

# Business Model Management: Current Practices, Required Activities and IT Support

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**Abstract.** This paper explores the concept of business model management, defined as a generic process covering all phases of the business model life-cycle. In contrast to previous business model literature, which is mainly focused on the design of business models, we argue that the successful exploitation of the business model concept requires a dedicated management approach. Due to the lack of extant research in the domain, we build on multiple, exploratory case studies of large organizations, based on 20 expert interviews. This paper contributes to a better understanding of the current practices and needs in business model management and the multifaceted role of the business model concept in each of its phases. Moreover, we suggest roles of IT in the business model management process.

**Keywords:** Business model management, business model design, business model implementation, case study

## 1 Introduction

A business model (BM) is an abstract representation of business logic [1]. Serving as a reference framework, it supports practitioners in conceiving, designing and communicating business ideas [2–4]. The academic literature provides analyses of how organizations design and innovate their BMs [5–7]. However, although the BM can be understood as a structured management tool [8], there is still no clear understanding of its roles beyond design and innovation, also seen as the transition from BM *plan* to its *execution* [9].

“A ‘strong’ business model can be managed badly and fail, just as much as a ‘weak’ business model may succeed because of strong management and implementation skills” [9]. For instance, Ryanair’s BM “creates several virtuous cycles that maximize its profits through increasingly low costs and prices” [10]. Its competitive advantage keeps growing as long as managers make these virtuous cycles spin. Being designed in a dynamic environment, as a reaction for instance to market changes, increasing competition, or technological innovation, BMs thus require active management [11]. Although recent research indicates that the BM life-cycle should embrace more phases than just design [12], these phases and a holistic management

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approach have seen very little attention in academia and practice [13] – wrongly, in our view, because the BM concept can be leveraged by decision makers for implementation and management of a successful business, [9] and shifts “from a conceptual and theoretical focus to tooling and practical usability” [14]. We address this gap by answering the following research questions: (RQ1) *What is the current state of practice in business model management?* (RQ2) *What are the roles of the business model concept in each phase of this process?* If BMs are found to be relevant from a management perspective [15], decision makers also need IT-based BM tools to support their management. To address this aspect, we ask a third question: (RQ3) *What are IT’s roles in supporting the business model management process?* Building on a qualitative research design and insights from 20 case studies, our findings confirm that companies mostly use the BM concept for analysis and design, but have not fully embraced it as management instrument in the implementation and control phases. Our study provides a baseline for future research by providing conceptual foundations and developing avenues for practice and future research.

The remainder of this paper is structured as follows: We start by reviewing the literature to derive an analysis framework for BM management (Section 2). We then present our qualitative research design (Section 3). Our empirical insights shed light on the current practices and required activities in 20 cases (Section 4). We conclude by developing avenues for practice and future research (Section 5).

## **2 Theoretical Background**

In this chapter, we review the BM literature and elaborate on the emerging theme of BM management. Building on our literature review, we suggest an analysis framework that will guide our empirical study.

### **2.1 Business Model Concept**

Although every company adopts a BM, either explicitly or implicitly, it remains an open question what exactly is understood by BM, that is, how it should be conceptualized [16]. At a fundamental level, scholars and practitioners agree that the BM is crucial for the success of today’s organizations, especially concerning growth potential [17], competitive advantage [18, 19], long-term performance [20], and as a new source of innovation [21]. The academic community has recognized BM’s potential, leading to a rapidly growing number of publications across management, IT, strategy, and other disciplines [8, 22].

In practice, the growing interest in the concept was catalyzed by the popularity of representations of the BM such as the so called Business Model Canvas [3], e3-value ontology [2], or St.Gallen Business Model Navigator [23], which have become reference tools for business innovation in both entrepreneurial and large organizations [14]. The main benefits of these BM conceptualizations are the systemic and abstract representations of the core business logic [9, 1, 24], which can serve as a useful

device to analyze and communicate a company's value creation, delivery, and capture mechanisms [16].

## 2.2 Business Model Management

Recently, scholars have begun to investigate the phases of BM management beyond design, such as analysis [25], implementation [26], and management [27]. However, the literature provides very limited and inconsistent conceptual or empirical evidence on the practices and characteristics of BM management as a holistic process [17, 28]. For instance, [35] identifies design, implementation, operation, change, and controlling phases within the so-called business model life-cycle. [30] document an experimentation and exploration phase, followed by an implementation stage, and [23] distinguish between the phases of mobilizing, understanding, designing, implementing, and managing BMs.

Generally, the BM concept can be considered either as a static *blueprint* or as transformational, "using the concept as a tool to address change and innovation in the organization, or the model itself" [29]. The latter view reflects a management context, because it considers the BM as a tool to support the analysis, planning, and transformation of organizations [30]. It also comprises the transformation of the BM itself. Specifically, a business model "is typically a complex set of interdependent routines that is discovered, adjusted, and fine-tuned by 'doing' " [29]. Given how crucial it is to sustain the BM in volatile ecosystems, all tasks should be managed deliberately and its "conception, introduction into the marketplace, and ongoing management should not be left to chance" [31].

## 2.3 IT Support

Software and tools that support BM management have already been developed but are still in the earliest state of immaturity and are largely restricted to the design phase, by supporting the visualization of a BM [15]. However, recent research highlights that such "computer-aided business modelling tools should go beyond simple design tools and evolve into an own class of high-level decision support tools" [27]. This implies that software tools not only support design, but also the overall process.

## 2.4 Towards a Framework of Analysis for Business Model Management

Building on the literature, we develop an analysis framework to guide our empirical research on BM management (Figure 1). We suggest defining BM management as *an generic management process, building on the business model as the central unit of analysis*. The overarching element of our framework is the BM conceptualization employed in practice. Through this element, we account for a better understanding of the relevant aspects of the BM concept in the different BM life-cycle phases. We refer to specific BM conceptualization and operationalization as well as the general mindset and perception of practitioners toward the BM concept. For BM

management, we rely on four generic phases of strategic management: analysis, design, implementation, and control [32].

**Analysis.** Given that the development of new BMs or the improvement of existing ones is a complex challenge for managers [33], understanding when changes in the BM are needed is essential [34]. During this phase, relevant aspects such as technological innovations in the external and internal environment are identified to assess the urgency of and opportunities to alter the BM [34].

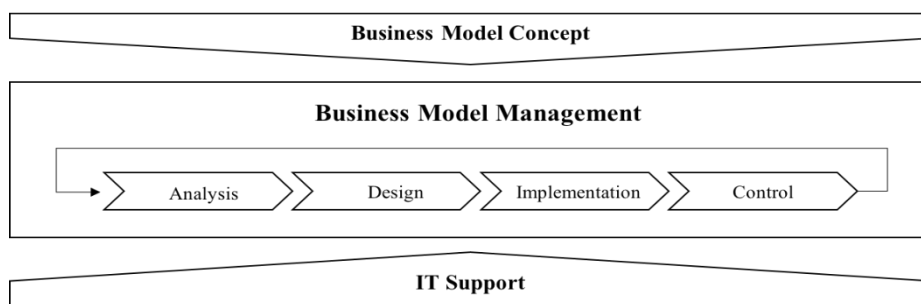
**Design.** “Designing a new business model requires creativity, insight, and a good deal of customer, competitor and supplier information and intelligence” [17]. Design could include activities such as brainstorming, prototyping, testing, and selection [3] and could be theoretically guided by dedicated frameworks [24].

**Implementation.** Design and implementation phases are distinct but strongly related: a ‘good’ BM design can lack the expected value owing to its ineffective implementation [9]. Thus, in this phase, project management could become relevant [12] in order to operationalize the BM [26].

**Control.** Although the BM may have been rigorously designed and implemented, its de facto performance and effectiveness are subject to emerging events and needs being continuously controlled, for instance, in relation to financial, process, or growth performance [35] and associated risks [16].

These phases can be mapped to the ones mentioned in [3, 9, 12] and reflect the more generic phases of strategic management. However, these four phases cannot be considered as exact, given the early stage of BM management. They should be considered as ‘idealized’ rather than ‘ideal’. In line with the literature, phases could be carried out in parallel, iteratively, or ad-hoc [3, 9, 12].

The underlying element is IT support (similarly to [15]), because each BM management phase can be expected to be supported by one or more software tools [15].



**Figure 1.** Framework of Analysis for Business Model Management

### 3 Methodology

To better understand the current situation and roles of BM management in practice, we applied a qualitative and exploratory research design by conducting multiple case studies [36]. A case study method is commonly defined as “empirical inquiries that

investigate a contemporary phenomenon within its real-life context”; it is particularly useful to understanding the emerging topic of BM management [36]. We performed multiple case studies because this approach reinforces the generalizability of results [37]. We conducted a series of 20 cross-industry cases of large organizations. For each case, we collected data through semi-structured interviews with experts in different managerial roles.

### 3.1 Case and Expert Selection

To gain insights into BM management in organizations, we had to identify suitable case sites, as well as experts as key informants. Our goal was to cover a broad variety of organizations from different industries and with different levels of expertise in BM management in our case sample.

**Table 1.** Characteristics of Interviewees and Their Organizations

|                          |   |
|--------------------------|---|
| <i>Roles</i>             | Managers (18), Director (1), CEO (1)  |
| <i>Divisions</i>         | Innovation (12), corporate strategy (6), business development (2)   |
| <i>Industries (code)</i> | Automotive (AUT) (2), financial services (FIN) (2), energy (ENE) (3), chemicals (CHE) (3), conglomerate (CON) (3), information technology (INF) (2), logistics (LOG) (1), high-technology (HIG) (3), research (RES) (1) |
| <i>Countries</i>         | Germany (11), Switzerland (3), France (2), U.S. (2), Italy (1), Norway (1)  |
| <i>Revenues (avg.)</i>   | \$40B   |
| <i>Size (avg.)</i>       | 98K employees   |

Before approaching a wider number of companies, we conducted four knowledge-sharing sessions with affiliated practitioners who have experience in BMs in their organizations and were willing to share their insights. Based on the results of the knowledge-sharing sessions, we learnt that the topic is particularly relevant for large organizations (> 250 employees) across industries: compared to small- medium-enterprises, they tend to assign more resources to BM-related initiatives (e.g., dedicated teams or organizational units). Further, decision makers in large organizations are usually aware of the BM concept, but struggle to manage it. The knowledge-sharing sessions have been also crucial to spot roles of ‘BM experts’ in an organization: we identified experts in several areas such as new business development, innovation management, general management, and strategic management. Finally, we approached potential candidates at conferences, events and through personal contacts of the authors and seven colleagues. We invited decision makers in large organizations who have BM knowledge and have adopted or intend to adopt it in the management of one or more phases. Of the 34 experts we invited, 24 agreed to be interviewed; all had managerial or executive roles in large organizations. Four could not provide any relevant insight on BM management phases and were

excluded, resulting in 20 eligible cases. Table 1 summarizes the characteristics of the organizations and interviewees. To guarantee anonymity, we refer to each expert with a code (e.g., AUT1 = the industry of the organization s/he belongs to: Automotive 1).

### **3.2 Data Collection and Analysis**

Between January and May 2016, we conducted 20 semi-structured interviews by the authors or one of their seven colleagues. The interviews were done face-to-face (18 of 20) or via telephone (2 of 20) and lasted between one and four hours. In some cases, a first brief telephone interview was followed by a meet-up. Usually, between one and three interviewees participated, often from very different organizational units, reinforcing the topic's relevance across divisions. At least two interviewers participated; one leading the conversation and the other(s) taking notes. Owing to confidentiality, we did not audio-record any session; statements in quotation marks can therefore not be considered as direct citations. During the interview process, we presented our current understanding of BM management to interviewees, followed by questions about their previous experience with and use of BMs, the topic's general relevance, IT's potential roles, and general feedback, followed by an open discussion.

For data analysis, the interview notes (between pp. 2 to 5 per interview) were consolidated and analyzed by two authors, individually, along the process of constant comparison and iterative conceptualization [38]. Some interviews were done in German or Italian and had to be translated into English. In the analysis process, we categorized the codes into the elements of the theoretical framework before identifying emerging themes in each group. In case of disagreement, a third author was involved in the discussion until we had clarification. Finally, each author reviewed the coding, and we achieved agreement in a round table session.

## **4 Results**

### **4.1 The Business Model Concept**

Regarding the BM concept, we highlight two important findings: its operationalization and its relevance across BM management phases. While some academics argue about the 'best' BM conceptualizations, our results suggest that certain organizations are able to leverage the BM concept without specific templates (AUT1, FIN1, FIN2, CHE3), while others operationalize the concept through existing BM frameworks, such as Osterwalder's Business Model Canvas (CON2, INF2, CHE2). However, there appears to be consensus that, sooner or later, organizations adapt these frameworks to their specific needs and/or integrate them with other templates (e.g., SWOT). As CHE1 notes, "*we need flexible canvases and tools, because each company develops and uses their own.*" CON3 confirms that "*every company has its own specifications, which must be represented.*"

Regardless of its specific conceptualization, the relevance of the BM concept differs significantly across the BM management phases. Organizations strongly apply

a BM perspective during the design phase and highlight its importance, such as “visual representations” (CHE2), “spot and rank the most critical elements of a BM through the eyes of the customers” (AUT2) or “represent alternative BM designs” (CON3). However, they report additional issues during implementation. Some companies report that “other divisions do not speak this language” (AUT2), “some colleagues don’t want to think creatively” (CHE1), and “management looks at ROP” (INF2). Since more stakeholders are increasingly affected in advancement throughout the phases (RES1, CHE3), conflicts with the core business must be avoided (AUT1).

## 4.2 Business Model Management

**Table 2.** Results Per and Across BM Management Phases (insight recurrence)

|                            | <i>Analysis</i>   | <i>Design</i>                | <i>Implementation</i>         | <i>Control</i>            |
|----------------------------|---|------------------------------|-------------------------------|---------------------------|
| <b>Current practices</b>   | Environment analysis (7)                                      | Iterative testing (6)        | Accountability management (3) | Financial performance (2) |
|                            | Partnerships (3)  | Customer centricity (4)      |                               |                           |
| <b>Required activities</b> | Prevention of disruption (5)                                  | Stimulation of scenarios (6) | Stakeholder management (4)    | Holistic dashboard (6)    |
|                            | Portfolio analysis (3)  | Enhanced visualization (4)   | BM portfolio management (2)   | Prompt notification (4)   |
|                            | Idea management (2)   |                              |                               |                           |
| <b>IT support</b>          | Key value to current practices and required activities (6)    |                              |                               |                           |
|                            | Creativity and communications are enabler, not inhibitors (4) |                              |                               |                           |
|                            | Integrated with other tools (3)                               |                              |                               |                           |

**Analysis.** *Current practices.* The analysis phase is mostly described as the process of collecting relevant information from the external environment, which refers not only to customers (CON1) but also competitors (AUT1, LOG1), other industries (ENE2), new market entrants that “might intervene and disrupt the market” (CHE1), and digital trends (CHE1, INF1, ENE2). Some organizations proactively analyze their environment, adopting an “intensive collaboration with startups” (ENE1) to “help them grow and to change [their] business model based on their insights” (CHE1). Similarly, CHE2 mentions that her organization constantly runs internal workshops and “intrapreneurship” programs to help employees generate and collect business ideas.

*Required activities.* The lens on the external environment is primarily based on the question “how could my business model be disrupted?” (CHE3). This dilemma concerns the experts’ hope, and fear, that “digital transformation might change things or open new opportunities” (ENE2). Thus, interviewees highlight the need for a

prompt signal that can spot a disruption threat, or opportunity, in advance, because “it is [...] important to find the right timing for business model innovation.”

Among the organizations that trigger BM design based on the analysis of internal capabilities (HIG2, CHE2, CON3), the primary activities concern the “*understanding of portfolio of [existing] business models*” (CON3). The same expert highlights that “*Not every product must be a financial performer, because it could complement services. It is important to map these dependencies. We would always start on the portfolio layer.*” The collected information is often unstructured and lacks a filtering process that leads to the design phase. For this reason, CHE2 suggests that an “*idea management tool*” is needed. Thus, the crucial activities needed in the analysis phase concern the identification of possible changes in the industry, systematic management of insights for BM design or adaptation, and the acknowledgment of internal constraints relating to existing BMs.

**Design. Current practices.** BM design should use the customer as starting point for value creation. Experts tend to validate their assumptions through market analysis and product test (e.g., prototypes). For instance, CHE3 states that they “*test different elements of the [business model] canvas with customers (e.g., willingness to pay).*” In this sense, the customer is perceived as a co-innovator. AUT1 highlights the relevance and urgency of customer centricity owing to digital transformation, suggesting that design “*needs to anticipate the digital expectations of customers three years ahead.*” However, although most organizations highlight customer centricity, an expert in the oil and gas industry (ENE3) states that in their commoditized market, this is not relevant, since “*we just need to find resources and sell them.*”

A second recurrent – and expected – insight is that the BM design is typically iterative. Experts highlight the essential, repetitive validation of their assumptions, which can take place through the adoption of specific tests (CHE1, CON3) and through prototyping (CHE3, HIG1, CHE3). Tests are considered particularly valuable for generating multiple BM designs, also known as *versioning* (CHE2). Prototyping is a practice that, according to CHE3, helps to “*avoid long-term investments upfront.*” However, two experts mention feasibility regarding testing and prototyping: ENE3 and RES1 highlight that constraints such as time, legislation, and infrastructure often prevent testing and prototyping.

**Required activities.** Although testing and prototyping are currently common practices for several organizations, such as minimum viable propositions and surveys, interviewees mentioned the need for further support in the validation of BM design. In particular, “*business model simulation*” is a recurrent term (e.g., AUT2, INF1). CHE1 describes it as the assessment of “*internal and external requirements, so that the business model can work in particular situation[s] or market[s].*” Similarly, INF1 focuses on the relevance of simulations to predict “*the best customer channel, sales and distribution.*” Such activity is also highlighted as an IT solution to support managers in creating multiple scenarios or *versions* of a BM (CHE2) and to identify the critical elements of a BM (AUT2).

To support BM simulation and validation, experts suggest that a detailed visualization of a BM and its elements is needed: CHE2 states the “*need to get more*



*details in the business model canvas to actually use it and communicate ideas.”* AUT2 also supports the urgency for a “granular” representation that “avoids ping-pong in the communication between departments,” while FIN2 focuses on a BM visualization that enables better customer segmentation and description.

**Implementation.** *Current practices.* The implementation phase holds unique characteristics, particularly compared to the design phase. Generally, it appears to be “a challenge at a large company” (HIG1), perhaps even “the biggest hurdle” (HIG2). Specifically, the first important characteristic noted by several interviewees is the increasingly significant role of stakeholders. Employees who are directly responsible for BM implementation and execution are a primary stakeholder group. CON3 describes this group as the “entrepreneurial team” and asks “what are the ideal characteristics of the members of this team?”

*Required activities.* Concerning stakeholders, ENE3 addresses the “need to have a business model owner, who pushes the execution with the implementation team.” As several other respondents highlighted the need for general stakeholder management, we see a second stakeholders group beyond the BM owner. These stakeholders could be the implementation team (ENE3), sponsors (CHE3, HIG1), or coaches (CON3). Stakeholder management’s role is also emphasized by the need for “approval management” (HIG1, CH1, FIN1) or “stage-gate processes” (RES1). ENE3 suggests employing a “power couple” – two managers accountable for BM design and implementation respectively, and who strongly depend on each other.

While the previous phase indicated a focus on finding the right BM and assessing customer needs, implementation is concerned with finding the right organizational set-up. Several companies mentioned potential conflicts between the traditional core business and new BMs. For instance, AUT1 noted that “the central question is how the traditional core business can be combined with new, digital businesses,” facing major challenges such as self-cannibalization, which must be avoided, because “there is no willingness to give up existing business for new ones” (CON1).

**Control.** *Current practices.* Only two interviewees addressed the regular control of one or more implemented and ‘running’ BMs (INF1, FIN2). They highlight continuous monitoring of financial performance, referring to specific BM elements, such as revenues and costs. Both INF1 and FIN2 suggest that there is currently no control tool besides financial reports and, when necessary, ad hoc analysis of specific reports’ insights.

*Required activities.* CON3 argues that “business models are never stable.” To control a BM, experts suggest that data and IT systems are necessary. Here, INF2 comments that “[they] need to make a dashboard” to visualize and leverage quantitative data for BM improvement. Similarly, CHE2 states the “need to look at environment data” to monitor and prevent threats and seize opportunities, while CON1 asks “if the customer has an input, how [can we] leverage this input in the business model in the best way?” INF1, also owing to his industry, suggests that such a dashboard should provide “real-time monitoring” of the BM.

The regular controlling of a BM and its visualization as a dashboard form the basis for working as “early warning”. CON3 explains that “*alerts must notify business model owners if crucial parameters deflect. Thus, these parameters must be captured (for instance, financial indicators, regulations, or other requirements).*” FIN2 argues that his organization needs to enhance reporting practices in order to enable more complex queries. RES1 and CHE3 discuss how alerts should also help managers to distinguish between the need for incremental change and the need for disruptive change.

### 4.3 IT Support for Business Model Management

While most respondents reported the need for general software support of BM management, only CON3 is already systematically working with a mix of “*predefined Excel files for evaluation and risk management, as well as PowerPoint, and one tool to describe processes.*” With two exceptions (ENE2, HIG1), most companies argue – similarly to CHE1 – that “*software support would be a key additional value*” (CON1, CHE1, CHE2, RES1, CON2, FIN1). For instance, CON1 states that “*no tools are used, which is a big problem,*” while CON2 notes that “*we need situation-specific and iterative tools.*” However, a major requirement of those tools is that they could be helpful by providing a pre-structured process that “*moderates the process, colleagues, and process sequence*” (FIN1) yet maintains the agility and flexibility, particularly during the design phase. “*We need [...] iterative tools to avoid fixed step-by-step processes with unnecessary steps*” (CON2).

While some firms are concerned about creativity and agility during design, the results show that the implementation phase could strongly benefit from software support. The primary reasons are that implementation requires support for “*identifying experts in the network*” (CHE1) and “*identifying organizational units that could provide knowledge or support the business model to implement it faster*” (CON3). From the interviews, we also learnt that BM representation should “*provide deep dives into certain elements*” (CON3), an “*ecosystem view*” (RES1), and be “*integrated with other conceptual tools, such as strategy-maps or balanced scorecard*” (FIN1). We can also report two significant relationships with existing software systems (CON1): “*a BM perspective could be integrated into existing tools, such as CRM*” and “*how can business models be derived from the ERP?*”

## 5 Discussion

Our study contributes to the BM literature by suggesting a comprehensive conceptualization of BM management. Based on empirical insights from 20 cases, we assessed current practices and required activities in BM management. Our results reveal that organizations still concentrate on BM analysis and design, but also confirm the need for a structured management process. The above mentioned empirical findings outline future avenues for research and practice, laying the groundwork for further studies.

## 5.1 Business Model Management

In response to research question 1, our results suggest that current BM practices in large organizations mainly relate to analysis and design, and that BM management, as a holistic management approach, is highly relevant to companies across different industries. In this sense, it empirically confirms previous theoretical arguments [3, 13], which hold that the BM concept is widely accepted for designing and innovating new BMs but that there is a significant need to focus on the BM management as a whole, including implementation and control (Table 3).

Our study is also one of the first to explore the details of such a holistic process in terms of current practices, required activities, and IT's roles. The results show that organizations have an expressed need for a general process to manage the entire life-cycle of BMs and provide a first rich picture of the current situation in practice. Further, the maturity level, which could be considered as experience with BMs and the level of adoption of the concept in different phases, varies widely. Very few organizations have already adopted a fairly structured BM management process (CON3, CHE1), while most either begin with small BM-related projects or have integrated the BM perspective into their existing innovation processes (e.g., product innovation).

## 5.2 The Roles of the Business Model Concept

Regarding research question 2, we found that the BM concept is in fact important during all phases. Interestingly, its role and application appears to change along the phases, pointing at a multi-faceted conceptualization (Table 3). Our results show for instance that the *working mode* changes along these phases. During analysis and design, frequent iterations, agility, simulations, and customer centricity are key. During implementation and control, a fairly sequential procedure with “*approval management*” (CHE1) and “*milestones*” (CON3) was indicated. In addition, the main sources of knowledge also differ among the phases: during the analysis, the environment is crucial; in the design phase, the focus is on products and customers; the implementation phase depends strongly on the contribution of internal experts and on the integration with other internal BMs; the control phase requires data acquired from enterprise systems and other data sources. Irrespective of the phases, some authors even go beyond the management of a single or multiple BMs; they state that the BM concept is a crucial perspective to manage the entire corporation, irrespective of the company's size. Such “*evolution*” of the BM concept has been recently coined by [39] as *business model-based management*.

A primary obstacle to the further adoption of the concept, particularly during implementation and control phases, could be the “*lack of business model mindset*” (INF1, AUT1, CHE2, ENE1, ENE3, FIN2). Here, many divisions such as corporate strategy become involved. According to the experts' insights, these stakeholders may have a short-term perspective (FIN2), looking solely at financial performance and ROI (CHE3, INF2) and may feel threatened by changes to the traditional BM (AUT2).

**Table 3.** Overview of the Characteristics of Business Model Concept and Management

|   | <i>Analysis</i>   | <i>Design</i>    | <i>Implementation</i>                | <i>Control</i>       |
|---|---|------------------|--------------------------------------|----------------------|
| <b>Maturity level (current practices)</b>         | High (10)   | High (10)        | Low (3)                              | Low (2)              |
| <b>Working mode</b>                               | Explorative, open   | Agile, iterative | Gateways, sequential                 | Structured, regular  |
| <b>Key knowledge source</b>                       | Environment   | Offer, customers | Internal experts, other internal BMs | Internal data source |
| <b>Obstacles to the adoption of BM management</b> | Lack of BM mindset; focus on short-term results; fear of cannibalizing the traditional BM |                  |                                      |                      |

### 5.3 IT's Roles

Consistent support of the entire BM life-cycle raises the need for adequate IT solutions, not only as digital visualization of BMs, where pen-and-paper seems to be sufficient for most practitioners. We respond therefore to the quest for research on “*IT support for developing and managing business models*” [15] by providing first insights into requirements of the prospective research stream on software systems that “clearly go beyond simple design tools [...] and evolve into an own class of high-level decision support tools” [15]. IT must support a structured management process, but should not constrain agility in and the iterative nature of the early phases of BM development. Handling this paradox could be a fundamental aspect of IT support to drive the adoption of systems and to ensure their sustained use throughout the life-cycle. In other words, paying attention to the above mentioned characteristics of the different phases may contradict the over-simplistic assumptions of BM software tools, which mainly focus on visualization. Further, a selection of specific features was highlighted, namely simulation, collaboration, knowledge management, reporting, and the fact that IT support should include additional strategy tools such as strategy-maps that are easy to adapt.

We also contribute to the broader IS literature by building on [27]’s argument about IS’s key roles in “informing strategic disciplines and in contributing to increase understanding of the essence of BMs and other strategic notions.” While [27] suggest three primary contributions of IS to strategic management (modeling at a strategic level, strategizing as designing, considering computer-aided design), we added an additional role of IS. Given the high relevance of implementation for any BM’s success, a fruitful future research area could be to investigate to what extent the existing IT-landscape is a barrier to successful BM management. For instance, CON1 notes that not all BM ideas can be implemented, owing to the rigidity of the IT-landscape, and that it should be examined how existing IT systems (e.g., ERP, CRM) can support BM management, providing data or integrating a BM perspective.

## 6 Conclusions

This study investigates the current practices and required activities associated with BM management. Drawing on empirical insights from 20 case studies, we found evidence that managers in large organizations acknowledge the BM concept's relevance, not only for the purpose of design, as already established in the literature, but also for analysis, implementation, and control. We have shown the increasing relevance of the BM concept throughout all phases and, although companies report different maturity and adoption levels, it affects different activities and multiple stakeholders.

Our study provides a baseline of BM management from a practitioner perspective, and we trust that it will inspire other researchers to contribute to this emerging research stream. Specifically, we identified three primary limitations that could trigger future studies. First, we approached practitioners interested in the topic, rather than those who would deliberately not manage BMs (e.g., managers in controlling, who have all the tools they need in place). Interviewing such a group could provide useful insights into the barriers to BM management adoption and could therefore sharpen BM management's value proposition.

Second, BM management is still in its infancy. Organizations use the concept mainly for design and creativity purposes (e.g., during workshops) or to complement other innovation processes and therefore have little experience with BM implementation and control. It follows that our findings on these two phases need for further validation. In particular, corporate spinoffs or recently introduced BMs might be interesting subjects for case studies.

Finally, in this study, we sought to obtain a broad overview of the state-of-the-art in BM management. Thus, we approached a fairly large number of organizations. Future research could build on our findings to conduct in-depth research into selected organizations that adopt BM management in each phase.

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