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# Cognitive biases in resource cognition: evidence from action research

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## Abstract

**Purpose** – Resource cognition – identifying valuable resources and capabilities and assessing their potential for redeployment – is a pivotal management capability for strategic renewal. This study explores how managerial cognition in this activity may be biased, leading to erroneous results.

**Design/methodology/approach** – This study employs an action research approach: A full resource cognition project was conducted together with the top management of a case firm, including the CEO and members of the supervisory board.

**Findings** – Resource cognition may be distorted by four cognitive biases: The insulation bias – tending to keep one's perspective insularly to the current business; the novelty bias – tending to exclusively focus on innovation and recent achievements; the status quo bias – tending to view opportunities from the current situation and structural set-up; and the scaffolding bias – tending to adopt concepts and examples indiscriminately to the firm.

**Originality/value** – Active participation in a resource cognition project provided first-hand and insightful practice-based evidence on resource cognition. Aware practitioners can take preventive steps to avoid cognitive biases. This study sheds light on the under researched issue of resource cognition.

**Keywords** Resource cognition, Dynamic capabilities, Managerial cognition, Managerial cognitive capabilities, Dynamic managerial capabilities, Resource-based view

**Paper type** Case study

## 1. Introduction

The resource-based view follows the understanding that idiosyncratic resource endowments of the firm determine competitive advantage and firm performance (e.g. Penrose, 1959; Barney, 1991). The concept of dynamic capabilities describes the capacity of the firm to purposefully alter this idiosyncratic resource base in order to successfully address changing environments (e.g. Teece *et al.*, 1997; Schilke *et al.*, 2018). Consequently, within these theoretical concepts, resource cognition (Danneels, 2011) – identifying valuable resources and capabilities and assessing their potential for redeployment – is a pivotal management capability for strategic renewal.

Yet resource cognition remains an under researched issue (Grant and Verona, 2015; Danneels *et al.*, 2017; Leemann and Kanbach, 2022). Accordingly, Eggers and Kaplan (2013) call for field studies to examine "[. . .] how managers perceive and (re)deploy existing capabilities toward new potential uses [. . .]" (p. 326). A literature search showed that resource cognition remains an underresearched topic today, with Danneels (2011) being the notable exception that is typically referenced (e.g. Helfat and Peteraf, 2015; Eggers and Park, 2018).

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Danneels' (2011) research has shown that erroneous resource cognition may result in failure to adapt to changing environments.

Hence, we explored the process of resource cognition to shed more light on the dynamics that can lead to such erroneous results. For this, we employed an action research approach in which an organization agrees to solve a certain problem existing in practice together with the researcher (e.g. Huxham and Vangen, 2003; Stringer and Aragón, 2020): We conducted a strategy project to identify and assess valuable resources and capabilities together with the top management of a case firm in which we discovered four cognitive biases that potentially distort resource cognition. By being part of the entire process, we were able to gain in-depth and intimate evidence on resource cognition in practice which would not have been possible with other, more common qualitative research approaches (e.g. interview-based studies).

This study highlights problems of management practitioners putting their plans in motion. Our findings provide actionable pieces of advice as awareness of the cognitive biases allows the practitioners to take preventive steps to avoid such problems. Moreover, as practitioners systematically apply theory to practice in our research approach, we produce practice-based evidence that scholars can use to refine theory (Randolph-Seng and Norris, 2015; Chen and Randolph-Seng, 2021).

## 2. Organizational context and methodology

We followed an action research approach (e.g. Huxham and Vangen, 2003; Stringer and Aragón, 2020). In an action research project, a case (e.g. a group or an organization) agrees to solve a certain problem existing in practice together with the researcher while scientific discoveries are more concurrently. This allowed us to shed more light on the internal processes and dynamics of resource cognition and to explore managers' corresponding mental models firsthand.

As the case for our research, we recruited *News*, a news agency that specializes in business and finance reporting. Besides full coverage of all publicly listed companies traded in a major European financial center, it covers a wider range of global blue chips. Its reports are an important tool for stock exchange traders, bank advisors and bank customers, as well as the wider public. Their revenue is mainly generated by subscriptions paid for by major banks, as well as media newsrooms that use their content for reporting. This business model is in structural decline due to cost cuts in both banks and media. Within this context, *News* and the researchers identified the following problem to be solved: How can *News* use its resources and capabilities to diversify into new market segments to secure future growth? Nevertheless, *News* was still highly profitable in its core business at the time of the action research project. Located in this moderately dynamic market (Eisenhardt and Martin, 2000), there was no immediate existential threat to the firm.

The research was conducted from August 2020 to September 2021 and was linked to a consulting project in which one of the authors was active. Figure 1 presents the action research project proceedings. As the approach of action research is to generate actionable knowledge by observing and reflecting while solving practical problems, the dual role of researcher and consultant is prevalent (e.g. Huxham and Vangen, 2003; Bradbury, 2010). It allowed us to immerse into practical resource cognition which, successively, was inductively used to extent the emergent theory.

The core project team consisted of the CEO, the head of business development and two consultants (one of whom also acting in the dual role as researcher). Furthermore, senior and regular staff members, as well as two members of the supervisory board, were included in the project. By involving all levels of hierarchy and working very closely with the top management of *News*, we were able to gain in-depth and intimate data on resource cognition in practice. We refer below to all internal representatives of *News* as "insiders".

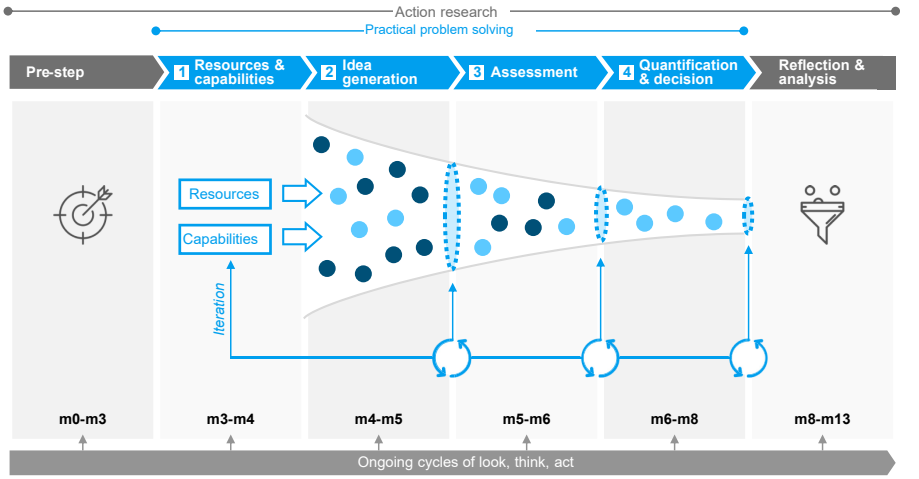


**Figure 1.**
Action research project proceedings

**Source(s):** Own illustration

Data collection in action research can be challenging, as recording of interactions is not always appropriate and may even hinder insiders in talking openly (Huxham and Vangen, 2003). Thus, we did not record and transcribe any conversations. However, to secure rigor in our research, we systematically and meticulously collected all material generated in the project, such as slides, spreadsheets, emails and internal records. Furthermore, after each workshop, meeting, personal interaction, or phone call, a memo was compiled that included the main contents, important quotes reproduced from personal notes, and observations and contextual information, as well as personal reflections on the interaction. In total, our research diary included 426 pages of raw data derived from 31 workshops, meetings, or shorter exchanges which resulted in 36.5 h of practical interaction.

The data gathered were subsequently analyzed and interpreted following the procedures of McNiff and Whitehead (2010): We searched our research diary for data that were linked to our research question. These data, then, served as evidence for our claims to knowledge in the Findings section.

## 3. Findings

We conducted a strategy project with *News* to find strategic options for diversification that would leverage its resources and capabilities. Concurrently, we researched managerial cognition and found the following four cognitive biases that could distort resource cognition. The findings are summarized in Figure 2 which describes each cognitive bias and illustrates them with exemplary observations.

### *3.1 Insulation bias*

Resource cognition can be biased if the managers focus insularly on their current business activities rather than taking their broader context into account ("insulation bias"). This bias was witnessed when identifying valuable resources and capabilities. Some insiders drifted into describing what their current business processes look like. We intervened by questioning the strategic value of these business processes by comparing their value to competitors. This allowed the discussions to take on a broader contextual character. Also, we observed that


**Source(s):** Own illustration

**Figure 2.**
Overview of cognitive biases in resource cognition

insiders in lower hierarchical levels had a stronger tendency to focus only on their immediate areas of responsibility instead of taking broader perspective.

Later in the process, familiarity with new business opportunities played a key role when assessing and quantifying such diversification options. Potentially good proposals were excluded from further consideration supposedly because managers were unfamiliar with the corresponding markets, customers and business models. For example, the insiders often chose business ideas that involved customers and markets they already knew. Thus, they based their selection on their familiarity with the business ideas rather than the fungibility of their resources and capabilities. As the objective of the project was to diversify into new business areas, insulation bias at this stage hindered mindful resource cognition. Furthermore, the ideas were often interpreted through the lens of doing business today; for example, offering a subscription business model.

Similarly, the insulation bias hindered the ability to assess the size or growth of markets that potentially could be served using the firm's resources and capabilities. As the resource-based view suggests, such markets may be very distant from the core business of the firm, though it would value its resources and capabilities. While it is an obvious challenge to assess and quantify such markets, it is, however, a key activity of resource cognition. *News* initially estimated the market potentials rather low. The low estimates occurred mainly because the project team only looked at potential customers and business areas in sight rather than a broader addressable market.

### *3.2 Novelty bias*

*News* invested in future-oriented capabilities previously to the project. The firm had reconfigured its capability to turn large amounts of data into news articles by using artificial intelligence to automate writing and editing. This capability, dubbed "robo-journalism," allowed to automatically generate continuous text out of structured data such as daily Covid-19 statistics or municipal election results.

Robo-journalism was considered by all informants the most important capability of *News*. Although this capability was impressive and certainly a competitive advantage, the singling out of such a new and nascent capability was problematic. First, the fascination with the novelty blinded informants to additional, more solid resources and capabilities. For example, it was initially overlooked that *News* held significant cash reserves and continuously generated a high free cash flow. This standard valuable resource was almost forgotten in the fascination with robo-journalism. Second, due to its nascence, robo-journalism had only been mastered by two persons in the firm at the time of this project and was still to a large extent in a trial-and-error stage. Hence, the diversification strategy could not be based exclusively on this capability.

As illustrated by the example of robo-journalism, resource cognition can be biased by an exclusive focus on innovation and impressive achievements. We dubbed this problematic tendency "novelty bias," as the novel character of such resources and capabilities may cause managers to lose sight of the full scope of their resources and capabilities endowment.

### *3.3 Status quo bias*

The members of the supervisory board determined strategic guidelines for the search for new business ideas. This included for example, that the new businesses should not compete with those owned by shareholders of *News* who were themselves active in the media industry. Further guidelines were defined for risk, geography, investment volume and external financing. While such strategic guidelines are common in such a project, they manifested cognitive limitations. This can be exemplified by the strategic guidelines on geography. The core business of *News* has traditionally been limited to a country or a certain financial center. But when the business model changes due to automation and digitalization (see "robo-journalism" Sec. 3.2), however, the addressable market suddenly becomes global or at least not regionally limited. Thus, imposing a strategic guideline that restricts a firm's business to a certain geographic area can hinder its expansion into promising new markets.

This observation shows that *News* oriented itself to some extent to the status quo of the firm ("status quo bias"). This tendency can become problematic in resource cognition when it prevents the management from keeping an open mind when aiming to redeploy the firm's resources and capabilities. It reinforces the status quo and limits expansion and diversification. Strategic guidelines should be formulated rather broadly and considered preliminary to limit status quo bias.

Equally, the current organizational setup of *News* led to the exclusion of some business ideas along the ongoing filtering process. For example, insiders stated that the current organization is built to serve a B2B business and that support processes such as accounting cannot serve a more granular B2C business. Therefore, we indicated for each business idea whether it was B2B or B2C. In case of the latter, insiders tended to exclude such ideas not because of lacking viability but because of organizational constraints. While there may be some legitimate reasons for such an exclusion (e.g. implementation risk or investment volume), the status quo bias bears the risk of ruling out auspicious redeployment of resources and capabilities due to resolvable challenges.

### *3.4 Scaffolding bias*

Most workshops and discussion segments were initiated with a presentation of different scholarly concepts relating to resource-based view and examples from other firms and industries. Some insiders tended to rely too heavily on the material we presented ("scaffolding bias"). Their resource cognition was then biased by the scaffolding that we provided to guide them through the exercise. For example, at one point an informant went through our examples in "check the box" fashion ("yes, applies to us"; "no, doesn't"). Another took the wording we used in an example of another firm and applied it to *News*. This shows that scaffolding is a double-edged sword: it helps untrained participants understand a concept but may also bias them in their thinking.

## 4. Conclusion

Located in a structurally declining market, *News* decided to diversify into new market segments to secure future growth by leveraging its resources and capabilities. By applying an action research approach, we were able to find evidence for cognitive biases that may distort resource cognition which has the following practical and theoretical implications.

*4.1 Practical implications*

Managerial decision-making often follows automatic processes (i.e. heuristics) that increase speed and free up cognitive capacity, yet, are also prone to biases which lead to erroneous decision marking (e.g. Helfat and Peteraf, 2015; Acciarini *et al.*, 2021). Conversely, controlled processes with more time-consuming managerial cognition can avoid such biases. In a dynamic capability context with a changing environment, managers are advised to practice the latter as circumstances are different from prior experience and knowledge which are antecedents of automatic processes.

This study makes practitioners aware of biases that might occur when identifying and assessing the firm's resources and capabilities. While practitioners most likely will struggle to avoid their own distortions in judgement (Kahneman *et al.*, 2011), awareness of the biases presented in this study allows them to take preventive steps to mitigate the risk of erroneous resource cognition. This has also been done in the resource cognition project together *News*. Careful reflection of preliminary results from different perspectives eventually avoided erroneous resource cognition and provided *News* with a viable diversification strategy. Accordingly, practitioners are advised to reflect preliminary results with the findings presented in this study as follows. First, disagreements and close calls during strategizing sessions within the firm could be reflected with the presented cognitive bias to encourage the identification of a rationally derived set of resources and capabilities. Specifically, this may be done by asking for a defense why certain critical positions are *not* distorted by a certain cognitive bias. By reflecting disagreement with potential biases, practitioners are diverted from automatic decision-making. Second, by striking a balance between examining the current core business and future innovations, practitioners can minimize insulation bias and novelty bias in strategy discussions. Therefore, practitioners should discuss the level of market dynamism their firms are exposed to and from this derive a meaningful balance of their attention towards the current core business versus future innovations. In high-velocity markets, the risk of insulation bias is higher and novelty bias is lower, whereas this changes vice versa in moderately dynamic markets, we argue. Third, practitioners should openly warn project members about scaffolding bias when presenting existing concepts and examples. Such scaffoldings should be seen as abstract and thought-provoking frames to reflect the situation and strategic challenges of the organization at hand.

*4.2 Theoretical implications*

Previous research has shown that managerial attention affects the ability of the firm to adapt to changing environments, whereas higher attention toward new technologies and the affected industry accelerates adaptation and investment in emerging technologies (Kaplan, 2008; Eggers and Kaplan, 2009). Contradictorily, the novelty bias suggests attention towards new technologies to be problematic. Dissecting further, the problematic part in our evidence was the exclusivity of attention towards new technologies while ignoring incumbent business. Arguably, attention solely towards new technologies becomes problematic when it is the exclusive focus of management. We propose that the perfect level of attention depends on whether the firm resides in a high-velocity or moderately dynamic market (Eisenhardt and Martin, 2000). The dilemma of management attention towards new versus incumbent business can also be viewed through the lens of organizational ambidexterity, which considers balancing exploration and exploitation concurrently in the same organization as dynamic capability (Weiss and Kanbach, 2021).

When leveraging resources and capabilities to new markets, the firm needs the learning-to-learn capability (Collis, 1994) of how to build new market-related competences for the new target market, such as building relationships, setting up distribution and sales channels, or developing pricing strategies (Day, 1994; Danneels, 2002, 2007). The lack of such an ability

has been described by Danneels (2007) as the "marketing competence gap". Likewise, the insulation bias hinders management in properly assessing market potentials that could be addressed by its resources and capabilities. This may even lead to ignoring feasible business ideas due to a lack of understanding of their potential. Whereas the marketing competence gap describes the inability to successfully enter new markets, the insulation bias hinders the decision on market entry at the outset.

In order to fully exploit resources and capabilities, the firm needs to allocate them to other markets, although these markets initially do not generate any revenues. Danneels (2007) found a reluctance to do so in favor of existing markets, which he called the "customer competence trap". He showed how resources and capabilities were not allocated to new business ideas until they generated profits, which eventually hindered the firm in its expansion. Similarly, the status quo bias leads management to exclude business ideas when they do not fit into the current business and structural set-up despite bearing potential for resource and capability leveraging. The concepts are related: while the customer competence trap hinders implementation of new business ideas, the status quo bias tends to exclude them while strategizing.

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