indicates influences on their cognition and the use of visualising tools for business modelling. Thus, such influences could have an effect on the focus within the business model.

Early Focus of the Business Model

Drawing on the cognitive approach to understand what a business model is could possibly provide diversity in the perception of the elements that constitute it. In the empirical study here, this was demonstrated in various cases: First, concerning perceptions of customers and the value proposition, and second, concerning partners.

Customers and the value proposition

When describing their views on their business models during start-up, customer relationships and how to reach customers were pointed to as important aspects of the business model as well as how to receive payments for the products/services. The latter is especially interesting since almost none of the firms actually focused on this activity early on. This indicates that the revenue model is an important part of consideration in the business model, as often referenced in business model literature (see, e.g., Dubosson-Torbay et al., 2002; Morris et al., 2005). However, although research has explained the differences between the business model and the revenue model (Amit & Zott, 2001; Morris et al., 2005; Zott et al., 2011), considering the ways the founders spoke to this, practitioners seem to still perceive these as equivalent.

Extant literature on business models have emphasised that early focus in the business model should be on customers and establishing relationships with customers in order to match value propositions to their needs (see, e.g., Blank and Dorf, 2012; Osterwalder et al., 2014). The involvement of customers in the value-creating process has been emphasised as important for firm success, which includes openness to the surrounding environment and highlighting the customer's role in innovation and technology development (Nenonen & Storbacka, 2010; Baden-Fuller & Haefliger, 2013). However, based on the beliefs of the founders, their business models and the focus within them may differ depending on their perceptions influencing the models (Tripsas & Gavetti, 2000; Baden-Fuller & Haefliger, 2013).

In line with the extant research on the importance of customers, the empirical study shows that the majority of the founders described that initial attention was paid to the offering (value proposition) and identifying and creating relationships with key customers. Furthermore, the value proposition was the most valuable part of the firm's business model, which is consistent with extant research on customer relationship theory (e.g., Blank & Dorf, 2012; Osterwalder et al., 2014). Moreover, in relation to extant research, the study provide insights as to how a focus on customers includes, to some extent, close involvement with the offers, ultimately resulting in more customised business mod-

els. The following quotations demonstrate how the customer offer was developed together with potential customers to provide a more customised product:

[...] we built on it [the product] with some specific functionality to the customer in 2013 and early 2014, [...] then we started to build new modules to make it a little bigger, and to solve all customer problems. Founder B

We developed the product very much after their [customer's] needs. Founder C

As most of the founders frequently referred to their offerings when talking about customers' needs and the relationships with customers, this shows the close relation between the needs of customers and the offerings of the firms (see, e.g., Chesbrough & Rosenbloom, 2002; Magretta, 2002; Osterwalder et al., 2005; Blank & Dorf, 2012). Thus, the relation between these elements of a business model could be important to consider when developing questions for the quantitative study of business models. For example, structuring questions that measure the involvement of customers in the development of a product or service and the early focus on customer needs.

Partners

Concerning partners in the initial business model, founders had different opinions about what this referred to. For the founder in Case A, the partners were perceived as investors or venture capitalists and it was obvious that this founder perceived such partners as a way to access financial capital. In that sense, these partners were perceived as not necessarily relevant for the business model:

Partners [investors] are not that important. No, I cannot say that we have many partners. Founder A

However, when it came to other partners in the value chain of the initial business model such as distributors, manufacturers, and other stakeholders providing necessary competence for the firms' operations, several of the founders expressed that they were involved in the early start-up phase. However, these firms were not regarded as partners but more as collaborators, and ar-

gued to be important to compete in the market:

In order to reach that [a strong market position], I believe in collaborations and it is much the way it works in our business; we help each other and share the risk. Founder D

Following the differing perceptions of partners, it can still be argued that external people and organizations (stakeholders) are important for business modelling as they are part of important business functions for creating competitive advantage and for integrating different elements of the business model. Nevertheless, how partners are perceived reflect the different perceptions that founders have about their businesses (and how to model their business), indicating their cognitive perspectives.

Activities Not Focused On

Early focus was frequently stated to be on business model activities identifying how customers would get products (distribution channels), and identifying and creating access to resources needed to run the business. The latter was, however, expressed as focus on human rather than financial capital in the initial stages of the firms. This also relates to attention, unpaid initially, on identifying and finding key partners; thus, the reference to investors and venture capital firms described through founders' perceptions of business models and their elements. Only one of the cases (Case E) described an early focus on finding investors for access to financial resources, but it was not expressed as the most important activity initially performed. Otherwise, this activity was not clearly mentioned as important to the firms. One founder even expressed decisions about how to finance the business without investors:

[...] we took the surplus income and reinvested it. We took low wages and reinvested. We built with common sense, you could say, up to a certain point. It took maybe two years before we realized that you can do so but then we will never reach the goal. Then, we took the funding of certain parts of the equipment, which are the slightly more expensive pieces of equipment. [...] We have just taken the financing from the bank. Founder F

Although partners (financial) and the revenue stream were not mentioned as a focus early on during start-up, some founders expressed that external funding might have helped:

We have not taken any external funding and one can consider whether it was right or not. It might have enabled more. Founder H

Changes in the Business Model

In looking back, several founders indicated that they should have devoted more attention to the revenue stream and some have since started to look for venture capitalists. As revenues are necessary for firm survival, this stream has an effect on the success of new ventures. There is a correlation between creating relationships with customers and identifying their needs, and the revenue of firms (see, e.g., Chesbrough & Rosenbloom, 2002; Dubosson-Torbay et al., 2002; Osterwalder et al., 2005). However, this correlation is not always evident in the first years of new ventures. This can be due to a lack of resources and legitimacy (Brinckmann et al., 2011) and the business stage before trust is created within a larger customer segment.

Nevertheless, focus in the business model might change due to experimentation and adaptation representing the process of business modelling during the start-up phase (Morris et al., 2005; Andries & Debackere, 2007). In line with extant research demonstrating the importance of change and innovation in business models (Chesbrough, 2010), the analysis of the empirical data revealed indications of on-going changes and iterations of the initial business models of the NTBFs. Coding for changes in the business models provided insights into the changes in the founders' focus and in the iterations of the initial business models. Several of the founders changed their focus on, merely, establishing relationships with customers in order to understand their needs, to focus more on involving customers in the development process for co-creation. This further demonstrates a change in the perceptions of founders as to what elements and activities are important for the development and commercialisation of their technology; in that sense, providing input for the cognitive perspective of business models as better understanding of the changing business environment (Baden-Fuller & Haefliger, 2013; Baden-Fuller & Mangematin,

2013). In one case (Case E), the founder expressed that not focusing enough on customers and involving them initially was clearly a mistake that made the business model too broad and unstructured in his mind. This is also in line with Nenonen and Storbacka (2010) who argue for co-creation as essential for creating value and to enable the business model to fit with the surrounding environment.

Moreover, changes in the initial business model indicate a clearer focus on revenue streams and establishing partnerships with stakeholders providing both financial and human capital resources. In examining research investigating the lack of resources, established relationships, and legitimacy of NTBFs (e.g., Yli-Renko et al., 2001; Brinckmann et al., 2011), revenue streams seem to fall into place when firms have established relationships with customers and have developed the technology into value propositions related to customer needs.

Parallel Business Models

When changing the initial business models, founders (entrepreneurs) often experiment with parallel business models (Andries et al., 2013; Clausen & Rasmussen, 2013). Consistent with the discussion on resource scarcity at technology-based ventures (Yli-Renko et al., 2001; Brinckmann et al., 2011; Vargas & McCarthy, 2010) and the uncertainty that these firms need to handle, experimenting with parallel business models have been argued as helping founders handle ambiguity and identify temporary revenue streams (Andries et al., 2013). Experimenting with several business models further facilitates the ability to identify paths to transfer and commercialise technology in the market, hence, influencing the success of the firms (Clausen & Rasmussen, 2013).

Analysing the empirical data of the eight NTBFs revealed changes within the business models, however, not specifically any experimentation with parallel business models. Instead, the changes demonstrated the changing focus of the founders caused by changes in the way they understood their business and learned from customers and partners as well as their own mistakes.

However, in describing their businesses, all the found-

ers stated that they were still selling their initial main products or services. Only one, however, was actually making a living from it. Several of the founders indicated that they were unable to make a profit from their main product or service thus far, and needed to work outside the firm's main activities or create a consultancy business within the firm:

[...] when we started the company we knew that it will take time so we registered it so that he [one of the founders] could work with consulting in the firm and in that way bring in money. We cannot live on the product yet, but we can live off the company. Founder A

We have to do consultancy work alongside to survive. Founder B

The fact that several firms had other revenue generating businesses within their firms indicates that they were employing parallel business models in the start-up phase to ensure their survival.

In terms of parallel business models, Markides and Charitou (2004) argue that maintaining parallel business models may create or destroy value for the firm, depending on whether or not the new business model surpasses the existing one. However, this argument is based on the firm already being established with a specific target segment that is trying to innovate using parallel business models.

The changes to the business models of start-ups, such as NTBFs, are argued to be different from the changing process at established firms (Ahokangas & Myllykoski, 2014; Iivari, 2015). In that sense, for NTBFs, the problems mentioned by Markides and Charitou (2004) are not the same since they have not yet established a first business model but are rather experimenting with several business models to configure the business and make sense of the business environment by establishing relations with customers and partners to identify what value they can create. Hence, the analysis of the empirical data identifying if and how NTBFs utilise parallel business models reveals that founders often have parallel business models within the firm in order to ensure enough financial resources for the survival of the firm during the first years of start-up.

Concluding Discussion

The paper contributes to the research on business models and new ventures in high tech industries, providing a clearer description of how founders of NTBFs perceive the business model concept, their initial business models and the elements that receive the most attention, and what changes over time.

Consistent with previous research arguing that business models are cognitive tools for managers and founders (e.g., Tikkanen et al., 2005; Baden-Fuller & Mangematin, 2013), this research demonstrates that the configuration and change of the initial business models are guided by the changed perceptions and preferences of the founders.

Moreover, the research adds to the extant research on the perception of business models including the roles of stakeholders in these models. Thus, building on the business model literature, the research is able to provide insights as to how founders configure and structure their initial business models. Further, insights from the empirical study reveal that tools for visualizing business models, such as the Business Model Canvas (Osterwalder & Pigneur, 2010), are common and often used to define a business model, ultimately affecting the discourse of the founders towards a clearer understanding of the concept of business modelling. Thus, conceptualisations of business models in the form of the Business Model Canvas or the entrepreneurs' business model (Morris et al., 2005) facilitate the ability of founders to express their business models. Accordingly, even though business models are a representation of founders' perceptions and understanding of their businesses and the environment, these tools are needed to communicate the architecture of the firm, and facilitate structuring the business in the mind of the founder.

Furthermore, in analysing how founders perceive their initial configurations and business models, it becomes clear that the perceptions of what a business model is differs as demonstrated by George and Bock (2011). The interactive method used in the study created an opportunity to understand the founders' way of talking about their businesses, which activities they implemented and gave attention to initially, and, in looking back, what they would have done differently. Thus,

the study provided insights from a different angle, not using the word 'business model' in the interviews but rather referring to activities within a business model. This approach made it easier for the respondents to express what they focused on. As several of the founders referred to the Business Model Canvas (Osterwalder & Pigneur, 2010), using business activities within the model created some familiarity for the respondents, reducing the risk of misunderstanding.

For future quantitative research on business models of new ventures, it will be essential to clearly state the business activities of business model elements rather than use the word 'business model' as it may be misinterpreted by company founders.

Further, the early activities given most attention by the founders during start-up, such as the focus on customers and customer needs to create greater opportunities for success (Blank & Dorf, 2012; Osterwalder & Pigneur, 2014), indicate that these might have an impact on the survival of NTBFs. However, all the parts of a business model are important to create and capture value for firms (see, e.g., Chesbrough & Rosenbloom, 2002; Dubosson-Torbay et al., 2002; Magretta, 2002). Nevertheless, the study demonstrates what new ventures in high-tech industries perceive as important for their business initially, hence, showing that not all parts are included in their initial business model.

In some cases, founders expressed that they should have paid more attention earlier to activities such as how to generate revenues including finding partners (investors) to create access to financial resources. However, experimentation with (Chesbrough, 2010) and adaptation of initial business models are an essential part of the start-up process (Andries & Debackere, 2007) and several of the founders changed focus during the start-up phase to address financial needs. Yet, how this early focus may have influenced the firms' future success could be an interesting topic to examine in future studies.

In terms of resources, the founders do mention these, but they have different meanings dependent on the context of the discussion. When they describe important resources that are the focus at the time of firm registration, they are referring to human capital such

as know-how, their own previous experiences, and talent. However, in describing what was not the centre of attention initially, references are to financial capital, including investors as partners, and how to create revenue streams.

Further, when structuring questions for future quantitative research to measure the effects of initial business models, it will be important to divide question areas dependent on the activities of different parts of the business model. For example, the questions on resources of the business model should be divided into human resources and financial resources; and, financial resources should include financial partners, financial capital, and costs and revenue streams as financial parts of the business model.

Even though the firms struggled with similar issues due to facing problems that occur in initial phases of start-up, there were some differences between firms in different industry sectors. The differences are mostly dependent on the business environment, and thus need to be taken into consideration when studying these firms. Firms operating in the IT-sector were usually more eager to find investors (albeit not the initial focus) than firms operating in the medical technology industry, which might impact the difference in their growth rates during start-up; this correlates with different average growth rates of start-ups in different industries. Thus, it is important to remember this when examining the growth and survival of NTBFs. Moreover, the study identifies the need for and existence of parallel business models during start-up in order to create enough profits for the firm to continue working on its main offering. Thus, making it important to ask questions that clearly distinguish which business model the founders are referencing when describing their business. Otherwise, bias may occur about how the initial business model, referring to the firm's main offering, influences firm survival.

This paper provides interesting insights into the perceptions of founders of NTBFs and how they structure their business activities and develop their initial business models. From this, the paper provides input for supporting future quantitative research on business models that might further examine how this focus in the early start-up phase influences the success of

these high-tech firms.

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About the Authors

Hanna Rydehell is a doctoral candidate at the department of Technology Management and Economics at Chalmers University of Technology, Sweden. Her research is focused on business models in technology-based start-ups, emphasising entrepreneurs' business model and stakeholder involvement. Hanna holds a Master's degree in Design and Product Development, and a Master's degree in Industrial Engineering and Management - both from Linköping University.

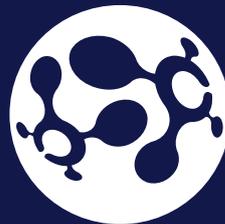


Anders Isaksson is a senior lecturer at Chalmers University of Technology. His research is mainly focusing on small business finance, with a special emphasis on the venture capital process and the relationship between venture capital firms and entrepreneurs. He also has a professional experience in the area as a special advisor on venture capital issues for the Swedish Ministry of Industry. Other areas of research have been firm growth, initial public offerings, corporate governance and ex-dividend stock price behaviour. Anders's previous work has been published in Venture capital, International Journal of Entrepreneurship and Small Business, Asian Journal of Finance & Accounting, Australasian Accounting Business and Finance Journal among others.





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