

How the Past and the Present Shape Decisions for the Future

Making Better Innovation Decisions Under Threat

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RESEARCH REPORT

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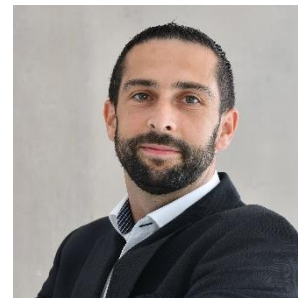
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Key insights

- > In situations where adverse conditions would require innovation, systematic biases might lead to wrong decisions and can cause companies to fail.
- > Top managers tend to avoid innovation when facing unfavorable market conditions (a bias that has been termed *threat rigidity*).
- > Being aware of biases arising from irrelevant contextual factors provides opportunities for correction.
- > Decision makers anticipate that they would regret a failed innovation more than they would regret not implementing a successful innovation, which contributes to threat rigidity.
- > By turning abstract ideas into concrete innovation roadmaps, decision makers may overcome the detrimental effects of anticipated regret.

1. The need for research on innovation decisions

In the dynamic world of business, maintaining relevance, offering compelling value, and ensuring sustainability often hinge on an organization's ability to innovate. One of the most striking examples of missed innovation can be seen in the demise of Blockbuster Video. Once a thriving enterprise, Blockbuster boasted over 9,000 stores across the US and employed over 80,000 people. Yet, the company's inability to adapt to sweeping technological changes—in particular, the shift toward video streaming—resulted in its rapid downfall within less than a decade.

Blockbuster's fate underscores the perils of viewing technological advancements as threats instead of as opportunities. Perceiving technological disruptions as detrimental for business prospects could potentially prevent decision makers from pursuing the innovative solutions that may be vital for withstanding disruption.

Innovation has become a key area of focus for managers and researchers alike. Innovations shape the future of every single business and even entire industries. Nevertheless, the decision to innovate is often influenced by a company's operating environment, including its past experiences and present challenges. These contextual factors can create favorable or unfavorable conditions, and each scenario may affect decision making differently. Consequently, gaining insights into how managers respond to adverse conditions is vital for mitigating biases and averting incorrect decisions.

In this research report, we delve into the propensity of top managers to avoid innovation in unfavorable business contexts, illuminating what companies can do to prevent skewed decisions. Our goal is to underscore the fact that while the decision to innovate is certainly contingent on the unique circumstances of each business, systematic biases can lead to the neglect of innovative ideas that might have been successful or to the implementation of innovations that are doomed to fail.

Infobox Business model innovation

The term “business model” can be defined as “the design or architecture of the value creation, delivery and capture mechanisms employed” (Teece, 2010, p. 191). Importantly, the business model of a firm is not static; it changes with changing competition, new market conditions, and technological developments, and it can therefore also be innovated (incrementally or fundamentally) by changing the complex set of activities, resources, or capabilities of a firm. For instance, it includes the innovation of products accompanied by associated necessary structural changes in the company and in cooperation with external parties like suppliers or customers.

A good example illustrating the concept of a business model innovation is the shift from “software as a product” to “software as a service.” This conceptual switch not only involved a product innovation itself, but it also involved a change in production (data carriers no longer required) and in distribution channels (intermediaries no longer required), as well as with the provision of additional services (e.g., regular billing of subscription fees) and a change in internal structures (server infrastructure).

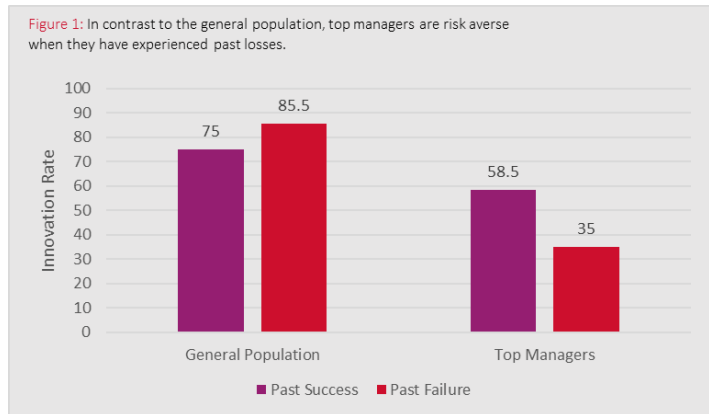
2. Do top managers see the market differently?

In order to investigate managers’ reactions toward change in different business contexts, we conducted a series of experimental studies where participants were presented with a business scenario that first provided information on a company’s past performance after a previous innovation (past success vs. past failure). Participants were then asked whether they would opt for another innovation in the face of a current challenge that was described as either a threat or an opportunity. In the opportunity scenario, the decision to innovate yielded potentially higher payoffs for the company (and for the participants as well!) but also created the risk of earning nothing. Deciding against the innovation resulted in a safe but only medium-sized payoff. For market threats, we took the same scenario but flipped the numbers to negative values to imply potential or certain losses.

The first study was conducted with 400 participants from the general population and the second with 400 participants who had some degree of management experience. The third study—the heart of our research project—was conducted with 400 US-based top managers (C-suite and direct reports) from *Forbes* 2000 companies.

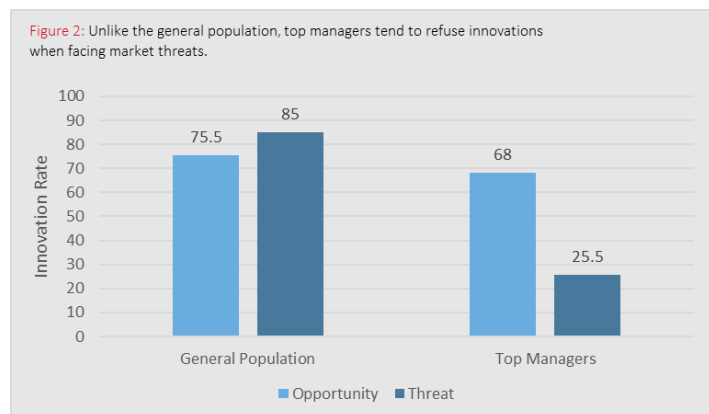
In researching decision makers’ propensity to innovate, past experiences with innovations are of particular importance. Nobel laureate Richard Thaler and his co-author Eric Johnson showed what they called the *house money effect*: decision makers tend to seek risks after prior gains and avoid risks after suffering prior losses. From this perspective, companies are more likely to innovate when the previous years were financially successful.

Figure 1 depicts the results regarding the influence of past innovations and, thus, the past performance of the company. Overall, the tendency of top managers to innovate was clearly lower compared to less experienced participants. This difference was even stronger when the managers had experienced failure in past innovation that implied losses in the past. Contrasting decisions were made by participants from the general population; top managers were less willing to innovate if they experienced past failures as opposed to a past success.



As mentioned before, innovating a product portfolio, distribution channels, or, more generally, the business model is a decision that is made under considerable uncertainty. Nobel laureate Daniel Kahneman and his co-author Amos Tversky developed a highly influential theory describing decision making under uncertainty: *prospect theory*. One of its core predictions holds that decision makers who face impending losses are more likely to take risks than decision makers who expect gains. That is, according to prospect theory, companies facing threats are even more likely to take the risk of innovation than companies that sense an opportunity. In contrast, management research has introduced the notion of *threat rigidity*, which posits a lack of innovation when businesses face threatening events or developments.

Regarding present developments (i.e., either threats or opportunities), the numbers paint a similar picture. The less experienced participants innovated significantly more often in the threat scenario, which means that their decisions seemed to follow the predictions of prospect theory. The top managers, in contrast, made diametrically opposite decisions and innovated drastically less under market threats. That is, their decisions were in accordance with the threat rigidity hypothesis. Moreover, similar to the effect of past experiences, the difference between top managers and less experienced decision makers was far more pronounced when the business context was rather glum.



3. The psychological foundations of threat rigidity

To approach the psychological foundations of threat rigidity (i.e., the tendency to maintain the status quo in the face of threats), we conducted another series of behavioral experiments where participants imagined being in a management position and had to decide whether or not their company should innovate. We created six different business scenarios describing a company's business model, a current event that could impact the company's performance, and a potential innovation as a reaction to the event. Crucially, we created two versions of each scenario by varying the type of event encountered by the organization so that decision makers faced either a threat or an opportunity.

With this approach, we were not only able to provide additional experimental evidence supporting the idea of threat rigidity in innovation decisions; we could also shed some light on the underlying psychological processes.

First of all, innovation requires active deviation from the status quo. Because the outcomes of both maintaining and deviating from the status quo can be uncertain, decision makers tend to compare the possible outcomes of different choices under specific circumstances, which can induce *anticipations of regret*. Previous research on status quo bias indicates that decision makers anticipate more regret if action leads to failure than if inaction leads to failure. To avoid regretting a decision too much, decision makers therefore often prefer to passively stick to the status quo. Applied to innovation decisions, this line of research suggests that decision makers would regret a failed innovation more than they would regret not implementing a successful innovation. Furthermore, if organizations innovate while facing a threat, the impending losses might loom larger than the possible gains from realizing opportunities. Therefore, anticipated regret should be higher under threat. Our findings support this theorizing and suggest that threats indeed amplify anticipated regret, which subsequently impedes innovation.

This finding highlights that the presence of threats hinders innovation by amplifying the disparity in anticipated regret between strategies based on innovation and those based on maintaining the status quo. Typically, regret arises when the actual outcome of a chosen strategy is compared to a superior, counterfactual outcome that would have resulted from another strategy. Crucially, for such comparisons to occur, the actual as well as the counterfactual outcomes (including the strategies leading to them) must be sufficiently tangible. However, while it is relatively easy to envision the counterfactual outcome to innovation (i.e., the status quo), the counterfactual to the status quo (i.e., the innovation) requires more detailed elaboration and cognitive resources. As a result, the anticipated regret associated with maintaining the status quo tends to be lower, which produces a bias favoring the status quo (e.g., Zeelenberg et al., 2002).

4. Key results and takeaways

Innovations pave the way for a company's future. In a series of controlled behavioral experiments, we investigated how decision makers decide regarding (business model) innovations in different business contexts. We showed that top managers often struggle with innovation after having experienced a failure with a previous innovation. We also found that top managers exhibit a stronger tendency towards maintaining the status quo if they face present threats (i.e., threat rigidity), while laymen tend to seek the risk of innovation under comparable circumstances. Generally, it seems that under adverse conditions, top managers' decisions deviate most from those of less experienced decision makers. In contrast, under more benevolent conditions, the innovation decisions of laypeople are more similar to those of experts.

The results yield some important takeaways for corporate decision makers who want to make better innovation decisions (on both product and business model levels) when facing market opportunities or threats. From a managerial perspective, the paper highlights the potentially fatal contingency of innovation decisions on incidental factors in the business context. Two findings are particularly interesting for decision making in innovation management.

Dealing with risk aversion in the face of adverse market conditions

First, unfavorable business contexts increase managers' risk aversion: decision makers tend to become more risk-averse after experiencing past failures or in the face of present threats to the organization. This increased risk aversion is not just a singular response; it is a systematic bias that can stifle innovation and deter companies from taking actions that could be pivotal for their future.

To overcome this potentially biased decision, König et al. (2021) recommend that decision makers in companies should make use of discourse to become aware of their own assessments of market events and the consequences

of these assessments. This might also help shape how other members of their company perceive potentially threatening events.

To be clear, past successes and failures—as well as current market demands—often must be reflected in decision-making processes. However, distinguishing between lessons learned from the past and current opportunities is critical for lasting success. A clear understanding of innate tendencies toward risk aversion can lead to balanced decisions that are in the best interest of a company's future.

Although past failures serve as learning experiences, there is a danger in relying too heavily on them. Decisions that are too anchored in the past can prevent companies from taking advantage of current and future opportunities. While prudence is not necessarily bad, especially in volatile markets, it is important that decisions are sound, balanced, and aligned with the company's long-term vision and goals rather than driven solely by fear of risk. Successful decision making requires a nuanced approach in which managers recognize and value the lessons of the past but do not allow them to overshadow their current opportunities.

Dealing with anticipated regret

Second, anticipated regret plays a key role in innovation decisions. Anticipated regret is a key factor that drives risk aversion among decision makers in the face of organizational threats. When confronted with potential innovations under adverse conditions, decision makers are more likely to focus on the possibility of failure and the subsequent regret, leading them to avoid taking risks and to opt for more conservative measures.

When decision makers encounter a potential but still rather abstract idea for an innovation, they tend to fear the regret of its failure more than the diminishing returns of their current business activities. Therefore, in order to potentially overcome biases rooted in regret avoidance, decision makers can be encouraged to vividly envision concrete innovation roadmaps (specifying not only the implementation of an innovation but also the potential benefits of its success), even if they ultimately choose not to implement it. In particular, deliberately imagining the consequences of a successful innovation and comparing them to the potential negative outcomes resulting from maintaining the status quo might help reduce the disparity in anticipated regret and motivate decision makers to embrace innovation more readily. By creating such vivid roadmaps for an innovative idea, decision makers can create a counterfactual outcome to the status quo, which could even out the bias of anticipated regret.

Concretely envisioning innovations can thus reduce anticipated regret: helping decision makers visualize potential product innovations in more concrete ways can reduce the gap in anticipated regret between maintaining the status quo and innovating, thus increasing their willingness to pursue innovative initiatives. By providing resources and support for developing and visualizing innovative ideas, organizations can counteract the negative effects of threat rigidity on decision making.

Approaches to explore to overcome the identified challenges

The ideas shared in this next section are not direct results from the study. Instead, they come from the authors' own knowledge and experience with the subject. Think of these as starting points or ideas to consider; these are not prescribed solutions but are, rather, exploratory approaches presented for further consideration. They have been compiled by taking into account the complexity and nuances of the challenges identified and offer potential ways to address them.

Personal bias awareness and de-biasing techniques:

One thing that every decision maker can do on their own is to work on their own personal bias awareness and learn to apply de-biasing techniques. By understanding cognitive biases, one can take proactive measures to mitigate the negative effects that adverse conditions have on one's decisions. The first thing may be to learn about biases and the potential situations in which they occur and how one can spot them. Eppler et al. (2023) provide an overview of the most common biases in the context of business decisions, show concrete examples of what biased decision making may look like, and suggest a systematic approach to avoid making biased decisions.

There are numerous techniques for identifying and mitigating cognitive biases in companies' decision-making processes (Kreilkamp et al., 2021). During the innovation process—or during decision processes in general—the following key de-biasing techniques may be helpful for preventing biased innovation decisions resulting from threat rigidity:

- > **Decision support systems:** Computerized or visual aids like different information displays reduce information acquisition biases in evaluating events and challenges.
- > **Changing one's reference points:** Using different reference points (re)frames information concerning losses and gains for potential decisions.
- > **Group decision making:** The stimulation of group interactions and the combination of different actors can overcome omission, availability, anchoring, and gain-loss biases.
- > **Devil's advocate:** Appoint someone to create dissent and explicitly refute or challenge one's own assumptions or mental models.

Organizational culture and communication:

To counteract the risk aversion and threat rigidity that may arise from unfavorable market conditions, organizations may be well advised to work toward an environment that encourages experimentation and open communication (e.g., Neus et al., 2017). A culture that values innovation can help reduce the anticipated regret for certain decisions. Here are some ideas that may help foster such a culture:

- > **Establish open communication:** Create an environment where all decision makers who are involved in the innovation process feel comfortable discussing potential threats and concerns. By fostering open communication, all parties involved in the decision process can better understand the sources of risk aversion and work together to develop effective responses.
 - > **Encourage experimentation:** Foster a culture that embraces experimentation and learning from failures. By emphasizing the value of trying new approaches and learning from mistakes, managers can help reduce the fear of regret and instead promote innovation. Creating safe spaces for experimentation and creativity may be helpful in counteracting the threat rigidity effect.
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Strategic foresight and planning:

Navigating threats and uncertainties can also benefit from a proactive approach that anticipates potential changes and prepares organizations to act instead of just reacting. A concrete measure could be to implement scenario planning, a strategic tool that allows organizations to envision multiple plausible future environments and then strategize for each potential outcome. For example, Buder (2021) presented evidence for how companies with more mature foresight activities felt less affected by the COVID-19 pandemic.

- > By **creating different narratives of the future**, scenario planning helps organizations prepare for various possibilities and contingencies, ensuring that they are not blindsided by unexpected shifts in the market or the environment.
- > Through this method, decision makers can **become familiar with different potential outcomes and reduce the perception of market developments as mere threats**, fostering a proactive rather than reactive mindset.

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