



# Methods in the Early Stages of Business Model Innovation

How companies can overcome Barriers to Business  
Model Innovation

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## Executive Summary

The concept of Business Model Innovation has gained a lot of importance in recent years. Innovation managers in incumbent firms however are facing significant cognitive and structural barriers to embracing the theoretical concept in practice. Especially the early stages in the innovation process are characterized by high uncertainty and thus prone to high resistance against business model change. This research, conducted at RWTH Aachen in collaboration with IMP³rove Academy, argues that these barriers can be reduced by using and applying specific methods in the innovation process. For that, it uses a mixed method approach by first identifying relevant barriers through qualitative expert interviews and then assessing the usefulness of specific methods for each barrier using a quantitative study.

The results indicate that barriers of both structural and cognitive nature are relevant for business model innovation. Identified as especially challenging cognitive barriers in the early stages are overly emphasizing on the Return on Invest, preference for the current Status Quo as well as a risk-averse organizational culture. Barriers of structural character that stand out are a limited resource base, insufficient business model data, and inflexibility of existing organizational structures. Of these six relevant barriers, the two cognitive barriers Status-Quo Bias and Risk Aversion were evaluated as most challenging. In a quantitative assessment, it is shown that applying workshop methods like focus groups as well as creativity methods like Six Thinking Hats can be used to reduce the Status-Quo barrier, while a market analysis method like Scenario Planning helps best to overcome Risk Aversion barriers. Moreover, considering further cognitive and structural barriers, this study provides guidance with which methods these can be reduced – additionally considering agile management, business model canvas, and data modeling.

## Introduction

In times of globalization and digitization, it is imperative for incumbent firms to maintain competitiveness through continuously renewing their product or service offering. Driven by new technological possibilities, the focus has shifted from pure product or process innovation towards the innovation of the whole business model. A business model describes how the company creates value, how and to whom it delivers value, and how it monetizes the value. As the modification of the value creation and delivery affects the core of the firm, especially established organizations are struggling with business model innovation along the whole innovation process. Especially the early stages of business model innovation, including initiation, business model analysis and strategy formulation, are characterized by high uncertainty and evoke significant barriers for organizational change.

Existing research characterizes these barriers and divides their nature into cognitive and structural but does not explain how these barriers can be managed and overcome. This research, which was conducted at RWTH Aachen University in partnership with IMP³rove Academy, is based on the argument that business model innovation barriers can be tackled in practice by applying different types of methods and tools. It therefore examines which specific methods are especially useful for targeting a specific business model innovation barrier. The results are supposed to help innovation practitioners to cope with natural barriers to change within the organization.

To achieve this goal, a mixed method of qualitative and quantitative data collection and analysis is chosen. It aims to first qualitatively characterize and prioritize existing business model innovation barriers in the early stages of the innovation process and then quantify the impact of selected methods on these barriers. The results show that barriers to business model innovation can indeed be approached by applying appropriate methods in the innovation process. Implications for practitioners are discussed.

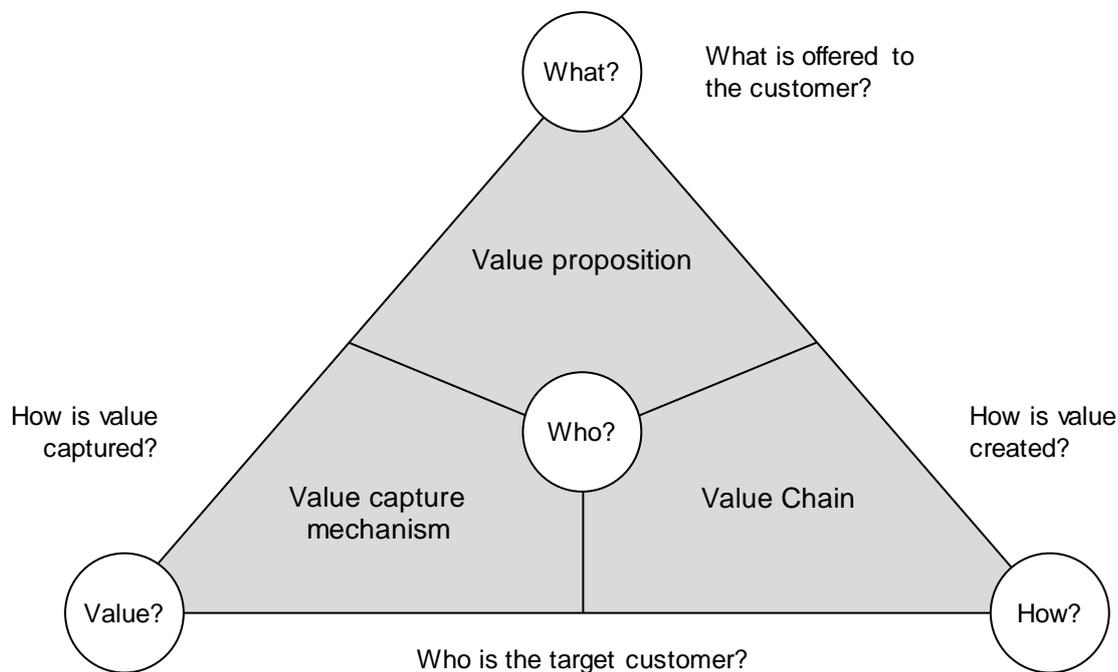
# Methods and Barriers in the early stages of Business Model Innovation

Business Model Innovation (BMI) poses a challenge for both small and large enterprises. The following sections aim to form a basic understanding of BMI and common barriers that occur as well as explain certain methods that can be applied in the early stages of innovation processes.

## Business Model Innovation

In the rise of the digital age, the concept of a business model and its disruptive modification has received increased attention from both practitioners as well as academia. Lighthouse examples of disruptive new entrants from the entertainment industry using digital subscription models to replace hardware-driven individual sales (e.g. Spotify and Netflix) have raised the worries of incumbent firms from all industries about superior business models. As value creation, delivery, and monetization affects all parts of the organization, addressing these worries by changing their own business model, however, often poses a greater challenge than anticipated.

According to Gassmann et al. (2017)<sup>1</sup> a business model defines “who the customer is, what is being sold, how it is produced, and how income is realized.” The goal of designing the business model is therefore a definition of target customers and customer segments, a description of the value proposition to satisfy customer needs, a depiction of processes, activities, resources and capabilities in the value chain for value creation as well as the description of the value capture mechanism. These four dimensions can be mapped onto a triangle-shaped model, as depicted in Figure 1.



**Figure 1: The business model concept according to Gassmann et al. (2017)**

Changing at least two of these dimensions so that a new combination of value creation and capture is realized leads to a business model innovation. The process of this change has different stages that

<sup>1</sup> Gassmann, O., Frankenberger, K., & Csik, M. (2017). *Geschäftsmodelle entwickeln: 55 innovative Konzepte mit dem St. Galler business model navigator*. Carl Hanser Verlag GmbH Co KG.

are each characterized by different activities. The early stages of business model innovation are especially challenging for incumbent firms as great uncertainty has to be managed. With the goal of creating impact in practice, it is therefore attractive to put the emphasis of this study on this stage.

The first activity of business model innovation is initiation. In this stage, the need for a change is detected, opportunities are recognized and first ideas for business model reconfiguration are seeded. In the second phase, business model analysis, the existing business model is evaluated regarding its strengths and weaknesses, and ideas are analyzed regarding their innovative potential. The third activity, strategy formulation, serves to determine the new business model that will be pursued and plan the actions that lead to implementing the changes. All of these three activities are not supposed to be regarded as sequential but can be executed based on the companies' distinct framework conditions.

## Barriers to Business Model Innovation

The challenges in changing a company-specific business model can be viewed as barriers that need to be overcome in order to successfully implement the new business model. These barriers can be of structural or cognitive nature. Structural barriers are represented through existing processes, hierarchies and structures within the organization. Changing these existing structures can be costly which hinders the commitment to invest in the innovation efforts that might only pay off in the long term. Cognitive barriers can be viewed as dominant ways of thinking and routines that are implicitly established within the firm. These dominant ways of thinking are deeply embedded in the culture of the organization and might be even more challenging to change based on their implicit nature.

## Methods in the early stages of Innovation

In the early stages of the innovation process it is key to reduce uncertainty. Research and practice have established a great variety of standardized procedures that can be applied on different company-specific problems within the innovation process. Different types of methods can range from structuring methods, over market analysis tools, up to creativity enhancing methods. However, the usability and efficiency of applying a specific type of method differs greatly depending on the goal. The goal of this research is therefore to identify the appropriability of these methods on specific BMI barriers.

For that purpose, this research focuses on six different types of methods and uses one example each to represent the different method types. The chosen methods are explained below in Table 1.

**Table 1: Overview of different types of methods and illustrating examples**

Method type	Representing method	Explanation
Working methods	Agile Management	Agile management represents an organizational characteristic to act flexibly and with that pro-actively and anticipatively in order to implement necessary changes. Agile methods originate in software development and completely stand in contrast to traditional working methods. The philosophy of the agile school includes iterative approaches, fast prototyping, and willingness to change.

Method type	Representing method	Explanation
Structuring methods	Business Model Canvas	The business model canvas, developed by Alexander Osterwalder, <sup>2</sup> helps in analyzing and developing existing or new business models. The business model is broken down into nine components and visualized onto a canvas. It serves as a common language for describing, visualizing, evaluating, and modifying business models, based on which the development of a corporate strategy can be derived.
Market Analysis	Scenario Planning	The goal of scenario planning is to analyze possible developments in the future and describe them coherently in different scenarios. Scenarios represent hypothetical consequences of events in order to draw the attention to causal processes and decision points.
Workshop methods	Focus Group	A focus group is a selected group that is interviewed by a moderator in order to gain insights on a specific phenomenon. The goal is to establish a connection between different concepts through the interaction of members of the target group that would not have been made in a survey or an expert interview. An informal and familiar group interaction is therefore the core of a focus group.
Creativity methods	Six Thinking Hats	Using this method, participants take different points of view on a specific topic by successively putting on a different hat. The color of the hat marks the corresponding point of view. A parallel processing induced by this method is supposed to make thinking processes especially in groups more efficient.
Software support	Data Modeling	The term data modeling includes procedures for formally mapping objects relevant in a defined context using their attributes and relations. The results are data models that, after going through several modeling stages, lead to ready-to-use databases or data pools. With that, data or other circumstances of a specific organization unit, department or business process (up to the whole organization) can be recorded and documented including their respective relationships.

<sup>2</sup> Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.

## Study

The following sections aim to describe the research approach, explain the results and discuss implications for practice.

## Method

For identifying relevant BMI barriers as well as quantifying the impact of specific methods on these barriers, a mixed method is chosen. First, several semi-structured qualitative expert interviews are conducted in order to identify the barriers that are especially prevalent in practice. These barriers are then evaluated using a quantitative survey with 20 industry experts. In this instance, the experts are also asked to quantify the impact of the explained methods on these barriers. This results in an impact matrix that can be used to compare different methods for approaching a company-specific barrier.

## Results

The first part of the study included eight expert interviews from companies of different industry, age and size characteristics in Germany in order to gain insights about the barriers in different contexts. Companies were interviewed from energy, consulting, medical devices, optical components, mechanical engineering, software development, and semiconductors. Although there were certain distinct differences between the companies, a few barriers stood out and seemed to be especially relevant, independent of the company context. These were both of cognitive and structural nature.

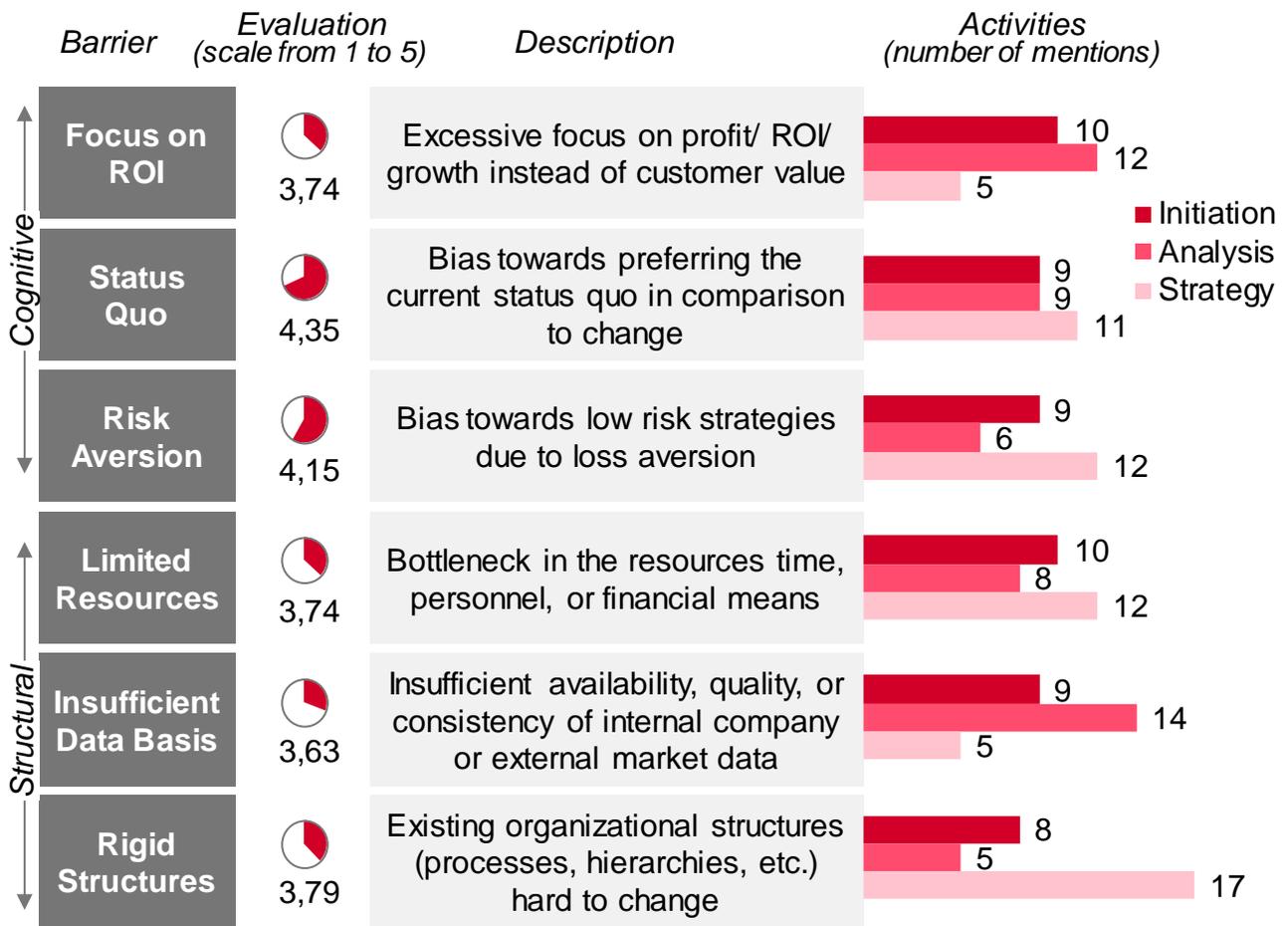
One cognitive barrier was the Focus on Return on Investment (ROI), a tendency to focus on the financial profitability of an innovation project too early instead of focusing on the value for the customer. Another relevant cognitive barrier was the Status-Quo Bias, which represents the tendency of people to prefer the existing status quo compared to an uncertain future resulting from changes. The third relevant cognitive barrier was Risk Aversion. This barrier leads to individuals preferring low-risk strategies over high-risk strategies, a barrier estimated by the experts to be especially prevalent in Germany.

An identified structural barrier, especially in smaller companies, was Limited Resources in terms of available time, personnel, or budget to push innovation projects forward. Also, an Insufficient Data Basis with regards to availability, quality and consistency was assessed to be a relevant structural barrier. The last relevant structural barrier is represented by the inflexibility of existing processes, structures and hierarchies within the organization, especially prevalent in larger firms.

These six identified barriers were evaluated by 20 European industry experts regarding their relevance and their occurrence concerning the different activities in the early stages of business model innovation. The results are depicted in Figure 2 and confirm the relevance of all considered barriers.<sup>3</sup> Comparing the different barriers, the cognitive barriers Status-Quo Bias and Risk Aversion were evaluated especially relevant. With regards to the activities in the early stages of business model innovation, the experts evaluate the Focus on ROI more relevant in Initiation and Analysis, whereas an Insufficient Data Basis is especially problematic in the analysis activities. Barriers caused by Rigid Structures are seen to be especially relevant in the Strategy Formulation activities.

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<sup>3</sup> The scale was chosen from 1 (not relevant) to 5 (extremely relevant). All barriers were evaluated significantly higher than 3 (neutral).

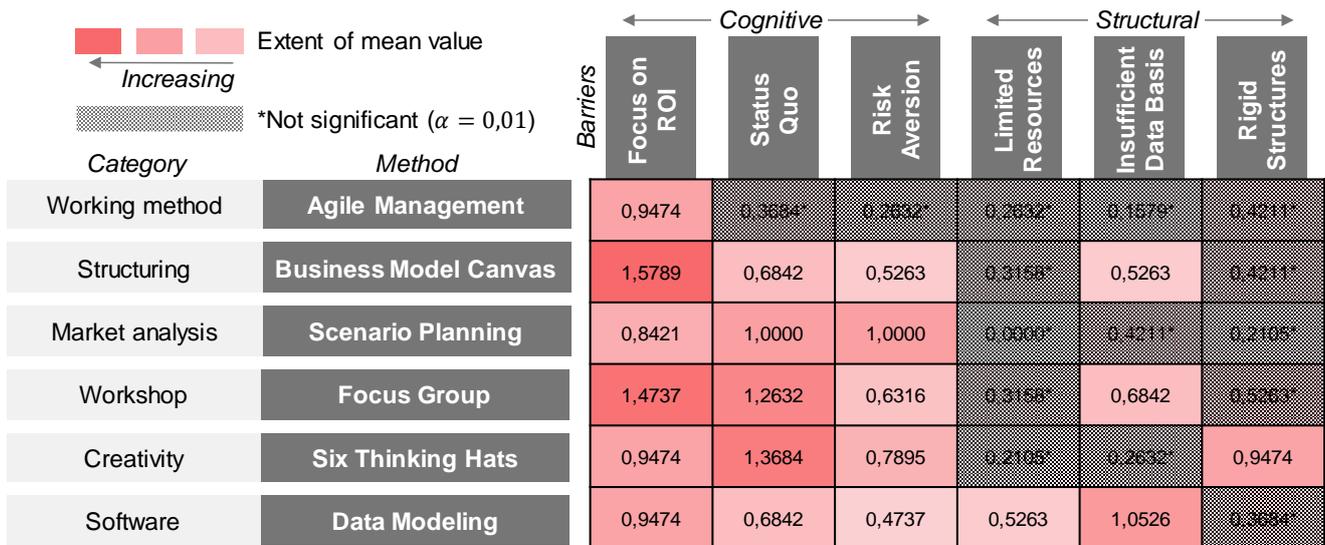


**Figure 2: Evaluation of specific BMI barriers in the early stages of the innovation process**

In the second step of the quantitative study with 20 participants, the experts were asked to evaluate the impact of applying a specific method on the significance of the focused barriers on a scale from -3 (negative impact) to +3 (positive impact). The mean values were mapped onto a matrix and statistically tested with regards to significance using a one sample t-test. The results are depicted in Figure 3.

The results show that, indeed, business model innovation barriers can be reduced using an appropriate method. Evaluated as especially effective was the application of the Business Model Canvas and Focus Groups to reduce the Focus on ROI, as well as the usage of the Six Thinking Hats method and Focus Groups on the Status-Quo Bias. Scenario planning proves to be most effective for Risk Aversion, Data Modelling can be used to cope with an Insufficient Data Basis, and Rigid Structures can be tackled using the Six Thinking Hats method.

Interestingly, Agile Management was only found to be significant and positive for the Focus on ROI barrier. This shows that the practitioner community is not uniformly agreeing on the effectiveness of Agile methods in the context of business model innovation. Furthermore, the application of methods seems to be less effective for structural barriers than for cognitive barriers. Implications are discussed in the next section.



**Figure 3: Impact matrix of the effect of applying methods on cognitive and structural barriers**

### Implications and summary

There are several different lessons learned resulting from the research that has been conducted at RWTH Aachen in collaboration with IMP³rove Academy. The aim of this study was to find barriers in the early stages of business model innovation that are relevant in practice and identify appropriate methods to purposefully reduce these barriers. The results show that both cognitive as well as structural barriers are relevant in practice. The magnitude of each barrier might depend on company-specific circumstances and differ for each use case, however there was a company-overarching consensus on the special relevance of three barriers for each structural and cognitive challenges.

Whereas cognitive challenges include overly focusing on return on invest, preference of the status-quo and a tendency towards low-risk strategies, structural barriers to business model innovation include limited resources, bad data and inflexible structures in general. While comparing the general strength of these specific barriers, two cognitive barriers stood out: Status-Quo Bias and Risk Aversion. It is concluded that especially in the early stages, the courage to take a risk and leave the status quo behind is the most important virtue for innovation. Individuals that have built up the structures and processes for the current business model will try to stick to their achievements and prevent navigating towards more uncertain endeavors, especially when the status-quo is satisfying. It is the task of leadership to demonstrate that in turbulent times, great business models today might be underperforming tomorrow. Above all, when the core of a company is intended to be reengineered, individuals must take risks and constantly think about the challenges to come instead of resting on achievements.

Another conclusion can be drawn from the study on the effects of applying methods to overcome cognitive and structural barriers. The results show that there are methods that can reduce the barriers that were found to be relevant and that some methods are more effective for a specific barrier than others. Scenario Planning, for example, will encourage individuals to take more risks as it shows them great uncertainty of the future, whereas using a Data Modeling software might not be as impactful, although creating value in terms of reducing other barriers. Innovation managers approaching business model innovation challenges can use these insights for a targeted application of methods that suit their company-specific context.

Implications can also be drawn for the significance of Agility in practical environments. While the usefulness of agile methods and an agile mindset are emphasized in innovation literature in recent

years, this study finds somewhat mixed results. While German industry experts from the qualitative interviews were praising the use of Agile methods like SCRUM in their business model innovation activities, the international experts from the quantitative study could not agree on effectiveness for reducing business model innovation barriers. Setting the issues of a small sample size aside, this might be rooted in a somewhat differing perception of the method across European borders. This would mean that supra-national efforts to find consensus on the recent discussions about Agility in modern organizations have to be promoted.

Furthermore, much less significant effects of the considered methods can be found on structural barriers compared to cognitive barriers. This leads to the suggestion, that applying methods in the early stages of business model innovation, at least the ones chosen, is much better suited for reducing cognitive barriers than structural barriers. Other measures for approaching structural barriers, for example reorganizations, might be more impactful and should be considered more carefully when engaging in business model innovation. It is however argued, that considering these alternative measures might be induced or reinforced by overcoming cognitive barriers of individuals and especially leadership in the first place.

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# About IMP<sup>3</sup>rove – European Innovation Management Academy

The IMP<sup>3</sup>rove - European Innovation Management Academy, non-profit ([www.improve-innovation.eu](http://www.improve-innovation.eu)) offers innovation management support services to enterprises, consultants and intermediaries. It also provides financial actors, policy makers and academia with consulting support and technical assistance related to innovation and innovation management. The services include innovation management benchmarking for enterprises, training and certification in innovation management, research on innovation management issues and promotion of best practices in innovation management. With its global network, the IMP<sup>3</sup>rove Academy has set the standard for innovation management assessment. The IMP<sup>3</sup>rove- European Innovation Management Academy emerged from the European Commission's flagship programme "IMP<sup>3</sup>rove". It was supported by the European Commission's Competitiveness and Innovation Framework Programme and receives continued support by Horizon2020.

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