

## Moderating and Mediating Effects of Business Model Innovation Barriers during Crises: A Structural Equation Model Tested on German Chemical Start-Ups

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**Abstract :** Business model innovation (BMI) as an intentional change of an existing business model (BM) or the design of a new BM is essential to a firm's development in dynamic markets. The relevance of BMI is also evident in the ongoing COVID-19 pandemic, in which start-ups, in particular, are affected by limited access to resources. However, first studies also show that they react faster to the pandemic than established firms. A strategy to successfully handle such threatening dynamic changes represents BMI. Entrepreneurship literature shows how and when firms should utilize BMI in times of crisis and which barriers one can expect during the BMI process. Nevertheless, research merging BMI barriers and crises is still underexplored. Specifically, further knowledge about antecedents and the effect of moderators on the BMI process is necessary for advancing BMI research. The addressed research gap of this study is two-folded: First, foundations to the subject on how different crises impact BM change intention exist, yet their analysis lacks the inclusion of barriers. Especially, entrepreneurship literature lacks knowledge about the individual perception of BMI barriers, which is essential to predict managerial reactions. Moreover, internal BMI barriers have been the focal point of current research, while external BMI barriers remain virtually understudied. Second, to date, BMI research is based on qualitative methodologies. Thus, a lack of quantitative work can specify and confirm these qualitative findings. By focusing on the crisis context, this study contributes to BMI literature by offering a first quantitative attempt to embed BMI barriers into a structural equation model. It measures managers' perception of BMI development and implementation barriers in the BMI process, asking the following research question: How does a manager's perception of BMI barriers influence BMI development and implementation in times of crisis? Two distinct research streams in economic literature explain how individuals react when perceiving a threat. "Prospect Theory" claims that managers demonstrate risk-seeking tendencies when facing a potential loss, and opposing "Threat-Rigidity Theory" suggests that managers demonstrate risk-averse behavior when facing a potential loss. This study quantitatively tests which theory can best predict managers' BM reaction to a perceived crisis. Out of three in-depth interviews in the German chemical industry, 60 past BMIs were identified. The participating start-up managers gave insights into their start-up's strategic and operational functioning. After, each interviewee described crises that had already affected their BM. The participants explained how they conducted BMI to overcome these crises, which development and implementation barriers they faced, and how severe they perceived them, assessed on a 5-point Likert scale. In contrast to current research, results reveal that a higher perceived threat level of a crisis harms BM experimentation. Managers seem to conduct less BMI in times of crisis, whereby BMI development barriers dampen this relation. The structural equation model unveils a mediating role of BMI implementation barriers on the link between the intention to change a BM and the concrete BMI implementation. In conclusion, this study confirms the threat-rigidity theory.

**Keywords :** barrier perception, business model innovation, business model innovation barriers, crises, prospect theory, start-ups, structural equation model, threat-rigidity theory

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