

Heidenreich, Sven; Freisinger, Elena; Landau, Christian

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The dark side of business model innovation: An empirical investigation into the evolvement of customer resistance and the effectiveness of potential countermeasures

Sven Heidenreich¹  | Elena Freisinger²  | Christian Landau³

¹Saarland University, Saarbruecken, Germany

²Technical University Ilmenau, Ilmenau, Germany

³EBS Business School, Oestrich-Winkel, Germany

Correspondence

Elena Freisinger, Technical University Ilmenau, Ehrenbergstraße 29, Ilmenau 98693, Germany.

Email: elena.freisinger@tu-ilmenau.de

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Abstract

In the past decade, a core assumption of research on business model innovation (BMI) has been its beneficial character. However, studies have shown that potentially disrupting BMI is not immune to failure. Still, studies that investigate the causes of BMI failures are lacking. This article shifts the focus to the dark side of BMI by using a demand-side approach, which cross-fertilizes on the new product development (NPD) research stream of passive innovation resistance. We argue that BMI, like any other type of innovation, imposes change on the customer, which endangers the status quo. As a result, passive innovation resistance evolves, potentially disrupting continuous adoption. Thus, the main goal of the current study is to investigate whether and how BMI evokes negative effects of passive innovation resistance on customers' adoption behavior (Study 1) and to determine which marketing instruments can be used as countermeasures (Study 2). Our findings confirm that passive innovation resistance is a strong inhibitor of continuous BMI adoption. However, the detrimental effects of passive innovation resistance on continuous BMI adoption can be attenuated by employing benefit comparisons or testimonials in business model (BM) announcements. From a theoretical perspective, this study enhances the current knowledge on how stable customer predispositions affect the adoption process of BMI. By so doing, our study confirms the applicability of passive innovation resistance beyond the NPD domain but also sheds light on differences in the cause-effect mechanism between BMI and product innovation contexts. From a managerial perspective, this study equips managers with effective countermeasures to passive innovation resistance that should reduce the probability of BMI failure.

KEYWORDS

business model innovation, customer adoption, customer resistance, marketing instruments, passive innovation resistance

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1 | INTRODUCTION

Increasing competition, radical market shifts and dynamic technological changes require firms to continuously adapt their business models (BMs) to remain viable (Hock-Doepgen et al., 2021; Suh et al., 2020). It is thus not surprising that business model innovation (BMI), as “a process that deliberately changes the core elements of a firm and its business logic” (Bucherer et al., 2012, p. 184), is largely considered the holy grail in regard to firm success (Gerasymenko et al., 2015; Kim & Min, 2015; Visnjic et al., 2016; Zott & Amit, 2007). In fact, empirical studies have confirmed BMI as a source of competitiveness and competitive advantage (Clauss, Abebe, et al., 2019; Teece, 2010; Wirtz et al., 2010), which “has the potential to improve enterprise performance” (Lambert & Davidson, 2013, p. 676) and even change the market equilibrium (Trabucchi et al., 2019). Overall, this bright side of BMI has evoked an increasing interest in BMI as “a new subject of innovation, which complements the traditional subjects of process, product, and organizational innovation” (Zott et al., 2011, p. 1032). As a consequence, a growing body of literature has emerged investigating topics around the conceptualization, development, and introduction of BMIs (Foss & Saebi, 2017). Despite this extraordinary development in terms of BMI research activity, what is most surprising is the lack of research on the determinants, components, and consequences of BMI (Sorescu, 2017). In turn, however, this offers a number of promising research opportunities.

First, prior research in the BMI domain is subject to a pro-innovation bias (Talke & Heidenreich, 2014), widely assuming that the innovation of BMs is always beneficial for companies. As a consequence, prior studies have put successful rather than unsuccessful BMIs in the center of their attention (Halecker et al., 2014). This has led to a growing body of literature that contains notable contributions and evidence on the bright side of BMI, highlighting positive effects on value appropriation (Baden-Fuller & Haefliger, 2013; Björkdahl, 2009; Hienerth et al., 2011), customer satisfaction and loyalty (Clauss, Harengel, et al., 2019; Clauss, Kesting, et al., 2019; Futterer et al., 2020), brand equity (Spieth et al., 2019), profitability (Aspara et al., 2010) and, ultimately, firm performance (Freisinger et al., 2021; Futterer et al., 2018; Zott & Amit, 2007), as well as long-term survival (Kauffman & Wang, 2008). However, an increasing number of companies experience difficulties in creating and capturing value from BMIs (Chesbrough, 2010; Clauss, Abebe, et al., 2019; von den Eichen et al., 2015). For example, while Tesco was able to build a highly profitable \$2 billion online grocery business, Webvan—with a similar BM—is considered the largest ever dot com bust

Practitioner points

- Our study shows that business model innovations—just like other types of innovations—are subject to the risk of continuous adoption failure due to innovation resistance, but negative effects can be attenuated by employing the right marketing measures.
- With respect to *measures before the market introduction*, business developers should always start with a thorough assessment of the current business model and compare it with the innovation to identify if the new one comes with several behavioral changes.
- With respect to *measures during the market introduction*, companies should use marketing campaigns that are targeted at reducing customer satisfaction with entrenched or alternative business models or use testimonials in advertisements, underlining the high degree of satisfaction with the new business model.
- With respect to *measures after the market introduction* of the business model innovation, marketers should consider using innovative customers as opinion leaders to advocate business model innovation adoption as soon as they have seen the positive potential of the new business model.

(Keen & Williams, 2013). While high failure rates of approximately 50% for innovations are a well-known fact among researchers (Castellion & Markham, 2013), the “dark side” of BMI has drawn far less attention than its “bright side” counterpart. Thus far, investigations into failed BMIs remain absent such that empirical evidence on the root causes of BMI failures is urgently needed (Halecker et al., 2014).

Second, while value creation for customers has always been considered the *conditio sine qua non* for BM success (Clauss, Kesting, et al., 2019; Priem et al., 2018), prior research in the BMI domain is characterized by an absence of demand-side research activities (Clauss, Harengel, et al., 2019; Coombes & Nicholson, 2013; Futterer et al., 2020). However, several scholars highlight the importance of addressing customers' latent needs for the success of BMI (Clauss et al., 2014; Massa et al., 2017; Storbacka et al., 2012). Some scholars even refer to the widespread adoption of BMI by customers in the market as a sufficient condition for BMI success (Futterer et al., 2020). If this sufficient condition is not met, BMI is

TABLE 1 Differences in business model innovation and product innovations

	BM innovation	Example(s)	Product innovation	Example(s)
Definition	<i>Business model</i> : “the design and architecture of the value creation, delivery and capture mechanisms” (Teece, 2010, p. 172) <i>BM innovation</i> : “designed, novel, nontrivial changes to the key elements of a firm’s BM and/or the architecture linking these elements” (Foss & Saebi, 2017, 2018)	Cab companies, which usually take customer requests by phone and send drivers to transport them to a desired location Uber, a data-driven matchmaking platform that matches drivers and guests, promises time savings and more convenient transportation (Cramer & Krueger, 2016)	<i>Product</i> : “anything that can be offered to a market to satisfy a want or need” (Kotler & Keller, 2009, p. 358) <i>Product innovation</i> : “new products or services introduced to meet an external user or market need” (Damanpour & Gopalakrishnan, 2001, p. 47; Utterback & Abernathy, 1975)	Meat companies that offer traditional burger patties made of beef Plant-based meat alternatives (e.g., Weinrich, 2019). Beyond Meat—a company that produces plant-based burger meat (Amit & Zott, 2020)
Unit of analysis	The BM and its elements (value offering, value creation, value capture)	The way customers find a transportation and how the firm makes money out of it	The product and its characteristics	Burger patties and its ingredients
Innovation activities	Significantly changed value proposition (Sorescu, 2017) by innovating the BM elements	Changing the transportation experience of a customer and the way to make money out of it	Changing the attributes of an existing product or introducing new products	From meat-based to plant-based burger patties
Reference point	The old BM of a firm or the BM of an industry	Traditional cab experience	Former product generation or no product at all	Common meat-based burger patties
Value activities	Value creation and value capture activities	A new customer need—ordering a driver digitally—is fulfilled, the architecture to deliver the value—a mobile app algorithm—is changed, the payment—via a mobile app—is altered	Value creation activities	A new customer need—plant-based food—is fulfilled
Relationship with value chain (firm perspective)	Holistic changes to the firm’s value chain (Snihur & Wiklund, 2019)	The value chain—from internal logistics to service activities—of traditional cab companies is changed in the Uber business model	Changes to firms marketing and sales activities, usually initiated by the firm’s R&D department (Snihur & Wiklund, 2019)	Plant-based patties developed by the R&D department, new marketing activities and possible new sales channels/strategies

likely to fail. Several BM scholars suggest that a root cause for BMI failure is rejection by customers due to their resistance to BMI (Futterer et al., 2020). Given the significant financial loss generated by BMI failures (de Ridder, 2019), knowledge of innovation resistance as a driver of BMI rejections thus seems essential for decision-making in BMI development and of utmost importance in regard to the subsequent generation of

revenues. In this sense, research on BMI should direct attention to the demand-side reasons for BMI failure, understand customers’ psychology of BMI resistance, and employ this knowledge to develop and successfully implement strategies to overcome such resistance. However, research in this regard is lacking.

Third, BMI research often lacks cross-fertilization and literature convergence with NPD (new product

development) research in general and with findings on product innovation in specific (Clauss, Kesting, et al., 2019; Ghezzi & Cavallo, 2020; Priem et al., 2018). This applies in particular to the NPD research stream on customer resistance to product innovation (Joachim et al., 2018; Talke & Heidenreich, 2014). However, recent BMI literature suggests that the concept of passive innovation resistance from the NPD domain, which refers to a customer's predisposition to resist innovations due to the changes entailed in adoption (Talke & Heidenreich, 2014), has significant potential to shed light on the dark side of BMIs (Futterer et al., 2020). Empirical studies in NPD contexts have thus far shown that passive innovation resistance represents a major driver for customers' innovation rejection behavior (Heidenreich et al., 2016; Heidenreich & Kraemer, 2015) and thus might also be suitable to explain BMI failures (Futterer et al., 2020). However, conceptual differences between BMI and product innovation might have hindered the immediate transfer of this concept to the BMI domain (for details on conceptual differences, see also Table 1). More specifically, BMI and product innovations share some similarities from a customer perspective in regard to changes imposed by the degree of newness inherent in both BMI and product innovation (Heidenreich & Kraemer, 2016). However, BMI clearly exceeds traditional product innovations (Clauss, Kesting, et al., 2019; Schneider & Spieth, 2013) by extending new ways of how the firm creates value (e.g., product or service innovations), new ways of how the firm's offers are communicated to its customers (positioning innovation), and new ways of how the value is delivered to its customers via changed activities (paradigm innovation) and operations (process innovation; [Björkdahl & Holmén, 2013]). As BMI thus innovates the whole customer experience of using a product instead of merely innovating certain product attributes as is done within product innovation (Keiningham et al., 2020), customer responses to BMIs differ from those to product innovations (Futterer et al., 2020). Hence, it is subject to debate whether the theoretical rationales established and empirical findings generated with respect to passive innovation resistance in the NPD literature also account for the BMI domain.

This article intends to address these research gaps in the current BMI literature by shifting the focus to the dark side of BMI by using a demand-side approach, which cross-fertilizes on the NPD research stream of passive innovation resistance to explain BMI failures. More specifically, this article first strives to theoretically derive a conceptual model of how passive innovation resistance relates to BMI while explicitly accounting for the differences between product innovations and BMIs. Based on these theoretical considerations, hypotheses are derived

that concisely illustrate whether and how the effects of passive innovation resistance and potential countermeasures might either apply to or differ in the BMI domain. Afterward, both the effects of passive innovation resistance on continuous BMI adoption and the effectiveness of several marketing instruments as potential countermeasures are determined. By so doing, this article seeks to increase the sparse knowledge on potential drivers of BMI failure and provides the first empirical evidence on how marketing measures can be used as countermeasures. The findings contribute to both BMI literature and managerial practice. From a theoretical perspective, this study contributes to the current knowledge on the dark side of BMI by providing the first empirical insights into whether and how stable customer predispositions, that is, passive innovation resistance, inhibit the adoption process of BMIs and thus may explain BMI failures. From a managerial perspective, this study equips managers with passive innovation resistance countermeasures that should reduce the probability of BMI failure.

The remainder of this article is structured as follows. The next section focuses on the thorough conceptualization of the focal constructs before the hypotheses for the assumed relationships are derived from past literature. Afterward, the corresponding hypotheses are empirically tested within two large-scale consumer experiments. The corresponding empirical sections on both experiments provide details on the data and measures before the results are presented. Finally, the implications of the empirical results for theory and managerial practice are discussed, and some directions for future research are outlined.

2 | A DEMAND-SIDE APPROACH TO THE DARK SIDE OF BMI

2.1 | BMI and passive innovation resistance

In the mid-1990s, entrepreneurship and strategy scholars first discussed the BM concept to describe a firm's key business processes and their linkages (Zott et al., 2011). Currently, the BM concept reflects the "design or architecture of the value creation, delivery, and capture mechanisms" of a firm (Tece, 2010, p. 172). When conceptualizing a BM, two dominant approaches have emerged over the years (Clauss, Kesting, et al., 2019). The activity system perspective understands BMs as holistic systemic structures encompassing all the activities a business performs as well as the way and timing of how these activities are carried out (Casadesus-Masanell & Ricart, 2010; Zott & Amit, 2010). The element-based

perspective regards BMs as a configurational set of elements that can be innovated separately and then reconfigured to change a whole organization (Clauss, 2017; Osterwalder et al., 2010; Teece, 2010). Since customers are able to grasp and assess the individual elements of a BM (Clauss, Kesting, et al., 2019), which enables them to more fully identify the overall change in the business logic induced by BMIs, we also consider the element-based perspective to be more adequate for demand-side research. According to the element-based perspective, BMs encompass several related but distinct components, namely, (1) value offering, (2) internal value creation, (3) external value creation, and (4) financial architecture (Futterer et al., 2018), as the BM's constituting elements that entirely capture a firm's fundamental processes (Foss & Saebi, 2017, 2018; Saebi et al., 2017). Value offering reflects the products/services offered by a firm, internal value creation captures the activities necessary to employ internal processes, external value creation resembles the sources for procurement as well as distribution channels to customers, and financial architecture describes a firm's revenue mechanisms (Futterer et al., 2018).

BMI itself can be seen as a configurational process that deliberately changes the key components of a BM (Giesen et al., 2010). While the changing "of at least one core element is the necessary condition for BMI to be given, the sufficient condition is represented by a subsequent change of the BM's underlying logic" (Futterer et al., 2018, p. 2). The scope of a BMI can be described as "architectural," that is, altering the whole BM, or "modular," that is, changing one or more elements" (Foss & Saebi, 2017). Since even changes to one single BM element induce (minor) changes in other elements as well (Demil & Lecocq, 2010; Johnson et al., 2008), both types of changes require reconfigurations of the business logic and thus may constitute BMI (Foss & Saebi, 2017). Depending on the type of change prevailing in BMI, we thus propose differentiating architectural BMI from modular BMI. While the first refers to BMI where all elements have been simultaneously innovated and thus architectural change has prevailed, the latter refers to BMI where innovation activities have primarily focused on one element and thus modular change has dominated. In conclusion, BMI does not merely discover a new product or service but rather changes the integrated logic of how a firm creates and captures value for its customers (Björkdahl & Holmén, 2013; Snihur & Wiklund, 2019). While product, service or process innovation can occur within a BMI, it does not necessarily lead to a BMI, if the overall value proposition is not altered substantially (Sorescu, 2017). Table 1 provides an overview of the differences between BMI and product innovations.

Nevertheless, innovations within the four BM components differ in their visibility for customers (Clauss, Kesting, et al., 2019; Spieth et al., 2019). While innovations in a firm's value offering are most tangible for customers, innovations that are upstream in the value chain may not appear that visible at first glance. However, even changes in the internal and external value creation architecture may alter customer experience by introducing new distribution channels, modified touch points or even completely new ways of delivering value to the customer (e.g., customer cocreation; Spieth et al., 2019). Likewise, innovating a firm's financial architecture may also become visible to the customer if the revenue mechanism is changed from usage- to volume-based (Futterer et al., 2020) or the mode of paying is altered (Spieth et al., 2019). As these examples point out, BMI substantially alters customer experience. However, innovating a BM "does not guarantee that customers will perceive that the experience has improved" (Keiningham et al., 2020, p. 2). In contrast, an increasing number of companies experience difficulties in capturing value from BMIs (Chesbrough, 2010; von den Eichen et al., 2015), as customers often lack such positive perceptions, and thus, BMIs are rejected (Clauss, Kesting, et al., 2019; Halecker et al., 2014). Since investigations into the reasons for BMI rejection behavior are lacking, recent BMI research suggests drawing on the NPD research stream on resistance to innovations to find theoretical rationales for BMI rejections by customers (Futterer et al., 2020).

According to this research stream, individuals have an inner desire for psychological balance and thus seek to maintain their established habits of use such that changes imposed by innovations have the potential to upset this balance (Talke & Heidenreich, 2014). In case the amount of change entailed to the innovation exceeds a customer-specific threshold, the innovation is rejected to avoid a troublesome process of readjustment during adoption (Ram, 1987). While many innovations have achieved market acceptance and thus generated unprecedented profits for companies (Markham & Lee, 2013), high innovation failure rates of approximately 50% suggest that customer rejection behavior is no exception (Castellion & Markham, 2013; Konya-Baumbach et al., 2019). Studies that investigate innovation failures point to the concept of passive innovation resistance to explain the phenomenon of new product rejections due to the changes that a potential adoption entails (Bagozzi & Lee, 1999; Ellen et al., 1991; Ram & Sheth, 1989). Passive innovation resistance resembles a generic predisposition of individuals to resist innovations, which results from the degree of change or discontinuity associated with adopting the innovation (Heidenreich & Handrich, 2015b). It describes a general

human tendency of individuals when tackling innovation to act in a consistent pattern based on a cognitive and a situational component (Heidenreich & Kraemer, 2016). Cognitive passive resistance refers to “the degree to which an individual’s cognitive style inhibits considering and eventually adopting innovations due to the changes entailed” (Heidenreich & Kraemer, 2016, p. 279). Situational passive resistance refers to “the degree to which an individual’s preference for the current status quo inhibits considering and eventually adopting innovations due to the changes entailed” (Heidenreich & Kraemer, 2016, p. 279).

Several empirical studies have confirmed that passive innovation resistance inhibits (1) adoption intention defined as the intention to use an innovation (Koch et al., 2021), (2) adoption defined as the actual usage of an innovation (Labrecque et al., 2017), and (3) continuous adoption defined as the intention to continue usage of an innovation (Heidenreich et al., 2019). In BMI contexts, however, continuous adoption is of utmost importance, since BMI is seen as a process that deliberately changes the key components of a BM (Giesen et al., 2010) such that customers are regularly confronted with the decision to either continue adoption of the BM after innovation or to reject the new BM and thus leave the company. We thus focus our theoretical development on continuous adoption as a dependent variable.

Transferring this line of reasoning to the BM context, one can expect that something new or different, such as a BMI, will trigger similar psychological reactions by customers as product innovations. More specifically, BMI results from modifying several parts of an existing BM to which customers have become accustomed. Eventually, they may even build up an emotional attachment over the years. As a consequence, the existing BM functions as a reference point such that BMI alters the customer experience associated with the established BM, which imposes change on the customer and endangers the status quo. As a result, passive innovation resistance emerges and potentially leads to rejection of the BMI. Furthermore, the valence of a BMI’s effect on continuous adoption may become positive or negative depending on the amount of passive innovation resistance present (Heidenreich et al., 2016). More specifically, customers who are low on passive innovation resistance prefer high levels of stimulation, whereas customers who are high on passive innovation resistance prefer low levels of stimulation (Heidenreich et al., 2016). Hence, BMI as a source of stimulation might lead to a positive effect on continuous adoption when low passive innovation resistance is present, whereas this effect is likely to be reversed into a negative effect in the presence of high passive innovation resistance.

Hypothesis 1. The valence of the BMI’s effect on continuous adoption depends on the level of customers’ passive innovation resistance.

Hypothesis 1a. In the case of low passive innovation resistance, BMI has a positive effect on continuous adoption.

Hypothesis 1b. In the case of high passive innovation resistance, BMI has a negative effect on continuous adoption.

While the fundamental structure of the cause-effect relationship between passive innovation resistance and product innovation seems to also apply to the BMI context, the relative importance of cognitive and situational passive resistance might differ between product innovation and BMI. More specifically, a significant amount of change entailed to product innovations often results from modified or innovated functions that assemble the new product. Hence, an individual’s cognitive style that inhibits considering and understanding these new product attributes constitutes a major barrier to adoption in new product contexts (Heidenreich et al., 2016). This applies in particular to the case of radical product innovations, where comparable products are lacking on the market such that situational resistance generated by established products in possession is rather limited. Accordingly, the results of past research on passive innovation resistance in new product contexts indicate the higher importance of cognitive passive resistance for rejection behavior compared to situational passive resistance (Heidenreich et al., 2016; Heidenreich & Kraemer, 2016). However, the relative importance might turn in the case of BMIs. Compared to product innovations, BMIs encompass modifications along the whole value chain of the company (Snihur & Wiklund, 2019) and thus change the whole experience of customers with the company (Keiningham et al., 2020). Therefore, BMI induced change—which is generated from new product functions and thus primarily drives cognitive passive resistance—is either limited or small compared to other changes along the customer experience. Furthermore, BMI regularly results from modifications to the key components of an established BM (Giesen et al., 2010; Tucci & Massa, 2013). In most BMIs, unlike in (radical) product innovations, an established BM thus constitutes the reference point for the customer. Hence, continuous BMI adoption regularly means giving up a beloved status quo of how value was delivered by a company such that situational passive resistance to a troublesome process of readjustment should emerge (Heidenreich & Handrich, 2015b; Ram,

1987). Consequently, we suggest that unlike in NPD contexts, where cognitive passive resistance dominates, in BMI contexts, situational passive resistance constitutes the most important inhibitor for customer adoption behavior.

Hypothesis 2. In BMI contexts, the interaction effect of BMI and situational passive resistance on continuous adoption will be stronger than the effect of BMI and cognitive passive resistance.

2.2 | Countermeasures to passive resistance toward BMI

As outlined above, there seems to be a dark side to BMI such that the presence of high levels of passive innovation resistance inhibits continuous BMI adoption. Since such customer resistance endangers the successful implementation of BMI in the market, it seems of utmost importance to identify and test potential marketing strategies to overcome passive innovation resistance toward BMIs. Within this respect, to stimulate customer adoption behavior, past research has evaluated a plethora of marketing instruments, such as categorization cues (Goode et al., 2013), product demonstration (Heiman & Muller, 2016) or product bundling (Reinders et al., 2010). However, most of the established instruments focus on enhancing positive perceptions of innovation attributes, such as increasing the product's image (Garcia et al., 2007) or decreasing associated functional risks (Bearden & Shimp, 1982). However, such instruments targeting innovation attributes directly are ineffective in overcoming passive innovation resistance, as this kind of resistance evolves prior to new product evaluation in light of the changes entailed in adoption (Heidenreich & Kraemer, 2016). To tackle passive innovation resistance effectively, marketing instruments have to target and attenuate the root causes of passive innovation resistance, that is, customers' inclination to resist change and/or customers' satisfaction with the status quo (Talke & Heidenreich, 2014). Consequently, instruments to mitigate passive innovation resistance in the context of BMI should focus on either customers' cognitive passive resistance by tackling perceptions of change that accompany the BMI or their situational passive resistance by reducing customers' satisfaction with the current BM (status quo; Heidenreich & Kraemer, 2016). To choose the most effective countermeasures to passive innovation resistance for our study, we relied on a systematic overview on the suitability of several marketing instruments as countermeasures to passive innovation resistance by Heidenreich and Kraemer (2016) and screened the

literature on marketing instruments for stimulating adoption behavior (e.g., Dahl & Hoeffler, 2004; Gregan-Paxton & Moreau, 2003; Laukkanen et al., 2009; Ram, 1989; Zhao et al., 2011). With respect to tackling perceptions of change that accompany innovation, especially instruments of mental simulation (i.e., imitative representation of a specific usage situation) and analogies (i.e., (referring to a familiar situation as a reference point to make conclusions about the innovation) seem most effective. With respect to reducing customers' satisfaction with the current BM, especially the instruments of benefit comparison (i.e., comparing an innovation and an existing product on a benefit level) and testimonials (i.e., using a liable and credible person who speaks positively about the innovation) seem most effective. Accordingly, we subsequently derive theoretical rationales on how these four instruments attenuate cognitive and situational passive resistance.

In regard to reducing the perceived changes of a particular innovation, past literature confirmed that helping the customer integrate the innovation into common consumption habits might be most effective (Dahl & Hoeffler, 2004; Hess, 2009; Heidenreich & Handrich, 2015b). In a mental simulation task, customers are assisted in picturing themselves using the innovation (Hess, 2009; Zhao et al., 2011), and it is emphasized that the use of the innovation is not very different from the use of established products (Feiereisen et al., 2008). Thereby, the changes that come along with innovations are tackled, which should reduce the negative effects of cognitive passive resistance. Accordingly, a previous study in the NPD context confirmed the effectiveness of mental simulation in reducing the negative effects of cognitive passive resistance on new product adoption (Heidenreich & Kraemer, 2016). While empirical evidence for the effectiveness in BMI contexts is lacking, the theoretical considerations made above suggest the transferability of the proposed psychological mechanisms as follows. Illustrating that BMI use is not very different from customer experiences with the established BM, using mental simulation should also reduce the perceived changes associated with BMI adoption and thus mitigate the negative effects of passive innovation resistance.

Hypothesis 3. The usage of mental simulation, that is, assisting customers in imagining using BMI, in advertisements reduces the negative effect of passive innovation resistance on continuous adoption.

Similar to mental simulation, the marketing instrument "analogies" is designed to assist customers in

integrating BMI into their common usage behavior by providing them with a context-based comparison of a situation with which customers are already familiar (El Houssi et al., 2005; Gregan-Paxton & Moreau, 2003). El Houssi et al. (2005), for example, reported that using an implicit analogy in advertisements has a positive effect on customers' understanding of innovations and thus holds the potential to reduce perceived changes entailed to the adoption (El Houssi et al., 2005). Accordingly, the provision of an analogy of a new experience resulting from the BMI to a familiar experience that was made with the established BM should reduce perceived changes entailed to continuous BMI adoption. Consequently, we expect that the use of analogies in advertisements of BMIs should also attenuate the negative effects of cognitive passive resistance.

Hypothesis 4. The usage of analogies, that is, comparing the new BMI features with already existing and well-known real-life settings, in advertisements reduces the negative effect of passive innovation resistance on continuous adoption.

Prior research in the NPD context suggests that instruments aiming at reducing situational passive resistance should help customers understand the advantages of an innovation over well-known alternatives (Heidenreich & Spieth, 2013; Heidenreich & Handrich, 2015b). The marketing instrument benefit comparison uses advertisements that present the benefits of a new product in a context with familiar products and thereby highlights an innovation's relative benefits over established products (Ziamou & Ratneshwar, 2003). Several studies in NPD contexts have confirmed that highlighting the superiority of an innovation in contrast to entrenched alternatives mitigates customer attachment to products currently in use, as customers realize that "switching to a new product involves potential gains that likely outweigh potential losses" (Heidenreich & Kraemer, 2016, p. 282). Accordingly, the results of a study by Heidenreich and Kraemer (2016) in the NPD context confirmed the effectiveness of benefit comparison in reducing the negative effects of situational passive resistance on new product adoption. While empirical confirmation of the effectiveness in BMI contexts is still missing, the theoretical considerations made above indicate the transferability of the outlined psychological mechanisms as follows. An explicit comparison on a benefit level of the customer experience generated from usage of the BMI compared to that from the usage of the former BM should attenuate customers' satisfaction with the entrenched BM and thus attenuate the negative effects of passive innovation resistance.

Hypothesis 5. The usage of benefit comparison, that is, the deliberate comparison of benefits between the old and the new business model, in advertisements reduces the negative effect of passive innovation resistance on continuous adoption.

A similar approach to benefit comparison is taken with "testimonials," where a reliable and credible personality or group of personalities advertise the innovation and communicate what he, she or they think of the innovation, why it is worthwhile using it, and advocate its use over established alternatives (Petty et al., 1983). The credibility of testimonials could be in the form of current or past customers (e.g., in published reviews), friends (e.g., in social networks), or perceived experts and even celebrities (Batra & Keller, 2016). To be effective, integrated marketing communication plans must also be capable of soliciting credible and positive reviews and ratings, endorsements and testimonials in the brand's own advertising as well as in external print and online media (Chevalier & Mayzlin, 2006; Trusov et al., 2010). Often, user statements are combined with an overall number of satisfied users. For example, Coursera, an online platform for online classes, presents former participants in Coursera courses who give a short positive statement about their Coursera experience. At the same time, the total number of positive evaluations from other course participants is displayed ("87% of those who learn for professional development purposes report resulting benefits to their careers"). Customers confronted with these testimonial statements should be made aware that they are missing out on a new and better, that is, superior, experience. This mechanism can be transferred to BMI, where testimonial statements in advertising should help customers realize the superiority of a new BM. Thus, satisfaction with the current BM in place should be reduced. Consequently, we expect that the use of testimonials in advertisements should attenuate the negative effects of situational passive resistance in BMI contexts.

Hypothesis 6. The usage of testimonials, that is, credible individuals who speak positively about BMI, in advertisements reduces the negative effect of passive innovation resistance on continuous adoption.

While countermeasures that were found effective in overcoming passive resistance to product innovations seem to also be suitable in the case of BMI, their relative effectiveness might still differ between these contexts. Consequently, it seems reasonable to assume a certain matching logic between the type of passive innovation

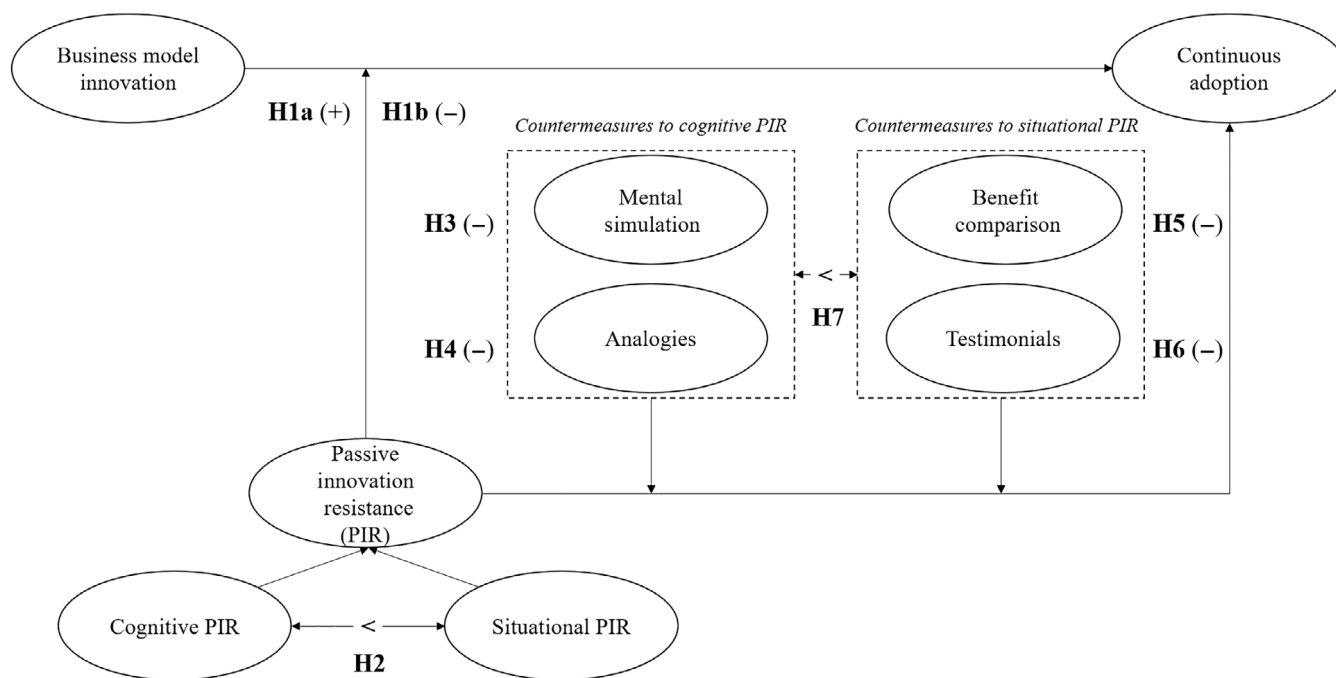


FIGURE 1 Research model

resistance that is primarily targeted by the instrument and the prevailing type of passive innovation resistance in the respective context when predicting effectiveness (Heidenreich & Kraemer, 2016). More specifically, in NPD contexts, measures that aim at reducing changes entailed to the adoption (i.e., mental simulation and analogies) might be most effective in reducing the negative effects of passive innovation resistance on continuous adoption, as cognitive passive resistance prevails. Accordingly, a study in the NPD context by Heidenreich and Kraemer (2016) confirmed the superiority of mental simulation over benefit comparison in attenuating the negative effects of passive innovation resistance on new product adoption. However, the effectiveness of countermeasures might turn out differently in BMI contexts. As outlined in the derivation of Hypothesis 2, situational passive resistance dominates over cognitive passive resistance in continuous BMI adoption. Hence, cognitive passive resistance seems to play only a minor role with respect to continuous BMI adoption. Accordingly, marketing instruments that aim at highlighting an innovation's relative benefits over established products to reduce situational passive resistance, such as benefit comparison or testimonials, might constitute the most effective countermeasures in this context. Hence, we suggest that unlike in the NPD context, where countermeasures to cognitive passive resistance were found to be most effective, in BMI contexts, countermeasures to situational passive resistance may represent the most effective instruments for overcoming passive resistance.

Hypothesis 7. In BMI contexts, the effectiveness of benefit comparison and testimonials in overcoming passive innovation resistance will be higher than the effectiveness of mental simulation and analogies.

A summary of the hypotheses' framework can be found in Figure 1.

3 | STUDY 1: PASSIVE INNOVATION RESISTANCE AND CONTINUOUS BMI ADOPTION

3.1 | Setting and data collection

To examine Hypotheses 1 and 2, we conducted a scenario-based experiment that randomly assigned participants to several hypothetical usage scenarios in which we introduced different innovations along the BM elements. We decided to use scenario-based experiments because this method allows observations in an abstract environment, thereby excluding the impact of unconsidered effects (Charness et al., 2012). Additionally, the random assignment of participants cancels out any unobserved variables or individual differences (Colquitt, 2008), which excludes alternative explanations and establishes causality (Aronson et al., 1990). In our study, we decided to focus on the food retail industry, specifically supermarkets, for the following reasons. The food retail industry is a growing sector:

TABLE 2 Overview of results of pretest

Manipulation	N	BMI	Realism
No innovation/control	27	3.566	2.922
Value offering innovation	25	4.349	3.942
Internal value innovation	27	4.538	3.737
External value innovation	26	4.980	3.449
Financial architecture innovation	21	4.325	3.852
BM innovation	28	6.224	4.337

supermarkets and other grocery store sales in the United States have almost doubled from \$318 billion in 1992 to almost \$612 billion in 2017 (US Census Bureau, 2018). However, new competitors such as Amazon are moving into the market by establishing a new retail ecosystem that combines online, as well as brick and mortar stores, to serve their customer base via an omnichannel distribution network (McKinsey & Company, 2018). This puts supermarkets under pressure to renew their own BM to keep the customers in their stores. As a result, several attempts of traditional retailers to innovate their BM have been currently carried out, providing us with numerous examples for our hypothetical usage scenarios. Furthermore, BMIs in retail environments can be easily perceived by customers. In addition to new offerings, the nature and speed of new processes and infrastructures as well as novel revenue structures (e.g., alternative payment options or cross-selling activities) can be directly assessed (Clauss, Kesting, et al., 2019). Finally, with supermarkets, we present a research context that customers can relate to very well, ensuring that each survey participant is able to assess and evaluate the presented BMI (Clauss, Kesting, et al., 2019). Based on real examples from actual supermarkets, we developed six different scenarios for our experiment. More specifically, four scenarios, each with a separate innovation in a certain BM element, were developed to capture a modular BMI. In terms of the value offering innovation, we put a smart shopping assistant on the shopping cart in the experiment. For innovation of the internal value creation, we introduced self-filling shelves. The external value creation was innovated by a drone delivery service that delivers the purchase to the customer's door. Last, revenue model innovation depicts a case whereby customers are now able to pay for each biometric fingerprint. The fifth scenario refers to the case of an architectural BMI, such that all the elements were innovated in line with the examples from the modular scenarios. In the control scenario, the supermarket's BM remained unchanged. Appendix A1 describes the individual scenarios in detail. We employed three pretests ($n_3 = 154$) to ensure cell-specific manipulation checks. Slight modifications were

made after the first two rounds to enhance comprehensibility, real-life context, and scenario development. To assess the effectiveness of our manipulations, we applied the measurement inventory of Futterer et al. (2018) to assess the degree of BMI in each element. The results from analysis of variance (ANOVA) in the final round of our pretests confirmed significant differences across all six groups, namely, four modular BMI scenarios, the architectural BMI scenario, and the control group. Table 2 shows the corresponding means per cell for BMI.

In addition, by following (Darley & Lim, 1993), we checked the realism of our manipulations by asking the participants to what extent they agreed with the following statements: "I can imagine a supermarket implementing this BM change," "I can imagine a supermarket realizing this BM change," and "I can imagine this BM change happening in real life." We aggregated these items into one variable that measured realism (see Appendix B1). The participants were able to imagine our description of our BMI scenario and found it realistic (see also Table 2). In summary, the findings of our final pretest suggest that our manipulation is effective and understandable.

We then set up an online survey to distribute our scenario-based experiment. Within the online survey, we initially provided the participants with the generic definition of a BM to establish a common understanding of the concept. We then asked the participants to answer several questions related to their purchase behavior (i.e., continuous adoption [t_0]) for the supermarket at which they commonly do their grocery shopping. For the operationalization of continuous adoption, we adapted a measurement inventory of customer loyalty by Heitmann et al. (2007), which assesses the probability of the continuous usage of an offering even if this requires a price surcharge. We deem this measurement the most effective for our purpose because of the following considerations. First, established measures that operationalize adoption intention commonly focus on the probability of using a certain product for the first time rather than assessing the probability for continuous adoption (e.g., Kulviwat et al., 2007). Second, operationalizing continuous adoption by solely assessing the probability of continuing to use an established offering would be subject to confounding effects revolving around the knowledge–attitude–practice (KAP) gap (Rogers, 2003). More specifically, several studies have confirmed significant discrepancies between attitudes and behaviors, such that measuring the sole probability of adopting a certain offering leads to higher participant scores compared to actual adoption, that is, purchase of the new product (Heidenreich & Handrich, 2015a; Meuter et al., 2005). However, measuring the probability of adopting a certain offering, even if this requires a surcharge, represents a much stronger statement than the sole intention to do so

without any price increase. As a consequence, potential confounding effects of attitude-behavior discrepancies are attenuated, and a stronger test of potential hypotheses is guaranteed. Finally, BMI often comes along with a price increase such that the scale by Heitmann et al. (2007) seems a realistic fit for our BM context.

After assessing continuous adoption in our survey, we advised the participants to imagine their regular supermarket changed its BM according to our scenarios. This led to two manipulated conditions and one control condition. In the modular BMI condition, participants received a scenario in which either one of the BM elements was innovated. In the architectural BMI condition, participants received a scenario in which all BM elements were innovated. Afterward, we carried out manipulation checks using the same measurements as already employed in the pretest. Since the architectural BMI scenario exhibited the highest degree of perceived BMI (similar to the results in our pretest), we focused our analyses of Hypotheses 1 and 2 on comparing the effects between the control group scenario and the architectural BMI scenario.¹ After the manipulation checks, we again collected data on continuous adoption (t_1) using the scale of Heitmann et al. (2007) but now with respect to the fictive BMI of the supermarket. Data on our independent variable of interest, namely, passive innovation resistance, were collected using the measurement inventory of Heidenreich and Handrich (2015b). Finally, we also collected some data on demographics that were implemented as further control variables. Age was measured in years, education was measured according to the German education system and converted into seven categories, gender was a binary variable, and income was operationalized as the annual income before taxes in 11 categories.

Finally, we distributed our survey via an online panel provider (Clickworker) in Germany. In total, we received 501 completed and usable responses. Of the participants, 54.7% were female with an average age of 35 years, while 45.3% were male with an average age of 33 years. In terms of education, 0.8% had not finished school (yet), 32.6% had a secondary school certificate, 34.9% had a high school diploma, and 31.7% had a university degree. The distribution of income among the participants was quite typical, with 23.6% having a pretax annual income €40,000 or higher.

3.2 | Results

We used SmartPLS 3 (Ringle et al., 2015) to evaluate the measurement criteria since it can handle higher-order

¹We also run several additional analyses that included the modular BMI scenarios, which can be found in the Appendix C.

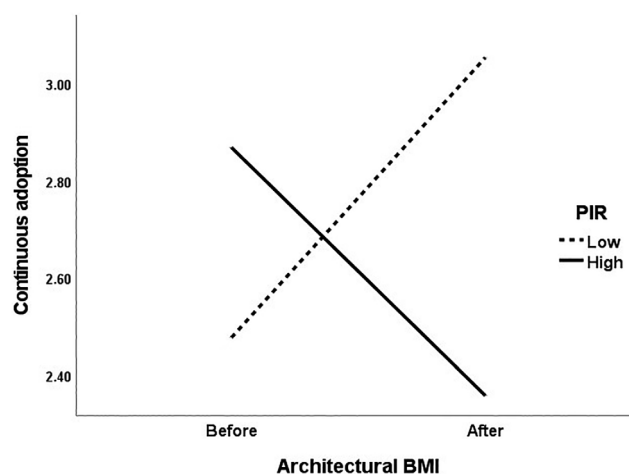


FIGURE 2 Interaction effect of passive innovation resistance and architectural business model innovation

constructs with formative relationships (Chin, 2010), which are present in our research design. More specifically, both BMI and passive innovation resistance were operationalized as molar higher-order constructs (see Appendices B2 and B3). By running the PLS algorithm, we applied a path-weighting scheme with 500 iterations. Additionally, to assess the significance of paths, outer weights, and loadings, we employed nonparametric bootstrapping (Chin, 1998; Tenenhaus et al., 2005) with 1000 replications and mean replacement as a missing value algorithm. We built the higher-order latent variables BMI and passive innovation resistance by applying component modeling techniques (Lohmöller, 1989; Tenenhaus et al., 2005) and the repeated indicators approach (Becker et al., 2012). The repeated indicators approach allocates the items of the lower-order constructs to the measurement model of the corresponding higher-order construct (Lohmöller, 1989; Wold, 1982). In a next step, we evaluated their measurement criteria following Hair et al. (2018). The reflective constructs met all the thresholds of internal consistency reliability (Henseler et al., 2009), convergent validity (Hair et al., 2017), and average variance extracted (Fornell & Larcker, 1981), except one item of the first-order construct of “cognitive rigidity,” which was eliminated. The formative constructs were then evaluated and found to be significant and relevant (Chin, 2010). The variance inflation factors were also evaluated to assess collinearity problems (Cassel et al., 1999; Diamantopoulos & Winklhofer, 2001). All VIFs were found to be below the common threshold of 5 (Hair et al., 2013). Thus, our measurements seem to provide sufficient quality (for details, see Appendices B1–B4).

A two-way ANOVA was conducted to evaluate Hypothesis 1. Prior to evaluation, consumers were classified into two groups according to their passive innovation resistance level by employing a median split. For this

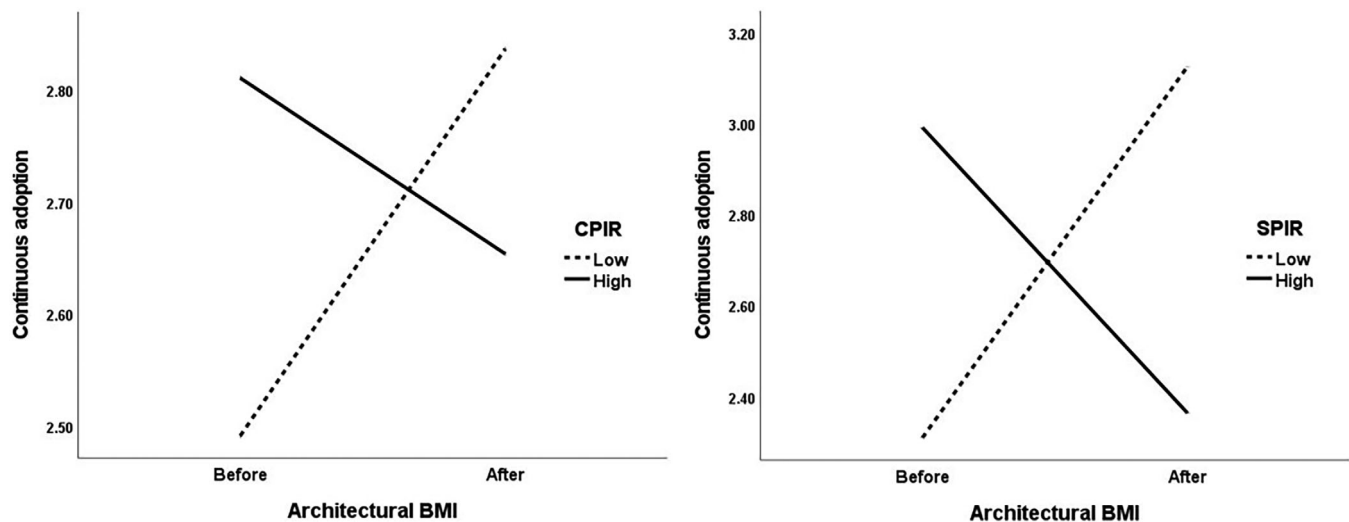


FIGURE 3 Effect of cognitive and situational passive innovation resistance

purpose, we calculated latent variable scores for the formative constructs. More specifically, all participants who reached values that were above the median of 3.46 were classified as high, whereas all participants with values that were below the median of 3.46 were classified as low. The same procedures were conducted for the two different types of passive innovation resistance, namely, cognitive passive resistance (median split at 2.77) and situational passive resistance (median split at 4.12). Consistent with Hypothesis 1, the results confirm a statistically significant interaction between architectural BMI (before/after) and passive innovation resistance (low/high) on continuous adoption ($F_{(3,208)} = 7.140, p = 0.008$) while accounting for the control variables gender ($F_{(3,208)} = 0.946, p = 0.332$), education ($F_{(3,208)} = 0.203, p = 0.652$), income ($F_{(3,208)} = 5.957, p = 0.016$), and age ($F_{(3,208)} = 2.390, p = 0.124$). More specifically, consumers with a low passive innovation resistance level exhibit a greater intention to continue adoption after an architectural BMI ($M_{PIRlow/BMIbefore} = 2.503; M_{PIRlow/BMIafter} = 3.079$), while customers with a high level of passive innovation resistance show a significantly lower intention to continue adoption after innovating the familiar BM ($M_{PIRhigh/BMIbefore} = 2.837; M_{PIRhigh/BMIafter} = 2.326$), thereby lending support to Hypothesis 1. Figure 2 illustrates the interaction effect.

To evaluate Hypothesis 2, we ran two separate ANOVAs to determine the interaction effect of architectural BMI and cognitive as well as situational passive resistance on continuous adoption. The results confirm a statistically significant interaction between architectural BMI (before/after) and situational passive innovation resistance (low/high) on continuous adoption ($F_{(3,208)} = 13.143, p = 0.000$) while accounting for the control variables gender ($F_{(3,208)} = 1.087, p = 0.298$), education ($F_{(3,208)} = 0.158, p = 0.692$), income ($F_{(3,208)} = 6.386, p = 0.012$), and age

($F_{(3,208)} = 2.398, p = 0.124$). More specifically, consumers low in situational passive resistance show a greater intention to continue adoption after an architectural BMI ($M_{SPIRlow/BMIbefore} = 2.352; M_{SPIRlow/BMIafter} = 3.169$), while customers high in situational passive resistance exhibit a significantly lower intention to continue adoption after an architectural BMI ($M_{SPIRhigh/BMIbefore} = 2.949; M_{SPIRhigh/BMIafter} = 2.321$). The interaction between architectural BMI (before/after) and cognitive passive innovation resistance (low/high) was nonsignificant ($F_{(3,208)} = 1.505, p = 0.221$) while accounting for the control variables gender ($F_{(3,208)} = 1.153, p = 0.284$), education ($F_{(3,208)} = 0.116, p = 0.734$), income ($F_{(3,208)} = 6.262, p = 0.013$), and age ($F_{(3,208)} = 2.193, p = 0.140$). However, the difference in means indicates a nonsignificant but slightly negative effect such that consumers low on situational passive resistance exhibit a greater intention to continue adoption after an architectural BMI ($M_{CPIRlow/BMIbefore} = 2.491; M_{CPIRlow/BMIafter} = 2.836$), while customers high on situational passive resistance show a slightly lower intention to continue adoption after an architectural BMI ($M_{CPIRhigh/BMIbefore} = 2.811; M_{CPIRhigh/BMIafter} = 2.654$). Figure 3 illustrates the interaction effects.²

4 | STUDY 2: COUNTERMEASURES TO PASSIVE RESISTANCE TOWARD BMI

4.1 | Setting and data collection

After confirming the detrimental effects of passive innovation resistance on continuous BMI adoption in Study

²In an additional analysis, we compared the effects of modular BMI to those of architectural BMI. The results can be found in the Appendix C.

1, it seemed of utmost importance to test the effectiveness of potential countermeasures. For this purpose, Study 2 again utilizes a scenario-based experiment in which the communication of an architectural BMI is either done using one of four different marketing instruments (namely, mental simulation, analogy, benefit comparison, and testimonial) or merely in a descriptive manner without using a marketing instrument (control group). Hence, this study consists of five scenarios in total. The control group scenario had a plain and fact-based description of the architectural BMI—equal to that of the architectural BMI condition in Study 1. In the other four groups, the same architectural BMI was also employed, but the communication of the corresponding innovation was done by using one of the marketing instruments. In the analogy group, we presented the new BM by referring to a similar or analogous real-life BM with which the customer was already familiar. In the case of benefit comparison, we introduced the new BM by highlighting its advantages and superiority in comparison to the old BM. In the mental simulation scenario, we advised customers to imagine them using the new features of the BM by describing a favorable usage situation. Last, in the testimonial condition, we reported a statement of a testimonial in which an individual said that s/he is very satisfied with the new BM along with a huge number of other surveyed people—more than 90%. We again conducted three pretesting rounds and assessed cell-specific manipulation checks, as well as closeness to reality. We specifically experimented with pictures and text, as well as pictures only and text only scenarios. More specifically, in the picture-only version, the BMI was illustrated by images of the respective innovation in the supermarket. In the text only version, the BMI was described by text. In the pictures and text version, images and texts were combined to describe the BMI. Finally, we applied the text-only version because it was more precise and clearer for the pretest participants.

The results from several ANOVAs between the scenarios and the control group confirm the effectiveness of our manipulations. With regard to the analogy group, we asked the participants how much they agreed with the following statement: “The way in which the BM change was described helped me imagine the new BM particularly well by comparing it with something I am familiar with.” The ANOVA results showed a significant difference between the control group and the analogy group ($M_{\text{control}} = 4.43$, $M_{\text{analogy}} = 5.18$, $F_{(1,48)} = 2.99$, $p = 0.09$). In the mental simulation group, we asked the participants for their response to the item “The way in which the BM change was described allowed me to visualize the new business model,” and the ANOVA showed that our manipulation was successful ($M_{\text{control}} = 5.36$,

$M_{\text{mental}} = 6.15$, $F_{(1,52)} = 4.46$, $p = 0.04$). In a similar vein, the analysis confirms the manipulation for testimonials: Putting to the participants the item “The way in which the BM change was described, trustworthy customer opinions dispelled my doubts about its feasibility” worked well ($M_{\text{control}} = 2.21$, $M_{\text{testimonial}} = 3.41$, $F_{(1,55)} = 8.43$, $p = 0.05$). Finally, the manipulation check for benefit comparison was assessed by asking the participants whether “the way in which the BM change was described clearly highlighted the advantages of the new BM over the purchasing that I was familiar with.” An ANOVA confirmed the effective manipulation of benefit comparison ($M_{\text{control}} = 3.72$, $M_{\text{Benefit}} = 5.39$, $F_{(1,55)} = 16.76$, $p < 0.001$). We again checked for realism ($M_{\text{analogy}} = 3.93$, $M_{\text{mental}} = 4.02$, $M_{\text{testimonial}} = 3.73$, $M_{\text{Benefit}} = 4.50$) with sufficient results (for details, see Appendix B5). Hence, all the manipulations were deemed effective.

Similarly to Study 1, we set up an online survey to distribute our scenario-based experiment. We first advised the customers to think about the BM of their regular supermarket. Afterward, we presented a scenario in which we had them imagine their regular supermarket changing its BM according to our scenarios. After presenting the scenarios, we collected data on our dependent and independent variables, namely, continuous adoption and passive innovation resistance, as well as data on demographics. We applied the same measurement inventories as those used in Study 1. Details on the experimental procedures are shown in Appendix A2. For data gathering, we again used an online panel provider (Clickworker) in Germany. We received 551 completed and usable responses. A total of 53.5% of the participants were female with an average age of 35 years, while 46.5% were male with an average age of 33 years. A total of 30.5% of the participants held a university degree, 36.3% had a high school diploma, and 32.3% had a secondary school certificate, while 0.9% of the participants had not finished school. Approximately 75.5% of all the participants had an annual pretax income of €40,000 or less.

4.2 | Results

We assessed the measurement criteria of our constructs with the same approach used in Study 1, employing SmartPLS 3 (Ringle et al., 2015). The BMI construct surpassed all the relevant thresholds of reflective and formative indicator assessments (Hair et al., 2018). The same applied for the independent variable of interest, passive innovation resistance, after having eliminated 1 indicator of cognitive rigidity, which fell below the critical threshold of indicator loadings. Finally, we assessed the

TABLE 3 Overview of the effectiveness of countermeasures

	Mental simulation		Analogy		Benefit comparison		Testimonial	
	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value
Interaction term (Passive Innovation Resistance \times Marketing Instrument)	-0.239	1.234	0.044	0.246	0.372	2.097	0.380	2.141
<i>Main effects</i>								
Passive Innovation Resistance	-0.535	3.997	-0.509	3.854	-0.519	4.002	-0.526	4.146
Marketing instrument	0.242	1.406	-0.077	0.458	-0.041	0.252	-0.418	2.576
<i>Control variables</i>								
Gender	-0.031	0.177	0.339	1.993	0.061	0.364	-0.368	2.239
Education	0.077	1.035	-0.033	0.413	-0.013	0.171	-0.070	0.938
Income	-0.012	0.284	-0.011	0.252	0.029	0.649	0.107	2.890
Age	-0.005	0.721	-0.016	2.171	-0.009	1.293	-0.011	1.648

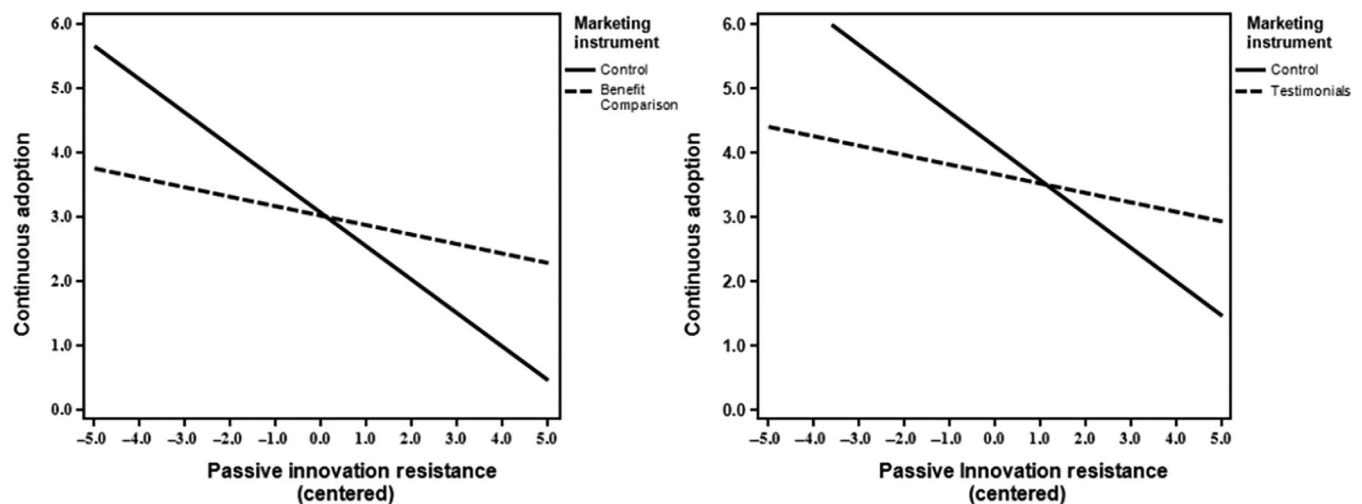


FIGURE 4 Effectiveness of benefit comparison and testimonials

dependent variable, continuous adoption, which clearly surpassed all the relevant thresholds. Appendices B2, B3, and B4 show all the relevant indicators and measurement criteria. To test for the proposed Hypotheses 3–7, we conducted four separate interaction analyses to determine the overall effect of each marketing instrument in reducing passive innovation resistance's negative effect on continuous BMI adoption. We used latent variable scores for the formative constructs and means for all the reflective constructs. Furthermore, we standardized the continuous variables to mitigate potential multicollinearity. Table 3 gives an overview of the main and interaction effects.

In the following, we only discuss the main and interaction effects in detail, since these are the focus of our study. Regarding the overall effectiveness of our first marketing instrument, that is, mental simulation, the results do not support our initial hypothesis about reducing the

negative effect of passive innovation resistance on continuous adoption ($\beta = -0.239$, $p = 0.218$). Hence, Hypothesis 3 is rejected. Likewise, and contrary to Hypothesis 4, the use of analogies did not significantly attenuate the negative effect of passive innovation resistance on continuous adoption ($\beta = 0.044$, $p = 0.806$). However, both marketing instruments that were primarily targeted at situational passive resistance worked effectively. More specifically, Figure 4 illustrates that benefit comparison as a countermeasure significantly reduced the negative effect of passive innovation resistance on continuous adoption ($\beta = 0.372$, $p = 0.036$). Thus, Hypothesis 5 is confirmed. Similarly and in line with Hypothesis 6, using testimonials and survey data as marketing instruments significantly reduced passive innovation resistance's negative effect on continuous adoption ($\beta = 0.380$, $p = 0.033$). Since only benefit comparison and

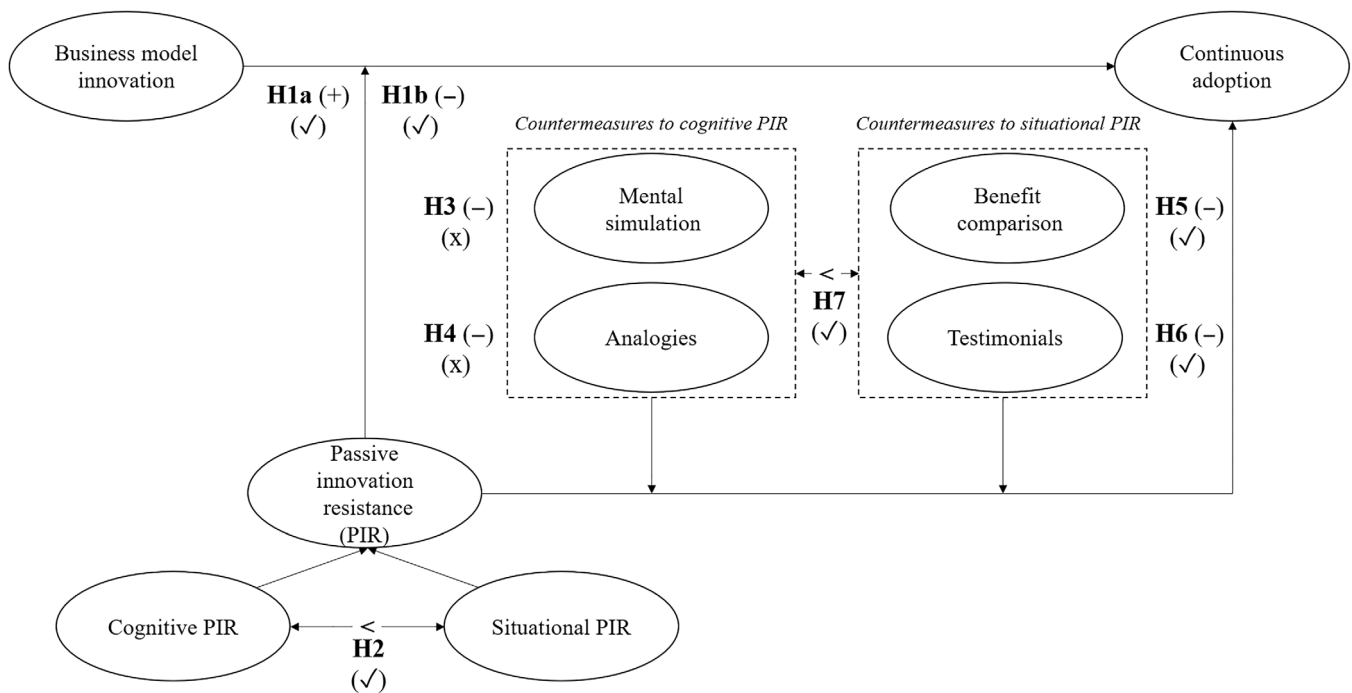


FIGURE 5 Results of the two studies

testimonials were confirmed as effective countermeasures of passive innovation resistance in BMI contexts, empirical support for Hypothesis 7 is granted.³

5 | DISCUSSION

The main goal of the current study was to investigate (1) whether and how BMI evokes negative effects of passive innovation resistance on customers' continuous adoption behavior (Study 1) and (2) which marketing instruments can be used as effective countermeasures to passive resistance toward BMI (Study 2). The two scenario-based experiments produced several interesting results. First, the findings of Study 1 confirm that passive innovation resistance significantly reduces continuous BMI adoption. Following our results, customers with a high level of passive innovation resistance exhibit low intentions to continue adopting a BM after innovation, whereas customers with low passive innovation resistance tend to embrace BMI, fostering continuous adoption. Moreover, our results from two separate interaction analyses confirm that both types of passive innovation resistance, namely, cognitive and situational passive resistance, inhibit continuous BMI adoption but differ in their relative importance. More specifically, while the

interaction effect of BMI and situational passive resistance was negative and significant, the corresponding interaction effect of BMI and cognitive passive resistance was nonsignificant. Overall, these findings provide further support for the important role of passive innovation resistance as an inhibitor in adoption processes, initially discovered in NPD contexts (Claudy et al., 2015; Heidenreich & Handrich, 2015b; Labrecque et al., 2017).

Second, the findings of Study 2 indicate that the use of countermeasures to passive resistance to BMI can be effective if an adequate marketing instrument is employed. More specifically, our results confirm the effectiveness of benefit comparison and testimonials in reducing the negative effects of passive innovation resistance on continuous adoption. This finding is in line with prior research on marketing instruments as countermeasures in general (Feick & Higie, 1992; Ziamou & Ratneshwar, 2003) and for passive innovation resistance in specific (Heidenreich & Kraemer, 2016). However, employing mental simulation and analogies turned out to be ineffective in overcoming passive innovation resistance. This is somewhat surprising because it contradicts findings in the context of new product adoption that found mental simulation to be the most effective marketing instrument in overcoming passive innovation resistance adoption (Heidenreich & Kraemer, 2016). A possible explanation for this contradictory result might be found in the results of Study 1. Whereas studies in the NPD context consistently reported high relevance of cognitive passive resistance as an inhibitor of customer

³In addition, we tested for the effectiveness of marketing instruments when considering the perceived innovativeness of the business model. The results can be found in the Appendix D.

adoption behavior (e.g., Heidenreich et al., 2016; Heidenreich & Kraemer, 2015), our findings of Study 2 suggest that in BMI contexts, situational passive resistance represents the most important inhibitor such that the effects of cognitive passive resistance are limited. Figure 5 shows the conceptual framework with the overall results of our two studies.

6 | IMPLICATIONS

6.1 | Theoretical implications

Research thus far has dedicated considerable attention to the bright side of BMI (Baden-Fuller & Haefliger, 2013; Björkdahl, 2009; Futterer et al., 2018; Hienerth et al., 2011; Zott & Amit, 2007). However, research on a potential dark side of BMI remains neglected. The current research thus strives to contribute to theory by shedding some light on this issue. More specifically, we use a demand-side approach, which cross-fertilizes on the NPD research stream of passive innovation resistance to explain BMI failures. In doing so, we answer recent calls by BMI research for studies (1) that shed light on demand-side consequences of BMI (Priem et al., 2018; Clauss, Kesting, et al., 2019) and (2) cross-fertilize on concepts from the product domain to explain why certain BMIs cannot unfold their full potential (Futterer et al., 2020). The corresponding findings of our empirical studies contribute to the current understanding of the dark side of BMI in three major ways.

First, our study is the first to examine demand-side causes for BMI failures. Drawing on the concept of passive innovation resistance from the NPD research stream (Talke & Heidenreich, 2014), our study was able to show that despite all the benefits that are entailed to BMI, such innovation imposes change on the customer and thus might prompt negative responses depending on his or her cognitive style and satisfaction with the established BM. The conceptualization and empirical validation of passive resistance in the BMI domain is an important contribution for several reasons. Most importantly, it represents a first step toward a good understanding of just what drives BMI failures. While prior BMI research has suggested that a root cause for BMI failure is the rejection by customers due to their resistance to BMI (Clauss, Kesting, et al., 2019; Futterer et al., 2020; Snihur & Zott, 2013), theoretical rationales as well as empirical evidence on whether and how customer resistance inhibits continuous BMI adoption were missing. The findings of our research may establish a common ground to overcome pro-innovation bias that is inherent in past BMI research such that future studies may shift their focus of

investigating successful to unsuccessful BMIs to shed more light on the dark side of BMI.

Second, our studies also provide further support in favor of the ongoing discussion on the peculiarities of BMI in general and on the differences between BMI and product innovation in specific (Bucherer et al., 2012). Our results show that some of the psychological mechanisms of passive innovation resistance need to be adapted when transferred from the NPD domain to the BMI domain. More specifically, our findings show that the relative importance of different types of passive innovation resistance differ with respect to the context. Contrary to the domination of cognitive passive resistance in the NPD context, situational passive resistance constitutes the most important inhibitor for customer adoption behavior in BMI contexts. Following a demand-side perspective (Clauss, Harengel, et al., 2019; Priem et al., 2018), possible explanations can be found in the peculiarities of BMs. BMI goes beyond traditional product innovations by changing the whole customer experience instead of merely innovating certain product attributes (Keiningham et al., 2020). Therefore, induced change by BMI that is generated from modifications of the product or service offering and thus primarily tied to cognitive passive resistance is either limited or small compared to other changes along the customer experience. Furthermore, compared to a single product in possession replaced in product innovations, the reference point that has to be given up in favor of an innovation in BMIs differs significantly in terms of the immersive experience of using a familiar BM. Therefore, the pain of giving up a beloved status quo of how value was delivered by a company in favor of using a BMI exceeds the downsides of simply switching products in the case of new product adoption such that situational passive resistance prevails in BM contexts. In conclusion, our findings suggest that future BMI research striving at cross-fertilizing on concepts from adjacent research domains, such as NPD, should carefully consider the transferability of useful concepts to the BMI domain and make adaptations to the underlying theoretical rationales if necessary.

Third, the results from our scenario-based experiment in Study 2 extend the sparse research on countermeasures of passive innovation resistance in the NPD domain (Heidenreich & Kraemer, 2016) by adding a new perspective for their applicability, namely, BMI. More specifically, we replicate the findings in the NPD context by confirming the effectiveness of benefit comparison as a countermeasure to passive innovation resistance in BMI contexts, which enhances external validity. Furthermore, we also advance our current understanding of potential countermeasures to passive innovation resistance by providing the first empirical evidence on the effectiveness of

a yet untested marketing instrument with respect to passive innovation resistance, namely, the use of testimonials in advertisements (Petty et al., 1983). However, findings from Study 2 again guide attention to the peculiarities of BMIs by indicating that the effectiveness of marketing instruments in overcoming passive innovation resistance varies between the NPD and BM contexts. More specifically, we found that the marketing instruments of mental simulation and analogy turned out to be ineffective, which calls into question the transferability of previous findings from the NPD context that certified the high effectiveness of these instruments (Feiereisen et al., 2008; Gregan-Paxton & Moreau, 2003). It seems that to become effective in BM contexts, marketing instruments must be designed to help customers understand the benefits of the new BM to reduce satisfaction with the familiar BM. In conclusion, the corresponding findings suggest that future BMI research on countermeasures should carefully check whether potential instruments from NPD research truly have the potential to turn out effectively in light of BM peculiarities.

6.2 | Managerial implications

The successful transformation of existing BMs and the introduction of BMI remain critical tasks for companies (Halecker et al., 2014). Within this respect, extant research acknowledges that customer adoption of BMI is a prerequisite for its success (Markides, 2006; Shomali & Pinkse, 2016; Sousa-Zomer & Cauchick, 2016). However, customers typically have little desire to change (Ram & Sheth, 1989). This study provides valuable implications on how to tackle obstacles in this regard. Specifically, our findings confirmed that in BMI contexts, it is not the BM itself that is resisted but rather the changes to the customers' status quo in terms of altering the customer experience of using the entrenched BM. Based on our findings, three strategies can be derived that help companies retain old and acquire new customers before, during and after the market introduction of BMIs.

With respect to *measures before the market introduction* of the BMI, business developers should bear in mind that customers are probably resistant to switching from an old BM to a new BM. The development of a new BM should always start with a thorough assessment of the current status quo of the entrenched BM—be it the company's own or that of the industry—and compare it with the new BM. If the new BM comes with several behavioral changes for customers, passive innovation resistance might arise, and customers might prefer to further use the well-known and established BM. To tackle this, companies should carefully assess whether some of

the new touchpoints could be eliminated to reduce induced behavioral change without compromising the competitive advantage of the BM. To identify relevant touchpoints for elimination, companies might test their new BM with target customers that are high on passive innovation resistance (i.e., passive resisters), as those customers are likely to react more sensitively to changes induced by innovations (Heidenreich & Handrich, 2015b). In doing so, touchpoints that bear the potential to induce high levels of behavioral change are identified. After a thorough assessment of whether elimination of these touchpoints would compromise the competitive advantage of the new BM, modifications can be made to reduce customer resistance to switching from an old BM to a new one.

With respect to *measures during the market introduction* of the BMI, companies should use marketing campaigns that are targeted at reducing customer satisfaction with entrenched or alternative BMs. Within this regard, advertisements could be broadcast that compare the BMI to the entrenched alternative on a benefit level and thereby highlight the new BMI's superiority compared to the established BM. In a similar vein, companies might use testimonials in advertisements, underlining the high degree of satisfaction with the new BMI and the manifold benefits received by using the BMI.

With respect to *measures after the market introduction* of the BMI, marketers should consider using innovative customers as opinion leaders to advocate BMI adoption as soon as they have seen the positive potential of the new BM (Hinz et al., 2014). In preparation for this collaboration, companies should first roll out their BMI in regions or for customer segments that are characterized as genuinely open toward new BMs to quickly reach a significant market share in these regions. For this purpose, it might be beneficial to set up adequate environments, such as internet forums, where these early adopters can share their positive experiences with consumers high in passive innovation resistance to alleviate their concerns with respect to BMI (Heidenreich et al., 2017).

7 | LIMITATIONS AND AVENUES FOR FUTURE RESEARCH

As is the case with almost every study, ours also has certain limitations. First, the proposed experimental study refers to a real-life context in the German food retailing sector. Although selected for several reasons, it may not be generalizable to other BMI contexts. We recommend that further studies be conducted in other industrial or cultural settings to enhance the external validity of our

results. Especially in rapidly changing business-to-customer settings, e.g., the media or hotel industries, more research might broaden our understanding of BMI adoption.

Second, the scope of the second study was limited in terms of selected marketing instruments. Although we integrated four marketing instruments in our study and two of them—benefit comparison and testimonials—have been proven effective in terms of assisting customers in adopting innovations, there might be more instruments to account for. Future research might supplement our research by testing more marketing strategies to overcome passive innovation resistance in the context of BMI.

Third, within our scenario-based experiments, we chose modifications in the BM's key elements that are most distinct and tangible to enhance the internal validity of our findings. However, as laid out in the conceptual development section, some innovations that are upstream in the value chain may not appear that visible at first glance. Furthermore, we explicitly told our participants what has changed in the respective BM elements such that no element that was changed should go unnoticed. However, in reality, not every company communicates every change in every BM element, and thus, even some visible changes might go unnoticed. Hence, future research might investigate real-life cases of BMI that enhance external validity at the cost of internal validity. Such research might help to evaluate whether changes in a BM that are not that tangible or explicitly communicated by the company still evoke passive innovation resistance, since some customers might perceive BMI rather unconsciously, as they have read some article or seen something on the BMI in the news.

Fourth, the requirements in designing an effective scenario-based experiment made it necessary to label the changes induced in the BM elements as BMI to enhance the understandability of our cell-specific manipulation checks of each scenario. However, in reality, customers do not necessarily perceive changes to BM elements as BMI. Following the demand-side interpretation of BMI, it is not the perception of the BMI as the underlying logic of the firm (company perspective) that drives customer behavior in response to BMI but rather the perception of changes to the customer experience due to internal and external restructuring processes during BMI (customer perspective). Hence, we believe that it makes no difference whether customers perceive the changes as BMI or not as long as the changes induced are tangible, which was confirmed within our cell-specific manipulation checks. Nevertheless, as is the case with all scenario-based experiments, our design maximizes internal validity at the cost of external validity. Hence,

future research may try to replicate our results in real BMI settings, either using an observational study or a field experiment, to enhance the external validity of our findings.

Fifth, we deliberately focused our study on architectural BMI and potential countermeasures to PIR due to the significant change imposed by such BMI. However, another alternative to alleviate changes imposed by architectural BMIs would be to introduce many modular BMIs sequentially over time to reach an architectural change in the BM. Future studies may thus test the sequential introduction of multiple modular BMIs as an alternative to introducing an architectural BMI to alleviate the perceived amount of change and thus the negative effects of PIR. In addition, corresponding results could then be compared with different customer groups in terms of their sociodemographic, cultural and personal characteristics.

Sixth, to operationalize our dependent variable “continuous BMI adoption,” we assess the probability for continuous usage of an offering even if this requires a price surcharge. As described in our methods section, this operationalization offers several advantages with respect to potential confounding effects that might arise when solely assessing the probability of continuing to use a BMI. However, future research might replicate our findings using alternative measures for continuous BMI adoption that solely focus on the interest in returning to the store or to engage in repurchases, avoiding the reliance on paying any price premium as an additional condition.

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ORCID

Sven Heidenreich  <https://orcid.org/0000-0003-2278-0610>

Elena Freisinger  <https://orcid.org/0000-0002-3374-1222>

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AUTHOR BIOGRAPHIES

Sven Heidenreich is Full Professor of Technology and Innovation Management at Saarland University in Saarbruecken, Germany. He received his diploma of business administration from the Johannes Gutenberg-University in Mainz and his doctorate from EBS Business School. The main focus of his research is on resistance to innovations, customer co-creation, business models and innovation networks. He has published on these topics in such journals as *Journal of Product Innovation Management*, *Journal of the Academy of Marketing Science*, *Journal of Service Research* or *Long Range Planning*.

Elena Freisinger is Assistant Professor of Innovation Management at Technical University of Ilmenau in Germany. She received her diploma in International Business and Law at Friedrich-Alexander University Erlangen-Nuremberg and her doctorate from EBS Business School. In her research, she focuses on

business model innovation and management of digital innovations.

Christian Landau is Full Professor of Strategic Management at EBS Business School in Oestrich-Winkel. He received his diploma in engineering and management from the University of Technology Berlin, an MBA from Salisbury University and his doctorate from the University Erlangen-Nuremberg. His main focus of research is on business model innovation, open innovation, dynamic capabilities and location factors in strategy. He has published on these topics in journal such as the *Long Range Planning*, *Global Strategy Journal*, and *R&D Management*.

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