

# Business Model Innovation: Development, Concept and Future Research Directions

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## 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.

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

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## 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

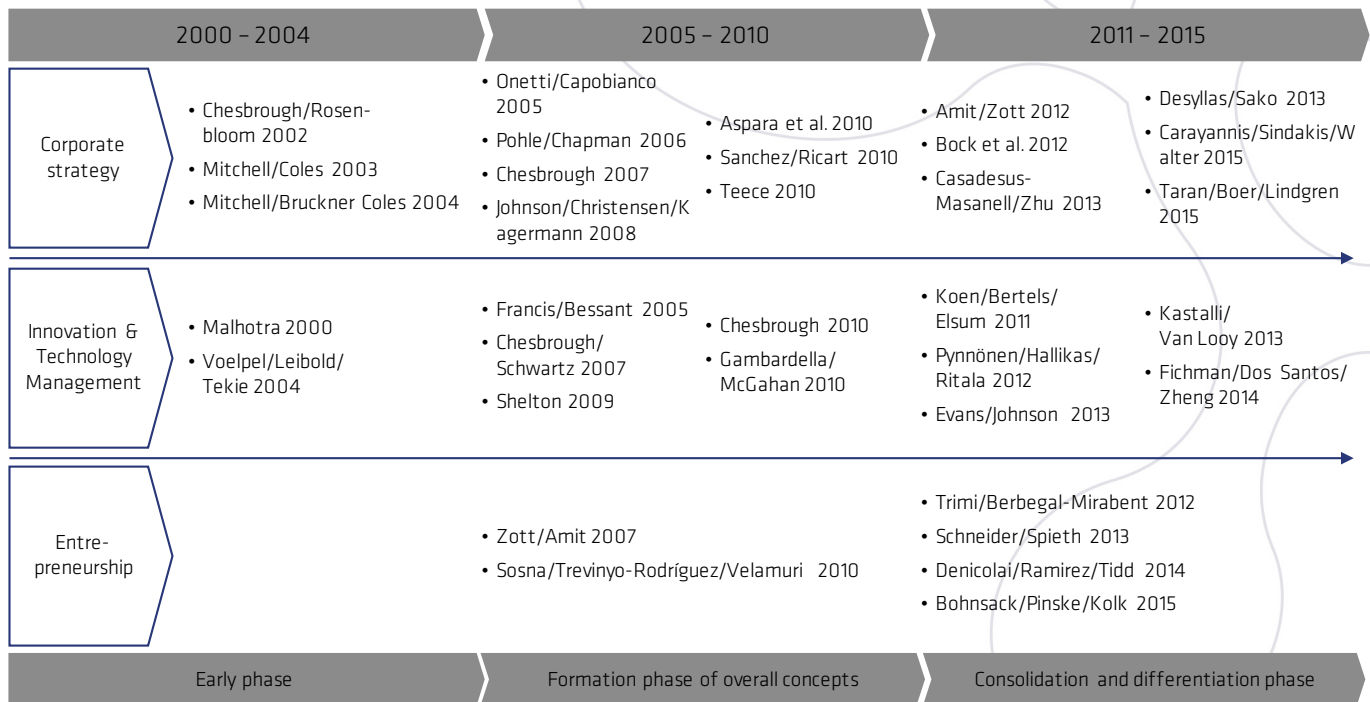
different categories had been achieved, six categories remained, which we used for thematically structuring the identified set of articles into BMI research areas: Definition & Types, Design & Process, Drivers & Barriers, Frameworks, Implementation & Operation, and Performance & Controlling. Furthermore, 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



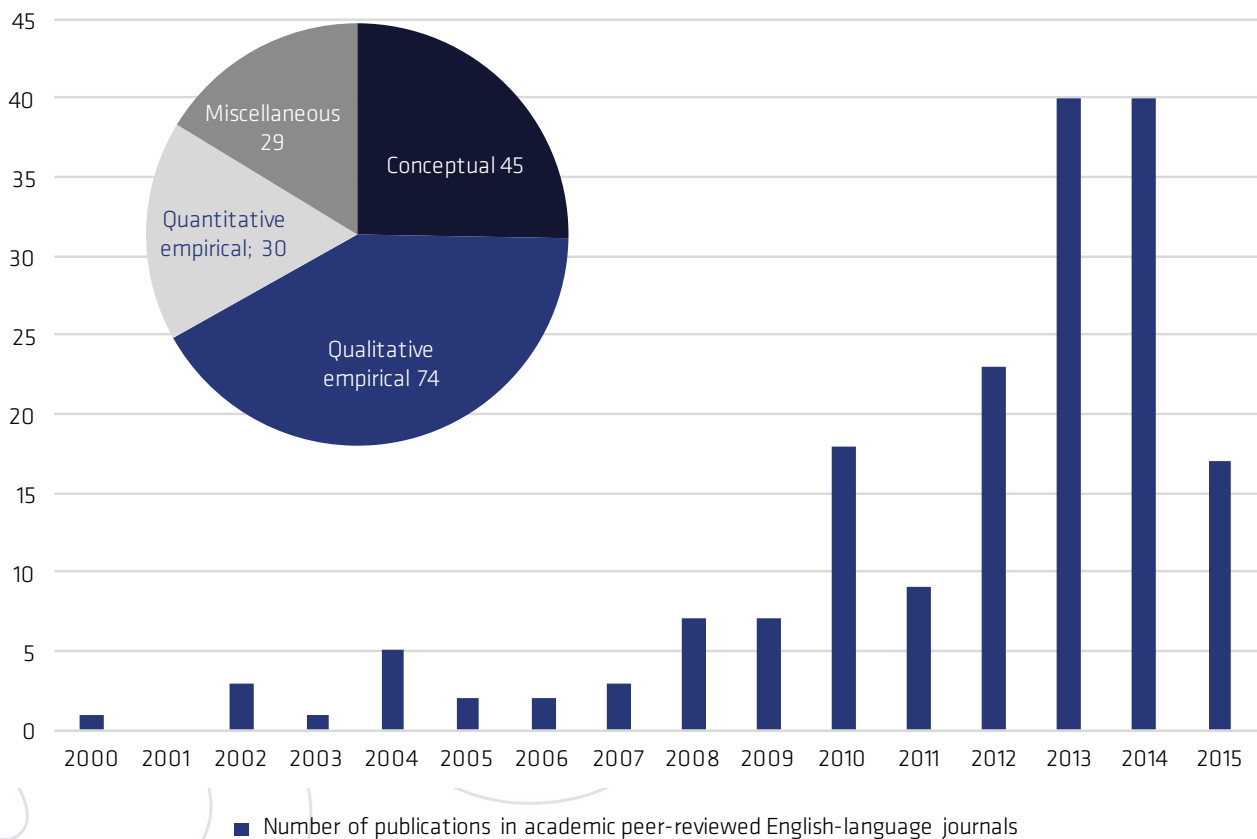
the BMI concept: new ideas and other empirical methods are added to the picture, leading to an anew concept differentiation. In this connection, Kastalli and van Looy (2013), for instance, investigate servitization or service BMI as a specific case or subcategory of BMI by applying econometric models. 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.

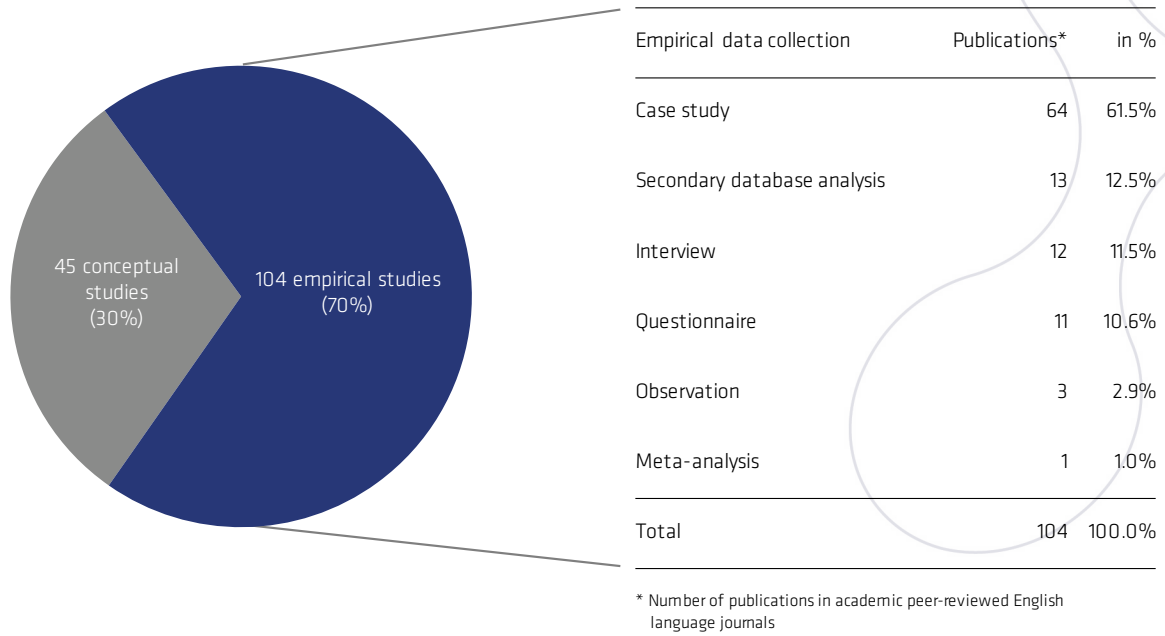
BMI began to gain popularity in scientific research after the millennium and soared after 2010 with up to 40 publications in 2013 and 2014. This development more or less parallels the increasing prominence of the business model concept. Considering the BMI literature development then further with specific 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.

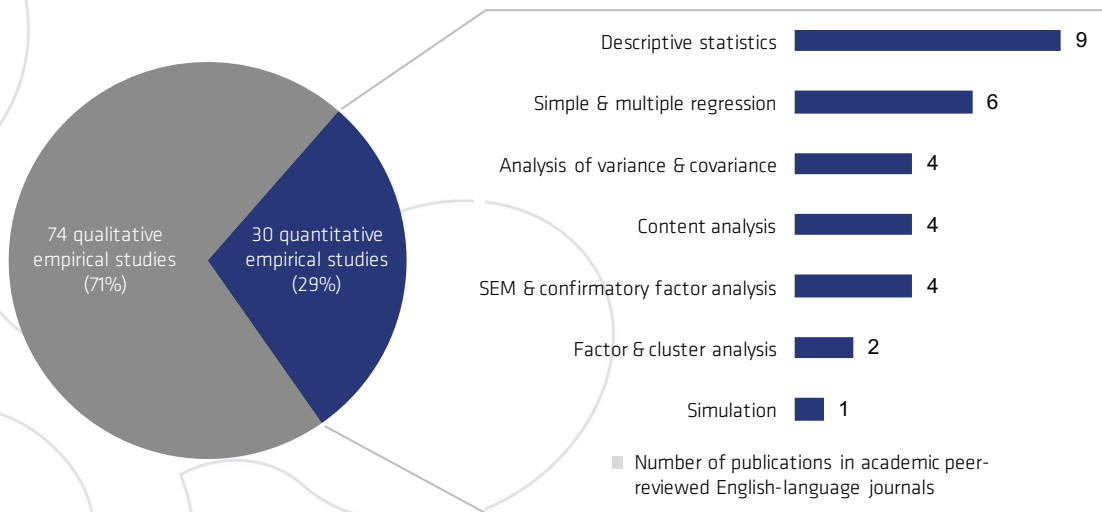
Hancock and Mueller, 2010). The largest data collection category is case study, representing 61.5% of the total number of empirical studies identified. The next largest data collection categories are secondary database



**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

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



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.

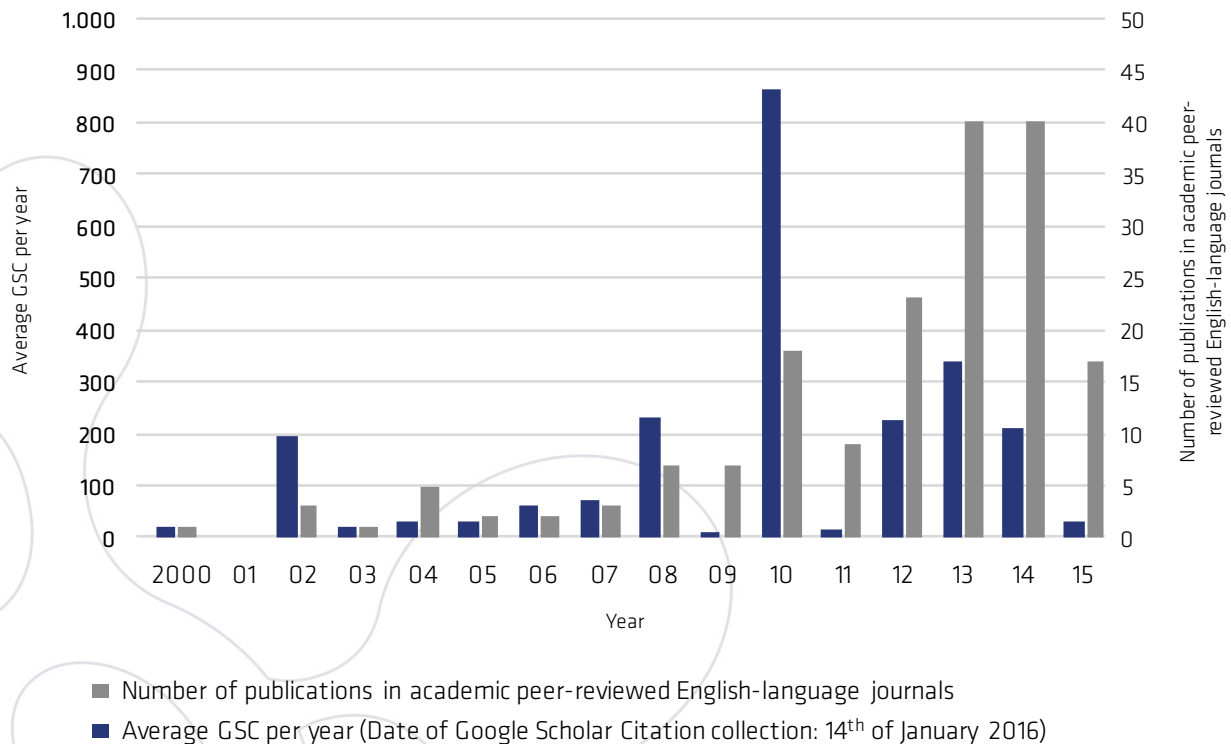
<b>Table 2: Google Scholar Citation Research Area Analysis</b>					
<b>Research Area</b>	<b>Sum of average GSC per year*</b>	<b>Sum of average GSC per year in %</b>	<b>Number of publications</b>	<b>Number of publications in %</b>	<b>Average GSC per year / Number of publications</b>
<b>Definition &amp; Types</b>	808.0	36.3%	23	15.4%	<b>35.1</b>
<b>Design &amp; Process</b>	275.2	12.4%	37	24.8%	<b>7.4</b>
<b>Drivers &amp; Barriers</b>	301.8	13.5%	20	13.4%	<b>15.1</b>
<b>Frameworks</b>	551.1	24.7%	30	20.1%	<b>18.4</b>

<b>Implementation &amp; Operation</b>	168.1	7.5%	25	16.8%	<b>6.7</b>
<b>Performance &amp; Controlling</b>	123.4	5.5%	14	9.4%	<b>8.8</b>
<b>Total</b>	<b>2,228</b>	<b>100%</b>	<b>149</b>	<b>100%</b>	<b>15.0</b>

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., Bereznoi, 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 Bruckner 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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