Enacting disruption: how entrepreneurial ventures innovate value propositions to increase the attractiveness of their technologies

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Received 8 July 2023
Revised 23 October 2023
9 November 2023
17 November 2023
Accepted 17 November 2023

Abstract

Purpose – Entrepreneurial ventures aspiring to disrupt existing market incumbents often use business-model innovation to increase the attractiveness of their offerings. A value proposition is the central element of a business model, and is critical for this purpose. However, how entrepreneurial ventures modify their value propositions to increase the attractiveness of their comparatively inferior offerings is not well understood. The purpose of this paper is to analyze the value proposition innovation (VPI) of aspiring disruptors.

Design/methodology/approach – The authors used a flexible pattern matching approach to ground the inductive findings in extant theory. The authors conducted 21 semi-structured interviews with managers from startups in the global electric vehicle industry.

Findings – The authors developed a framework, showing two factors, determinants and tactics, that play a key role in VPI connected by a continuous feedback loop. Directed by the determinants of cognitive antecedents, development drivers and realization capabilities, aspiring disruptors determine the scope, focus and priorities of various configuration and support tactics to enable and secure the success of their value proposition.

Originality/value – The authors contribute to theory by showing how cognitive antecedents, development drivers and capabilities determine VPI tactics to disrupt existing market incumbents, furthering the understanding of configuration tactics. The results have important implications for disruptive innovation theory, and entrepreneurship research and practice, as they offer an explanatory framework to analyze strategies of aspiring disruptors who increase the attractiveness of sustainable technologies, thereby accelerating their diffusion.

Keywords Disruptive innovation, Entrepreneurship, Business-model innovation, Value proposition, Sustainability, Electric vehicles

Paper type Research paper

1. Introduction

Managers of many entrepreneurial ventures credit the theory of disruptive innovation (DI) for guiding them in their actions (Christensen *et al.*, 2015). Since Christensen's pivotal insight that it is "*the disruptive business model in which the technology is deployed [that] paralyzes the incumbent leader*" (2006, p. 43) and not the technology itself, research has progressed from describing the attributes of technologies thought to be disruptive to analyzing the role of

This paper forms part of a special section "Innovative entrepreneurial behavior vs entrepreneurial activity in today's business environment", guest edited by Alba Yela Aránega and Julio Cañero Serrano.

International Journal of Entrepreneurial Behavior & Research
Vol. 30 No. 4, 2024
pp. 885-915

1355-2554
DOI 10.1108/IJEBR-07-2023-0688

business models in the disruption process (e.g. Ansari *et al.*, 2016; Cozzolino *et al.*, 2018; Kumaraswamy *et al.*, 2018; Snihur *et al.*, 2018). Innovation and entrepreneurship are crucial complements to organizational success (Zhao, 2005). Because business model innovation and entrepreneurship are intrinsically linked (Foss and Saebi, 2017), we argue that DI and entrepreneurship are also naturally interlinked. DI triggers entrepreneurial action, such as developing a new business model, to counter disruption (Mao *et al.*, 2020). Value propositions, as a critical element of business models (Chesbrough and Rosenbloom, 2002; Khan and Bohnsack, 2020), play a central role in the disruption efforts of entrepreneurs. Value proposition innovation (VPI) can help entrepreneurial firms, such as startups, to increase the attractiveness of their offerings and disrupt established incumbents (Bohnsack and Pinkse, 2017; Khan and Bohnsack, 2020). We understand VPI as the effort to introduce new offerings to address new or unmet customer needs; to attract new customers and develop new markets by identifying new growth markets and unserved customers, new distribution channels for goods and services, and ways to strengthen customer relationships by intensifying service efforts (Clauss, 2017). We follow the parsimonious conceptualization of Christensen and Bower (1996) and understand DI as a process in which firms, often entrepreneurial ventures with disruptive ambitions, offer new elements of value to emerging customers and often ultimately replace existing incumbents in the market by improving product performance. DIs are inferior among the attributes that mainstream customers value compared to existing solutions, but emerging customers value the new elements of the DI (Christensen, 1997; Christensen and Raynor, 2003).

Recent research has argued that DI is a performed or enacted phenomenon (Christensen *et al.*, 2018; Kumaraswamy *et al.*, 2018), which highlights the need to better understand the activities and tactics market actors use to disrupt existing incumbents. Disruptors use VPI to overcome technological inferiority, increase the attractiveness of their offering, and navigate coopetitive tensions with existing incumbents (e.g. Ansari *et al.*, 2016; Bohnsack and Pinkse, 2017; Khan and Bohnsack, 2020).

DI research has a limited understanding of disruptive startups' VPI of for two main reasons. First, extant DI research focuses on incumbents more than it does on startups (Christensen, 2006; Christensen and Bower, 1996; Danneels, 2004; Kapoor and Klueter, 2015; Sood and Tellis, 2011), even though startups are best positioned to introduce DIs (Walsh *et al.*, 2002) and despite the fact that startup survival is challenging due to their limited resources and size (Yu and Hang, 2010). Furthermore, startups need to gain the support of the established incumbents they intend to disrupt, risking retaliation in the process (the *disruptor's dilemma* Ansari *et al.*, 2016). Second, DI research emphasizes ex-post cases of disruption (e.g. Ansari *et al.*, 2016; Kapoor and Klueter, 2015; Snihur *et al.*, 2018). Thus, Tellis' (2006) criticism that, predicting DI is difficult because it is only when it has occurred that it can be identified, is still valid today. Although ex-post investigations of DI confirm that disruption has happened, they cannot provide the depth of insights gained through exploratory research of contemporary phenomena. Therefore, an investigation of disruption as it evolves is helpful. To explain our approach to analyzing DI as it develops, we created the term *aspiring disruptors*, i.e. entrepreneurial ventures such as startups with the ambition and potential to disrupt the established firms in their respective markets.

We explored VPI by conducting semi-structured interviews with electric vehicle (EV) business founders, executives, CEOs, board members, and startup managers. This paper aims to answer the following explorative research question: *How do aspiring disruptors innovate their value propositions?* To answer this question, we use a flexible pattern matching approach (FPMA), which is an emerging methodology within qualitative research with transparent induction and deduction processes to enable theory development (Bouncken *et al.*, 2021a, b). The FPMA is the iterative comparison of theoretical and empirical patterns, also termed constructs or dimensions. From this comparison, (in)consistencies and

breakdowns between predicted theoretical and observed empirical patterns can be observed, facilitating theory development. Previous studies on DI heavily relied on case study research to build theory (e.g. Christensen, 1997; Gilbert, 2005; Kammerlander *et al.*, 2018). We deliberately depart from this approach and use the FPMA to allow readers to follow our thought process, systematically engage with extant theory during data analysis by pattern matching, and identify categories for further analysis (Bouncken *et al.*, 2021b). Our research approach also differs in the unit of analysis and the time in which our study is placed. DI literature favors ex-post variance studies, neglecting the analysis of the disruption process (Ben-Slimane *et al.*, 2020). Therefore, we focus on the analysis of disruption as it evolves.

We contribute to DI theory by uncovering how entrepreneurial ventures perform VPI to disrupt established incumbents. By providing an integrated explanatory framework of VPI, we enhance the understanding of disruption as a performative phenomenon (Kumaraswamy *et al.*, 2018). We also contribute to practice by supporting the diffusion of disruptive offerings, especially in sustainability-oriented settings.

The remainder of this paper is structured as follows: Section 2 presents the theoretical background and derived theoretical patterns. Section 3 explains the methodology, research setting, design, and sample. Section 4 presents the findings and the integrated two-aspect framework. Section 5 discusses the theoretical and practical contributions and implications and discusses limitations and section 6 concludes and provides avenues for future research.

2. Theoretical background

2.1 Disruptive innovation as a phenomenon of value proposition innovation

The theory of DI emerged as a way to understand why well-managed, established firms fail. Early research showed that market entrants could displace established firms when their technologies were simpler, cheaper or more robust and when they catered to an emerging or neglected customer segment (Christensen, 1997; Christensen and Bower, 1996; Christensen and Rosenbloom, 1995; Rosenbloom and Christensen, 1994) While the definition of DI is still fiercely debated, researchers mostly agree that it is the business model that induces and disrupts incumbents by changing the competitive positioning of firms (Christensen, 2006; Christensen and Raynor, 2003; Snihur *et al.*, 2018), not technological aspects (Christensen, 1997; Hopp *et al.*, 2018). Consider the example of the French coffin market; coffins were typically made of wood, significantly adding to the cost of a funeral (Ben-Slimane *et al.*, 2020). Disruptive entrants introduced coffins made out of cardboard, which had two advantages: first, they were cheaper than wooden coffins, and second, they allowed for the personalization of the coffin (Ben-Slimane *et al.*, 2020). Once traditional coffin makers sensed the threat, they fiercely lobbied against cardboard coffins because they were not able to respond with a competitive answer (Ben-Slimane *et al.*, 2020). DI also gets confused with other concepts, such as radical innovation which employs "new-to-the-world" technologies. However, radical innovation and DI can cause established firms to fail because of the different resources, processes and values such innovations require (Govindarajan *et al.*, 2011; Govindarajan and Kopalle, 2006).

DI is a phenomenon of competitive positioning because it introduces alternative performance trajectories to existing offerings in mainstream market segments (Schmidt and Druehl, 2008). Recent studies underline the complexity of managing the emergence and development of these new performance trajectories, imposing strategic challenges for entrepreneurial ventures with disruptive aspirations (Hu and Hughes, 2020; Kumaraswamy *et al.*, 2018).

Because DI is a relative phenomenon–an offering is not disruptive because of its technological features or performance attributes but because entrepreneurial ventures position it specifically to disrupt existing incumbents in the market (Kumaraswamy *et al.*, 2018). Thus, DI is an entrepreneurial activity wherein ventures with disruptive aspirations

continuously manage their VPI activities along an alternative performance trajectory relative to existing offerings in the mainstream market. Consequently, research has focused on how entrepreneurial ventures perform DI through entrepreneurially maneuvering their business model along a disruptive path (Ansari *et al.*, 2016; Schmidt and Scaringella, 2020; Snihur *et al.*, 2018).

Existing studies highlight that this continuous innovation effort is a complex process of business-model innovation (Hopp *et al.*, 2018; Kumaraswamy *et al.*, 2018; Snihur *et al.*, 2018). For instance, Ansari *et al.* (2016) theorized a scenario in which an aspiring disruptor cannot remain on the disruptive path due to the power and market dominance of existing incumbents, despite continuous business-model innovation. Thus, the concept of the "disruptors dilemma" was coined, underlining the challenges of aspiring disruptors in continuous business-model innovation and highlighting the need for further research to understand those continuous innovation activities. Researchers started to investigate VPI strategies for DI only recently. Using the EV industry as a case study, Bohnsack and Pinkse (2017) were one of the first to specifically investigate VPI strategies for DI. They developed a process framework that rearranged elements of the value proposition to increase value. They showed that rearranging, emphasizing, or attenuating value proposition elements can help overcome technological inferiority (Bohnsack and Pinkse, 2017). However, their study mostly addresses established car manufacturers who are, according to the theory of DI, rarely the disruptors. This provides the opportunity to investigate market entrants such as startups who are, following the theory of disruptive innovation, the prime agents of DI. Thus, VPI means innovating and optimizing the value proposition to increase its attractiveness to customers and other stakeholders. In a study on the VPI of sustainable DI, Khan and Bohnsack (2020) show that hedonic or utilitarian values can appeal more to established or emerging, price-sensitive markets, often the arena for DIs. However, extant research does not shed light on the determinants of VPI that would enhance understanding of the motivations of disruptors, and which, in turn, could enable established firms to mimic their behavior and thereby avoid being disrupted. Against this backdrop, our research question, *"How do aspiring disruptors innovate their value propositions?"* explicitly includes the investigation of input factors or determinants of VPI.

Researchers largely agree that the business model comprises three elements: value proposition, value creation, and value capture (Foss and Saebi, 2017; Geissdoerfer *et al.*, 2018; Hock-Doepgen *et al.*, 2021). This understanding is based on the work of Richardson (2008), who first described the trifecta as the subconstructs of the business model. Clauss (2017) understands value creation as the means to create value along the value chain with resources and capabilities of intra and inter-organizational processes. Adopting the view of Johnson *et al.* (2008), Clauss (2017) understands the value proposition as a portfolio of solutions for jobs customers want to have done and how they are offered to them. Value capture defines how value propositions are converted into revenues (Clauss, 2017). To differentiate what activities are VPI and what activities belong to the other elements of business model innovation, we employ Clauss's (2017) definition of VPI activities (Clauss *et al.*, 2022; Ferreras-Méndez *et al.*, 2021; Miroshnychenko *et al.*, 2021). VPI entails new offerings, new customer segments and markets, new channels, and new customer relationships (Clauss, 2017). Thus, value proposition could mean innovating how value is delivered through customers, adding new customer benefits to the product or service, or changing the target market. Although studies have articulated the relevance of innovating the whole business model (Clauss, 2017; Hopp *et al.*, 2018; Snihur *et al.*, 2018), researchers have emphasized the particular relevance of innovating the value proposition, a central element of a firm's business model (Bohnsack and Pinkse, 2017; Clauss, 2017; Schmidt and Scaringella, 2020).

Consequently, current scholarly debates underpin the need to further investigate how aspiring disruptors perform VPI when maneuvering along the complex path of DI.

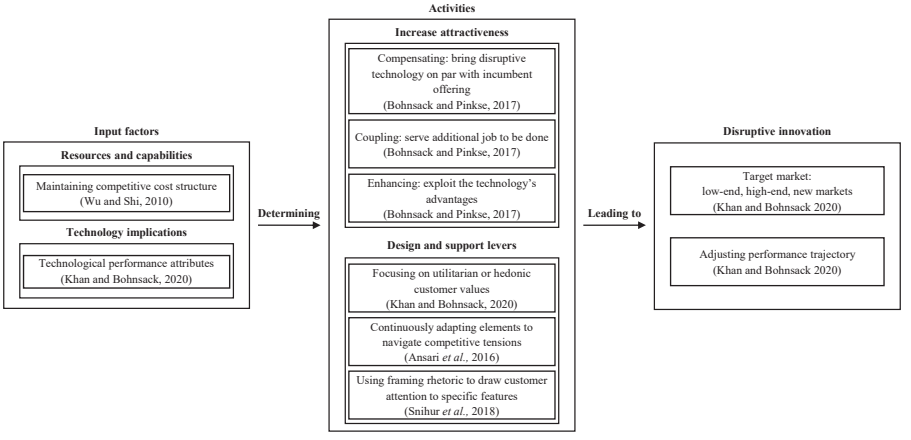
Simultaneously, recent calls underline the need to carefully consolidate existing empirical findings to construct a reliable DI theory (Christensen, 2006; Hopp *et al.*, 2018). Therefore, in the following subsection, we outline extant theoretical insights on VPI in the context of DI.

2.2 Initial conceptual framework of value proposition innovation

Bouncken *et al.* (2021b) recommend developing initial theoretical patterns to guide the empirical investigation and provide a basis for comparing theoretical and empirical patterns. To illustrate the connections identified in extant research and provide an initial orientation for our theory-based understanding of VPI in the context of DI, we identified dynamic relationships between patterns and illustrated them in an initial theoretical framework (Figure 1). This step also allows readers to follow our thought process from conceptualization to data analysis, development and interpretation of empirical patterns, and a comparison of empirical and theoretical patterns (Bouncken *et al.*, 2021b).

Value propositions can guide companies in organizing their business to achieve superior performance (Anderson *et al.*, 2006). Consequently, there is great interest in increasing the attractiveness of offerings by configuring value propositions (e.g. Anderson *et al.*, 2006; Bohnsack and Pinkse, 2017; Payne and Frow, 2014). Deconstructing the value proposition into its elements can help identify the key elements which offer superior value so the value proposition can be reconfigured accordingly (Payne and Frow, 2014). Technology can sometimes drive value proposition reconfiguration (Russo-Spena *et al.*, 2022). VPI is thus based on changing value proposition components to increase value for customers. VPI is especially relevant for disruptors because it can help increase the attractiveness of a product without changing the product itself, especially for sustainable technologies (Bohnsack and Pinkse, 2017; Khan and Bohnsack, 2020). In addition, extant research highlights the importance of key performance attributes represented in value propositions to identify potential disruption (Lim and Anderson, 2016). Based on extant research on VPI in the context of DI, we develop a conceptual framework of VPI (Figure 1).

Input factors determine VPI activities. We identify two determining patterns: maintaining a competitive cost structure and technological performance attributes. These patterns influence the activities followed and the levers employed for VPI. The literature presents two types of input factors: resource capabilities and technological implications. We understand



Source(s): Authors' illustration based on Ansari *et al*. (2016), Bohnsack and Pinkse (2017), Khan and Bohnsack (2020), Snihur *et al*. (2018), and Wu and Shi (2010)

Figure 1.
Initial theoretical framework for aspiring disruptors' value proposition innovation

dynamic capabilities as an enabler for, and thus a determinant of VPI (Schmidt and Scaringella, 2020). Maintaining a competitive cost structure is critical to developing a disruptive value proposition (Wu *et al.*, 2010). Effectively linking technological attributes and the value proposition is critical to generating customer value (Khan and Bohnsack, 2020).

VPI activities comprise two aspects: increasing the attractiveness of the value proposition and designing and supporting it. Increasing attractiveness can be achieved through three tactics: compensating for inferior aspects, enhancing superior aspects, and coupling to address unserved needs (Bohnsack and Pinkse, 2017). Design and support levers help the value proposition succeed or increase its attractiveness by changing its focus. A focus on either utilitarian or hedonic values can increase the success of a value proposition compared to an unfocused value proposition that includes both hedonic and utilitarian elements (Khan and Bohnsack, 2020). In addition, adapting the value proposition by emphasizing more disruptive or sustaining attributes can help overcome competitive pressures (Ansari *et al.*, 2016). Similarly, framing rhetoric can support DI spread by highlighting specific innovative features. Although a disruptor can emphasize a unique offering at the time of DI introduction, Snihur *et al.* (2018) also found that disruptors can quickly change from a distinctiveness to a leadership frame, to form a new ecosystem rather than changing existing industry norms (Snihur *et al.*, 2018).

Ultimately, DI results from VPI activities or is enhanced by VPI, either resulting in a new low- or high-end market. The DI performance trajectories are then adjusted (high performance for high-end markets and low performance for low-end markets) to reflect the demands of the target market (Khan and Bohnsack, 2020).

Summing up, the scarce extant research presented in Figure 1 does not acknowledge the conceptual linkages between the presented articles, except between Khan and Bohnsack (2020) and Bohnsack and Pinkse (2017). Against this backdrop, we attempt to enhance the understanding of VPI by answering the following explorative research question: *How do aspiring disruptors innovate their value propositions* and engage the empirical findings with extant research by employing the FPMA.

3. Methodology

3.1 Research setting

A search for industries with disruptive potential guided the selection of the research setting. We chose the EV industry because, first, EV technology has a long history of being a suspected source of disruption because it has a disruptive potential (Christensen, 1997). Further, EVs are still "a technology that could disrupt the car industry" (Bohnsack and Pinkse, 2017, p. 80). Second, a disruptive threat can be argued to exist in an industry where EVs were perceived as a necessary evil just a decade ago by the major incumbent car manufacturers (Bohnsack *et al.*, 2020). Third, incumbents struggle to make EVs attractive to mainstream customers because their business models are optimized for combustion-engine cars (Bohnsack *et al.*, 2014). Fourth, ongoing digitalization, the development of radical technologies such as autonomous-driving software, and the corresponding reorganization of business models through changing value-creation processes hold great potential for disruption (Turienzo *et al.*, 2023). Lastly, it is challenging to unleash the disruptive potential of EVs due to the systemic nature of the technology (Pinkse *et al.*, 2014), and increasing the attractiveness of the car alone will not suffice (Pinkse *et al.*, 2014). In this context, VPI is especially relevant because the attractiveness of an offering can be heightened without changing the product itself (Bohnsack and Pinkse, 2017; Govindarajan and Kopalle, 2006; Khan and Bohnsack, 2020). Due to the focus on revelatory potential, we did not limit our study to a specific location or type of company (e.g. business-to-business). Appendix Table A1 lists the country of origin of each startup.

3.2 Research design

We applied an explorative research design to reveal how aspiring disruptors innovate their value propositions. We used the flexible pattern matching approach (FPMA), an emerging methodology suitable for theory development while ensuring a close connection to established theory (Sinkovics, 2018; Bouncken *et al.*, 2021a). Although we deviated from the grounded theory approach (Corbin and Strauss, 1990; Gioia *et al.*, 2012; Glaser and Strauss, 1967) by first deducing initial theoretical patterns from the extant literature (Figure 1), this approach is well established in management research applying the FPMA (e.g. Bouncken and Barwinski, 2021; Sinkovics *et al.*, 2019) and has also been used in DI research (see Blume *et al.*, 2020). Furthermore, the FPMA has also been used in entrepreneurship research (Chiles *et al.*, 2007; Shane, 2000). Our study explored why and how startups approached and executed VPI.

3.3 Data collection

We used purposeful sampling (Patton, 2002) to achieve a diverse set of perspectives and to facilitate DI theory development (Christensen, 2006). We identified suitable interview partners following a two-step approach. First, we created a list of target companies by analyzing, among other things, company websites, press releases, and industry reports. Our selection criteria included whether firms qualified as startups, whether they used EV technology, and whether they use elements of DI (e.g. technology that does not appeal to mainstream customers or caters to niche markets). The selected startups have disruptive aspirations, shown next to their described business models to underpin that we build on interviews with revelatory potential (Appendix Table A2). Second, we approached founders, CEOs, and senior managers of the previously selected target companies identified as suitable.

We conducted explorative, in-depth, semi-structured interviews with board members, CEOs, managers, and founders of the targeted EV startups. The interviews covered five themes: value proposition (innovation), disruptiveness, target segments, activities to address customer needs, and view of self and competition. The authors adopted a snowball sampling technique where interviewees refer or invite other interviewees for the study (Biernacki and Waldorf, 1981; Bryman and Bell, 2007). The sampling technique reflects our exploratory research approach to look for unique, revelatory information for theory building (Eisenhardt, 1989) rather than achieving a representative sample. Overall, 21 interviews were conducted with 15 EV startups between February and December 2022 (Appendix Table A2). We collected interview data until we could not gain further theoretical insights from additional interviews (Corbin and Strauss, 1990; Glaser and Strauss, 1967).

3.4 Data analysis

FPMA (Bouncken *et al.*, 2021a, b) guided the data analysis, which is an emerging approach to developing theory from qualitative data (Bouncken *et al.*, 2021a, b). The FPMA (Figure 2) ensures the interaction of inductive and deductive patterns and balances rigor and flexibility (Bouncken *et al.*, 2021a).

First, we derived a research question aimed at understanding the VPI of aspiring disruptors (Step 1). Then, we deduced theoretical patterns (Figure 1) based on extant research (Step 2), and chose the EV industry as the research setting and selected key themes for the semi-structured interviews (Step 3). Finally, we inductively derived patterns and a framework illustrating the relationships between patterns (Figure 4). We compared the patterns (Step 4) to identify and interpret consistencies and inconsistencies between theoretical and empirical patterns (Step 5) (Bouncken *et al.*, 2021a). The comparison of collected and theorized pieces of information (patterns) in the FPMA can strengthen the internal validity of case studies

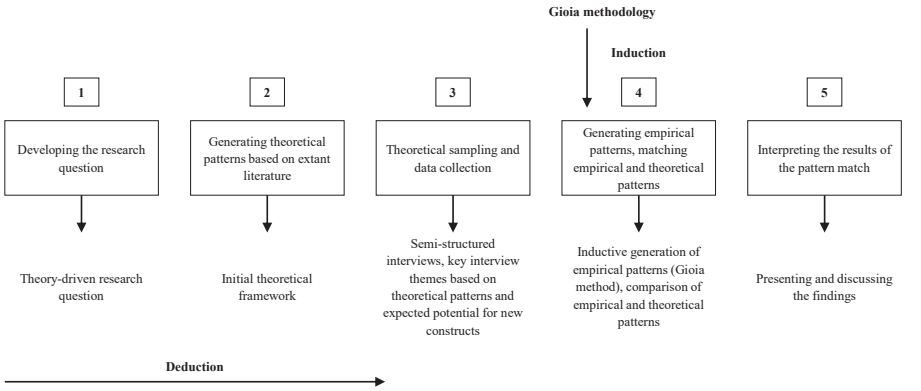


Figure 2.
The five steps of the flexible pattern matching approach

Source(s): Authors' illustration. Process based on Bouncken *et al.* (2021a)

(Eisenhardt, 1989). We used MAXQDA to get a comprehensive overview of the underlying theoretical relationships among the codes. We employed the Gioia method (Gioia *et al.*, 2012) to inductively derive patterns. Figure 3 illustrates how we advanced from the raw data to first-order-concepts, second-order themes, and aggregate dimensions. The coding process consisted of three steps—open coding, axial coding, and theoretical coding (Corbin and Strauss, 1990)—resulting in the data structure (Figure 3). Open coding identified the main idea of each piece of information, and provided it with a descriptive label. Axial coding identified underlying structures in the data, reducing the number of codes at this level to manageable. Theoretical relationships started forming at this stage. Finally, we further reduced the number of categories and derived abstract labels for theoretical constructs (Gioia *et al.*, 2012). One researcher conducted the data collection and analysis discussed and challenged the emerging codes and constructs to gain insights into the underlying relationships and dynamics, and ultimately to derive the dynamic empirical framework (Figure 4).

4. Findings

4.1 Two-aspect model of value proposition innovation

We inductively derived an integrated two-aspect framework from the data, illustrating the VPI process and accounting for its dynamic, complex, and sometimes ambiguous nature at the organizational level (Figure 4). The VPI framework consists of two parts: determinants and tactics. The two parts are connected by a continuous loop of transforming determinants into tactics and feeding back information into determinants. Determinants decide the scope, focus, and priorities of tactics of aspiring disruptors for VPI and consist of three aggregate dimensions, i.e. *cognitive antecedents, value proposition approach,* and *development drivers*, and their respective second-order themes. Within the determinants part, cognitive antecedents shape and influence the realization capabilities and development drivers. Tactics aim to combine, support, and optimize the value proposition. Tactics follow from the determinants and represent observable actions of aspiring disruptors. The tactics part entails the aggregate dimensions, i.e. *support levers*, *configuration opportunities*, and their respective second-order themes. Support levers and configuration opportunities enable and support the value proposition within the tactics part. In subsections 4.2 and 4.3, we elaborate on the patterns represented in the two-part framework and compare them with the theoretically deduced patterns. The rest of the results section is structured among the derived empirical framework.

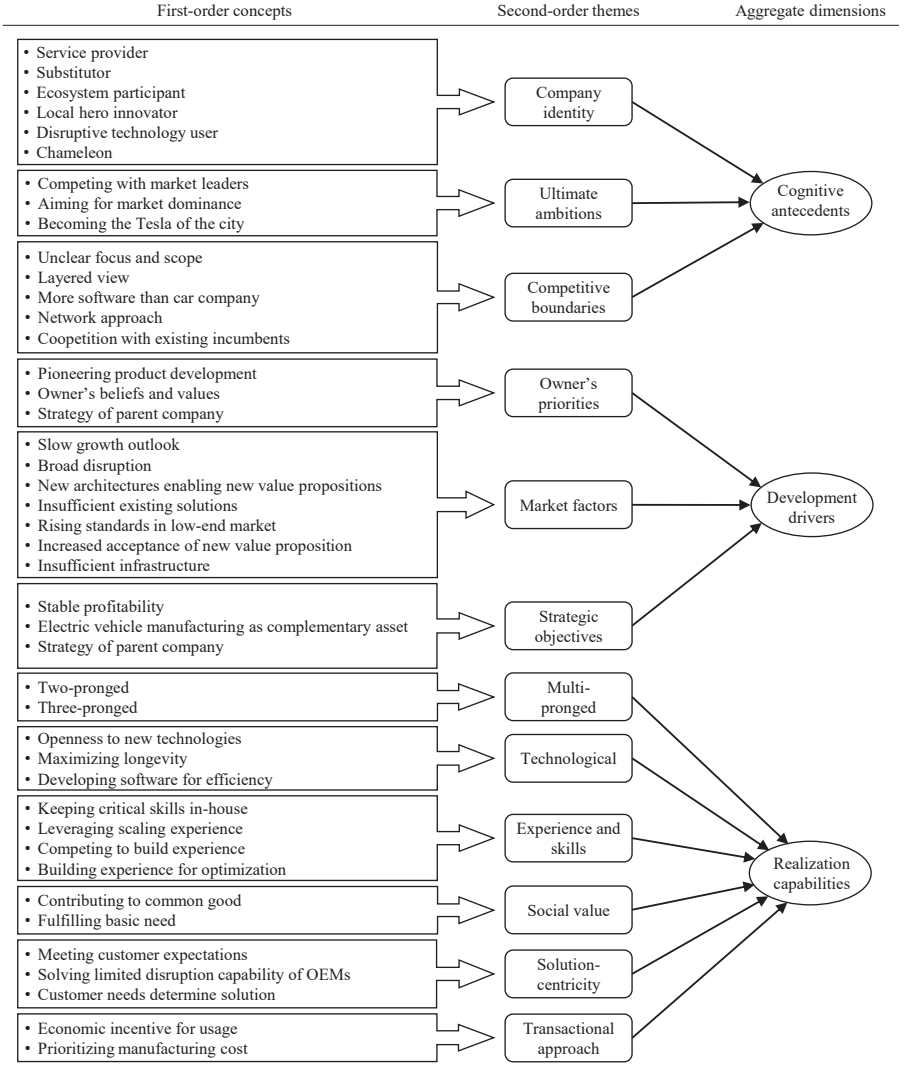


Figure 3.
Value proposition innovation dimensions derived from second-order themes and first-order concepts

(*continued*)

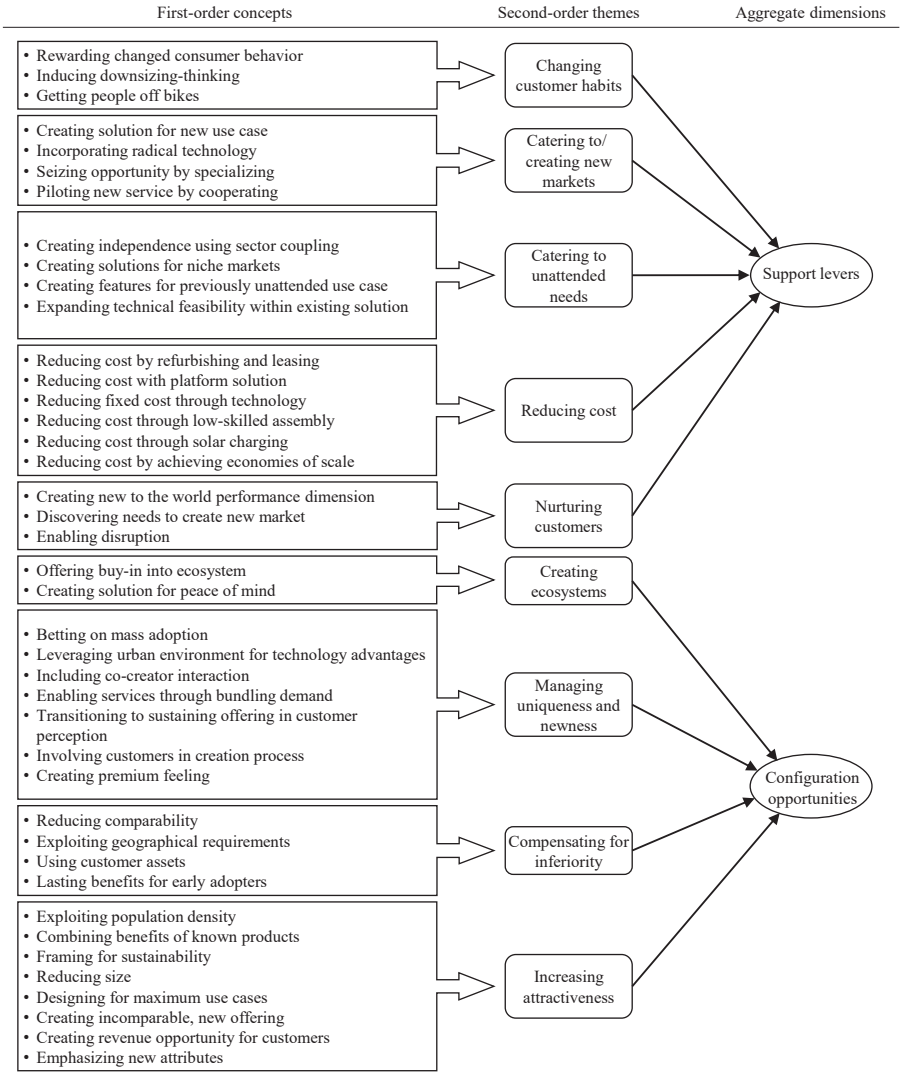


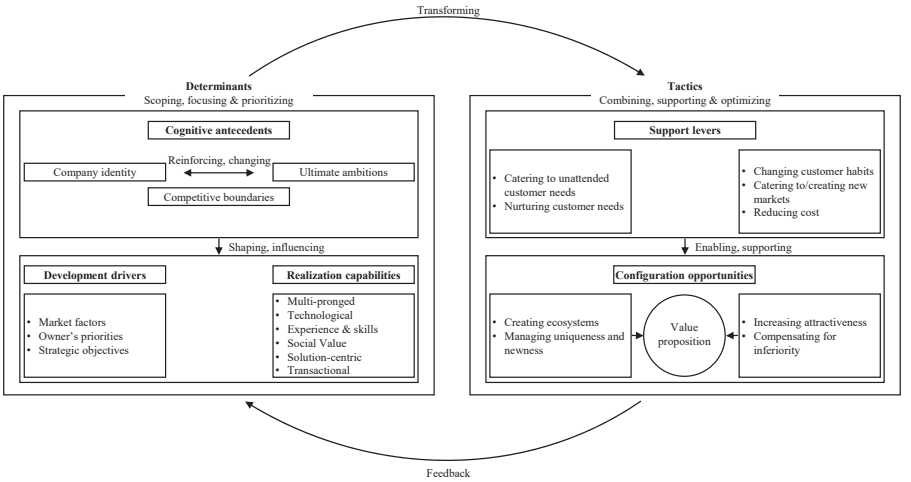
Figure 3

Source(s): Authors' illustration

4.2 Determinants

In Figure 4, the left part of the framework includes determinants that shape the VPI. From the determinants, companies derive the scope, focus, and priorities of VPI tactics. Cognitive antecedents shape the realization capabilities and influence the development drivers. The realization capabilities determine which range of activities aspiring disruptors view as appropriate to maximize the attractiveness of their value proposition. Development drivers refer to the organizational imperative or need to engage in VPI.

4.2.1 Cognitive antecedents. We identified three new patterns (i.e. company identity, ultimate ambitions, and competitive boundaries) that determine VPI activities and



Source(s): Authors' illustration

Figure 4.
Value proposition innovation process

categorized them as cognitive antecedents. Cognitive antecedents entail the compass for VPI-related activities. The company identity describes the organization and its objectives and culture. Ultimate ambitions show the long-term aspirations of where the aspiring disruptor wants to be and what it wants to achieve. Competitive boundaries describe where an aspiring disruptor sees the border to other markets, defining the difference between competitors and companies that are not perceived as competitors.

Company identity is critical for determining VPI tactics because it defines the space wherein solutions for the value proposition can be developed. Aspiring disruptors express their identity in quite heterogeneous ways. Interviewee 12 referred to his company as a chameleon, because by maximizing the freedom of country managers to create a local DNA for each subsidiary, it can change multiple elements of its business model by adapting its company structure, designing vehicles to meet local market needs and tastes: *"Yeah, I think you're just one of just one of many solutions in that space, and then, in terms of identity, we can be a bit like a chameleon." (Interviewee 12)* At the same time, the company recognizes the limitations of its technology: *"I mean, all you're going to get is different designs. You're not going to get anything cleverer than that because it just won't work." (Interviewee 12).*

Thus, differentiation through design rather than technology is how this aspiring disruptor attempts to make their value proposition attractive to consumers. The chameleon identity provides the rationale for focusing on design variety.

Aspiring disruptors indicate that they want to be market leaders or supplement existing incumbent offerings. As the founder and CEO of one EV startup put it: *"I see the mass. I see the mass. [The value proposition is] not a nice-to-have. It's a must-have." (Interviewee 4).*

Thus, the founder indicates they want to target the mass market by creating a must-have value proposition to attract as many customers as possible. In addition, the company describes its impact stemming from its ultimate ambition:

> This is why I hear from all types of people that are driving the [car name aspiring disruptor D], that this is like the Tesla of the city. But it's much more important than Tesla because if you take all vehicles and replace them with electric vehicles, you see the same picture from above, from a drone perspective. But if you change all the vehicles or even 10,000 of the vehicles in the city with 10,000 [car name aspiring disruptor D], you changed city centers, it's unbelievable. (Interviewee 4)

This statement illustrates how the ultimate ambition of an aspiring disruptor can reinforce the identity of being a future market leader by comparing themselves to Tesla and illustrating the high impact on the face of cities if their car was adopted.

The competitive boundary indicates whether there are many or very few competitors, including those in other markets, as. The competitive boundary can overlap and be fuzzy or clear:

> In my opinion, however, we can't finish it alone, as [aspiring disruptor A]. That means that we tend to complement each other. So, you might overlap a bit with the big ones. (Interviewee 1)

4.2.2 Development drivers. The second aspect of determinants in the derived empirical framework is development drivers. Development drivers describe the organization's motivation to develop a certain value proposition. Here, we identify three new patterns categorized as development drivers: market factors, owner priorities, and strategic objectives.

Market factors influence which value proposition to develop or which elements to prioritize. For instance, when an aspiring disruptor recognizes that a market is underserved, they do not include elements of differentiation in their value proposition but try to forge alliances with like-minded market actors to tap into the market, thereby prioritizing trust and education as value elements.

> We are also an alliance of manufacturers of small and light vehicles, which we have joined together a little bit, and we are also really very open on the subject of let's help people together, and let's help people openly and honestly. And that's why the focus today is not at all on which brands are behind it but always on the question: Tell us what the vehicle is supposed to do later. Will it replace an existing vehicle, or will it be a new addition? What should it do? (Interviewee 9)

We found that owners have, not surprisingly, a considerable influence on the company and the central elements of the business model, such as the value proposition. However, surprisingly, we found that when owners strongly influenced the value proposition, they did so to create societal value. In one instance, the goal of the owner was to be recognized as a pioneer driving the change to more sustainable means of transportation, by prioritizing building innovative, customized solutions over scaling production to realize a profit.

However, strategic objectives also influence which value propositions to develop and which value elements to prioritize:

> I think at this moment, profitability is still the highest priority. First, we need to be able to generate real stable profitability, then sustainability, and then something else can just be part of our value proposition. I would say 90% of the decision is still based on how much money we can make. (Interviewee 14)

Thus, although contributing to sustainable mobility plays a role for this aspiring disruptor, profitability comes first. This indicates a stepwise approach to integrating sustainability aspects in the value proposition.

4.2.3 Realization capabilities. The last aspect of determinants in the derived empirical framework is realization capabilities. Here, we identify five new patterns: multipronged, technological, social value, experience and skills, and solution-centric capabilities. In addition, we specify the theoretical pattern outlined by Wu *et al.* (2010), i.e. the capability to maintain a competitive cost structure. Startups develop their value proposition based on their capabilities. Companies focus either on a) a combination of all capabilities (multi-pronged), b) their technological know-how and openness to radical technologies, c) their capability to build on experience d) their capability to develop satisfactory solutions for customers, e) the social value their product can provide, or f) incentivizing customers to engage in transactions with the company. We provide two examples.

The technology approach means being open to new technologies, which suggests that the value proposition is not dependent on the underlying technology but, rather, that the technology is an enabler of the value proposition:

> I have an openness to technology, to all things that are necessary to do. Because electromobility is not the sole remedy, you can't close your eyes to that. There's a lot of other possibilities that play a role as well. (Interviewee 2)

A different aspiring disruptor puts more emphasis on technological capabilities. They formulated an internal vision for their technological capacity to deliver a product:

> I don't know how it's communicated to the outside world, but internally, it was always said that the vision and mission are that the vehicle owner or driver no longer has to go to the workshop because he no longer has to have these standard inspections. (Interviewee 6)

One capability for realizing the value proposition is maintaining a competitive cost structure. Wu *et al.* (2010) showed that maintaining a competitive cost structure is critical for firms to disrupt a market. More specifically, latecomers can leverage their ability to maintain a low-cost structure to develop value propositions for the low end of the market, thereby disrupting it (Wu *et al.*, 2010).

> Starting from 2021, we started to manufacture the cars by ourselves, because we realized we'll save some money in the manufacturing process. So, 2021 was a year where we changed our strategy on EVs. (Interviewee 14)

Aspiring disruptors sometimes offer economic incentives to introduce customers to low-end offerings, and, in doing so, they promote low-end EV usage. This suggests that the aspiring disruptor takes a transactional approach relying on give and take rather than on loyalty or uniqueness.

4.3 Tactics

The second aspect of the derived empirical framework consists of tactics that support the value proposition and optimize the combination of its elements. Support levers ensure the success of the value proposition by creating demand and managing customer needs. These tactics enable the success of the value proposition and support its innovation. Configuration opportunities describe the possibilities for action to change the arrangement of elements of the value proposition to maximize its disruptive potential.

4.3.1 Support levers. We identify four new patterns, which we summarize as support levers. Support levers do not influence the elements of the value proposition. Rather, the levers represent tactics for creating the conditions for the configured value proposition to maximize its disruptive potential by increasing its likelihood of success. Our data suggest five support levers: creating demand, changing customer habits, nurturing customer needs for value elements aspiring disruptors can serve, catering to and creating new markets to increase the potential reach of a value proposition, and reducing cost. Thus, support levers center on activities around the value propositions and their elements. We observed that aspiring disruptors put much effort into these activities.

Incorporating elements into the value proposition based on unattended customer needs creates demand and expands the market by incorporating elements into the value proposition that customers could not buy beforehand. These unattended needs can range from not yet fulfilled needs of niche market customers to a desire for independence from the electricity grid. To fulfill such unattended needs, aspiring disruptors also expand the use of existing solutions:

> So that's the whole topic of utility or vehicle architecture, where there are interesting examples. You throw the typical vehicle architecture overboard and say I now have a classic two-seater small car. They almost all look the same—almost the same ergonomics—and then someone comes along and says I want to do something different with the same installation space and, for example, get a Euro pallet in, and they say that's not possible, but it is, which is quite exciting. (Interviewee 1)

Catering to or creating new markets is a prime example of using a disruptive strategy to create demand by targeting new customers in new markets. We found three cases of catering to and creating new markets.

In the first case, a company took a very risky approach: They did not cater to consumers but created an EV for municipalities, a market that nobody has touched.

> And, in this market, no one has gone before because everyone has always just tried to develop and push passenger cars, and that's exactly what they haven't done—and that's part of the reason for their success. (Interviewee 3)

In the second case, an aspiring disruptor was concerned with seizing an opportunity to cater to new markets by specializing. In particular, they developed in-house capabilities for high-voltage technology to serve customers in a developing niche market, which quickly became their main business.

> That was in 2011/2012 when we first encountered the topic of e-drives, and then that grew very strongly, and we saw that the market was moving in that direction (. . .) and then, almost by itself, it turned out that almost only the e-drive is requested from us. (Interviewee 1)

In the third case, the aspiring disruptor piloted a new-to-the-world value proposition enabled by autonomous driving technology:

> So, there are two things on the [supermarket chain] side. They [supermarket chain] have been a big investor in [aspiring disruptor H]. [Supermarket chain] wants to partner with us so the vehicle drives up to your door, and it will be the same vehicle as for ridesharing but outfitted to be a delivery model. And then you get a notification saying where your package is, here you go. The car opens automatically. There's a shelf that comes out of the car with your product inside that. (Interviewee 8)

By nurturing customers, aspiring disruptors create demand where there is currently none. The demand is lacking because customers do not use a specific solution or because it is not yet technologically feasible. For instance, radical technology can create a new-to-the-world feature, such as autonomous driving, which promised customers a safe, infection-risk-free ride during the COVID-19 pandemic. However, the thrill of radical technology can rapidly wear off:

> It almost becomes seamless at some point. After the first 20 minutes or so, 15 minutes, maybe, once the factor of being a driverless car wears out, it just feels very natural. (Interviewee 8)

Cost reduction is initiated with the intention to make the product more affordable to a potentially broader user base by exploring alternative vehicle-assembly options, involving customers in the creation process, enabling them to repair certain parts themselves, or introducing a "renter" business model instead of an "owner" one.

Finally, changing customer habits can take two forms: rewarding new desired behavior (for instance, through economic incentives such as rebates) or promoting new patterns of use that favor the products offered by the aspiring disruptor.

4.3.2 Configuration opportunities. The last element is configuration opportunities. We identify four configuration-opportunity patterns: creating ecosystems, managing uniqueness and newness, compensating for inferiority, and increasing attractiveness. These patterns describe how companies innovate their value proposition by (re)configuring it to increase the attractiveness of their offerings. In addition, we matched one theoretical

pattern, i.e. compensating for inferiority, of the initial theoretical framework (Figure 1) by Bohnsack and Pinkse (2017).

Creating ecosystems aims to lock customers in by providing such complementary products as a comprehensive, reliable charging infrastructure and overcoming compatibility issues between charging stations from different providers. These ecosystems increase the ancillary benefits of a solution and increase "peace of mind" so that the (sometimes inferior) value elements of the aspiring disruptors play a smaller role for customers.

Managing uniqueness and newness can help establish the sometimes new-to-the-world value propositions of aspiring disruptors. Aspiring disruptors manage uniqueness and newness by searching for the correct environment for their value proposition:

> It's much easier to have that product where the electric range is not an issue, and so, from that perspective, too, we can have customers who are well-informed, who are interested in sustainability, [and] who want to participate in our technology. (Interviewee 8)

Thus, the aspiring disruptor does not convince non-consumers of sustainable new offerings but, rather, targets those who are already convinced but lack a solution.

Compensating for inferiority means reducing or mitigating the inferior performance of elements of the value proposition or the whole value proposition. Aspiring disruptors employ two tactics to compensate for inferiority. First, they reduce comparisons to superior alternatives by purposefully narrowing the use case of the inferior solution. Second, they exploit geographical advantages where inferior attributes are less important and superior ones are emphasized. For instance, one aspiring disruptor promotes its vehicles in steep mountainous areas, where alternatives, such as conventional combustion-engine vehicles operate with comparable specifications.

We specify the meaning of the matched pattern to compensate for inferiority. Bohnsack and Pinkse (2017) view compensating as bringing value propositions on par with the best alternative. Still, we show that narrowing use cases is also a viable strategy to reduce comparability to cases where the aspiring disruptor's value proposition seems superior or on par with incumbent value propositions or to exploit geographical circumstances to present the only viable option in certain regions.

5. Discussion

We started this paper by asking how aspiring disruptors innovate their value propositions. We collected data from 21 informants representing 15 aspiring disruptors in the EV sector with disruptive value propositions. Our study contributes to the ongoing scholarly discourse on the development of DI theory (Christensen, 2006; Christensen *et al.*, 2018; Hopp *et al.*, 2018). We grounded our inductive findings in established theoretical concepts by drawing on an emerging approach, the FPMA (Bouncken *et al.*, 2021a, b). From a methodological perspective, we addressed the calls of Hopp *et al.* (2018) and Christensen *et al.* (2018), for a sounder integration of existing research insights when advancing DI theory. Overall, the identification of new patterns and the specification of existing theoretical patterns highlights a gap in the understanding of VPI in the context of DI. We demonstrate how our empirical framework contributes to the existing literature. By introducing the notion that DI is performative (subsection 5.1) and extends the debate on configuring disruptive value propositions (subsection 5.2).

5.1 Understanding the notion of disruptive innovation as performative

Challenging established market structures through the introduction and management of DI is fundamentally an entrepreneurial endeavor (Hu and Hughes, 2020; Zhao, 2005). At the core of every DI journey is an entrepreneurial venture with disruptive ambitions to introduce new

market offerings that are disruptively positioned in comparison to mainstream alternatives offered by existing incumbents. In other words, they underperform on established performance metrics and are more accessible for new/low market segments (Christensen *et al.*, 2018; Govindarajan and Kopalle, 2006). Recent studies have advanced our understanding of the complex, disruption process (Hopp *et al.*, 2018) by highlighting that it is a multi-level, multi-actor phenomenon which cannot be explained by single factors such as capabilities or business models. Therefore, scholarly attention from multiple perspectives from large corporations to startups is necessary. We highlight aspiring disruptors and their entrepreneurial activities in this study.

Complementing the call for a multi-perspective investigation of DI, another debate, is whether DI is a predictable phenomenon (Christensen, 2006; Hopp *et al.*, 2018; Kumaraswamy *et al.*, 2018; Tellis, 2006). We contribute to this discussion by linking to Kumaraswamy *et al.* (2018), who emphasize the performative notion of DI. Performativity assumes that disruption is enabled and executed through activities, meaning that there is not a deterministic process separate from the behavior of market actors (Kumaraswamy *et al.*, 2018). In this context, our study introduces the term *aspiring disruptors* to describe DI "in becoming" (Snihur *et al.*, 2018). Our findings show that aspiring disruptors entrepreneurially perform continuous VPI along the disruptive path.

Performed activities intended to foster disruption represent the key to understanding DI from a performative perspective. In light of this, we identify how aspiring disruptors enact their disruptive ambitions. Our findings suggest aspiring disruptors can be differentiated from existing incumbents via value proposition design considerations rather than technological aspects (Schmidt and van der Sijde, 2022).

While extant research highlights specific strategies, capabilities, and factors, we contribute to the discussion by highlighting VPI activity as determinants. For instance, we show the relevance of the company identity to aspiring disruptors. Extant research underpins that entrepreneurial ventures need to change and adapt their identity in accordance with significant business-model innovations (Snihur and Clarysse, 2022). The "chameleon" identity is one such pattern, confirming that aspiring disruptors indeed construct their company identity to determine the value proposition they would like to offer in a flexible way depending on developments along the disruptive path.

Finally, our study adds to the discussion of the relevance of core capabilities in continuous VPI, following cognitive antecedents in our empirical model (Hopp *et al.*, 2018). Indeed, the model suggests core capabilities play a critical role for aspiring disruptors to develop a value proposition in-house (Ansari *et al.*, 2016; Schmidt *et al.*, 2021). For example, in one of the empirically investigated instances, high-voltage capabilities were crucial for the aspiring disruptor to maintain a disruptive trajectory.

5.2 Extending the debate on the configuration of disruptive value propositions

The academic discourse has evolved from the pivotal argument by Christensen *et al.* (2018) that DI causes market shifts due to business-model innovation; it now includes the configuration and strategic management of disruptive business models (Christensen *et al.*, 2018; Hopp *et al.*, 2018; Schmidt and van der Sijde, 2022). We contribute to this discourse by consolidating existing theoretical insights on VPI examining the configuration of disruptive value propositions by identifying new VPI tactics. We build on insights from business-model literature and conceptualize the value proposition as the central element of business-model disruption (Clauss, 2017; Snihur *et al.*, 2018). We make two key contributions to the debate on value proposition configuration. First, we add new configuration tactics. Second, in addition to configuration tactics concerning the value proposition itself, we extend current research by also identifying tactics surrounding the configuration of the value proposition.

Extant studies focus on configuration tactics within the value proposition (e.g. Bohnsack and Pinkse, 2017; Hopp *et al.*, 2018; Khan and Bohnsack, 2020). They find that value propositions can be deconstructed into specific elements and can then be systematically reconstructed to increase attractiveness, compensate for inferiority, and couple new combinations of products and services (Bohnsack and Pinkse, 2017). Furthermore, focusing on either utilitarian or hedonic values can increase the attractiveness of value propositions (Khan and Bohnsack, 2020). We contribute to this discussion by providing a more nuanced view of VPI opportunities. We identify new tactics, namely opportunities to create ecosystems, to manage uniqueness and newness, to compensate for inferiority, and to increase attractiveness.

Further, we extend the discussion on VPI tactics by identifying tactics "surrounding" the value proposition, which can help provide fertile ground for and market acceptance of the aspiring disruptor. Considering how challenging it is for aspiring disruptors to gain a foothold and compete against existing incumbents while also forming ties with them (Ansari *et al.*, 2016; Christensen, 1997; Govindarajan and Kopalle, 2006), we underline the relevance of support levers such as changing customer habits, catering to and creating new markets, catering to unattended needs, reducing costs, and nurturing customers. Thus, we broaden the discussion of disruptive value propositions by introducing support levers, which aspiring disruptors use, aiming to create favorable circumstances for a more timely and stable diffusion of value propositions along the disruptive path.

Summing up, we enrich the discussion of how aspiring disruptors position their value propositions disruptively relative to existing mainstream alternatives. In addition to Bohnsack and Pinkse's (2017) contribution concerning the *re*configuration of value propositions, our findings suggest the importance of both support levers and configuration opportunities for both newly configured and re-configured value propositions of aspiring disruptors.

5.3 Managerial implications

Our results have three key implications. First, the empirically derived tactics (Figure 4) can help entrepreneurs innovate their value propositions to disrupt existing incumbents. Thus, VPI tactics can help to overcome the inferiority of aspiring disruptors' innovations relative to incumbent offerings. Second, although our work is exploratory, we also suggest ways entrepreneurs can strategically develop VPI tactics. The results suggest clear levers for determining the scope, focus, and priority of VPI using the identified configuration opportunities and support levers. VPI determinants and tactics also equip entrepreneurs with tools to move away from exclusive reliance on technological attributes. Third, entrepreneurs risk running blindly in a situation with unbalanced competitive power, which frequently causes the aspiring disruptor to lose their disruptive potential (*disruptor's dilemma*, Ansari *et al.*, 2016). The derived empirical framework (Figure 4) can enable aspiring disruptors to overcome the liability of their size and newness in the market (Stinchcombe, 1965), ultimately allowing them to remain on the disruptive path by, for instance, engaging in alliance formation early on. By considering such market factors, managers can mitigate the influence of powerful existing incumbents. Summing up, we equip managers with insights into VPI dynamics so that they can navigate the complex, competitive tensions, and the potential impact of powerful incumbents inherent in disruption journeys.

5.4 Limitations

Our study has several limitations. First, we study aspiring disruptors. This means that the framework sheds light on the VPI process by identifying determinants and tactics. However, because we take an exploratory approach and do not conduct an ex-post observation of successful disruptors, the identified VPI determinants and tactics are not necessarily those that

have proven to be most effective for disruption. Second, the findings may be specific to the industry the EV industry context. Because contextual factors can impact DI development (Antonio and Kanbach, 2023), cognitive antecedents, such as ultimate ambitions and VPI tactics, could differ across regions and industry contexts (Wang *et al.*, 2019). Finally, the attribution of VPI determinants and tactics to the context of DI may be impacted by the different understandings of disruption held by our interview partners. However, we aimed to mitigate this concern by analyzing the business models of the startups of the interview partners and corroborating the disruptive aspects claimed by the interview partners (Appendix Table A1).

6. Conclusion

This study argued that the value proposition is key for entrepreneurial ventures aspiring to disrupt existing incumbents. The empirical model in this paper can guide researchers in studying determinants and the resulting tactics of VPI in the context of DI. Further, the findings suggest the relevance of the performative view of DI. The findings imply that entrepreneurial activities are critical for disruption. This contrasts with the deterministic view that entrepreneurial activities might not play a pivotal role in disrupting existing incumbents. However, the findings do not represent a recipe for disruption. This paper explored the dynamics and factors of VPI from the aspiring disruptor's perspective. By reviewing VPI determinants and tactics, entrepreneurs can more consciously and systematically steer their VPI activities.

Based on the presented findings, future studies could build on the identified determinants and tactics and quantify the effectiveness of different tactics and their combination using panel data. Furthermore, we encourage future researchers to further build on a performative understanding of disruptive innovation and connect other fundamental theories to the discussion of DI, especially dynamic capabilities, to provide an explanatory framework for successfully performed disruption. Finally, we encourage future researchers to build on the concept of aspiring disruptors, following the logic of DI as a performed phenomenon, to increase the relevance of the theory of disruptive innovation by studying disruption as it develops.

Abbreviations

DI =	disruptive innovation
EV =	electric vehicle
FPMA =	flexible pattern matching approach
VPI =	value proposition innovation

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No.	Startup	Country	Position of interviewee	Interview length in minutes	Setting
1	A	Germany	Co-founder and CEO	53:18:00	Video conference
2	B	Germany	Board member	23:00	Phone
3	C	Germany	Board member	22:00	Phone
4	D	Israel	Founder and CEO	29:59:00	Video conference
5	E	The USA	Expert	14:31	Video conference
6	F	The USA	Expert (board member in industry)	13:00	Video conference
7	G	The USA	Expert (board member startup in industry)	15:41	Video conference
8	H	The USA	Manager	26:33:00	Video conference
9	I	Switzerland	CEO	01:21:22	Video conference
10	J	Netherlands	Manager	17:49:00	Video conference
11	J	–	Manager	22:40:00	Video conference
12	K	The UK	COO	51:39:00	Video conference
13	K	–	Manager	17:06:00	Video conference
14	L	China	Manager	56:28:00	Video conference
15	L	–	Manager	18:00:00	Video conference
16	L	–	Manager	19:19:00	Video conference
17	M	Germany	Manager	40:04:00	Video conference
18	M	–	Manager	29:00:00	Video conference
19	N	Norway	Founder and CEO	57:13:00	Video conference
20	N	–	Manager	22:01:00	Video conference
21	O	Germany	Manager	14:00:00	Video conference

Source(s): Authors' illustration

Table A1.
Sample overview

Appendix

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
A	"We don't work in the series process, in pre-development, but rather in, as we say, disruptive things where an OEM says let's think and develop something new, and not with our standard departments. There, the end result is always the same, but we need an external partner who thinks something fresh. And from our point of view, we are already located in the innovation area. And with our start-up customers, who often think of completely new concepts, especially with these micro-EVs, a lot is happening right now with small transport vehicles for inner cities, the transition to cargo bikes. There's a lot of new thinking going on, and I'm not saying that we're creating all these innovations, but we simply work together with our customers who are open to new technologies."	_Creating high-end EV prototypes and ultra-durable and light components within a short time frame _Realizing small series for other startups _Offering engineering services to incumbent OEMs for innovative EV concepts	_Focusing on engineering and material expertise _Developing non-engine parts and systems in-house _ Fostering partnerships to secure speed and cost efficiency at small scale	_Revenue generation by acquiring projects for designing, developing and testing prototypes _Optimized margins by including self-developed components _Gaining additional revenue by producing small series for other startups

Table A2.
Disruptive ambitions and business models

(*continued*)

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
B	/	Enabling sustainable, low-maintenance transport through rugged and small low-cost vehicles for leisure, municipalities and farmers with a modular concept for high flexibility	_Focusing on affordability for maximum diffusion, also in emerging markets _Designing for simplicity and cost-efficient production _Resource-efficient, local production in Germany to ensure sustainability _Enabling distribution via third-party sales network	_Selling EVs directly or through sales network _Creating demand by educating targeted users (non-users as of now) in developing countries _Securing funding by tapping into small amounts of consumers, avoiding venture capital money
C	/	_Lowering EV development costs by offering a self-developed, scalable skateboard platform _Increasing vehicle range by using in-wheel motor technology _Increasing flexibility and ease of use by using a standardized interface	_Focusing on technology leadership _Creating benefits for other OEMs using proprietary technology by saving assembly costs and reducing weight _Securing patents	_Securing efficiency by designing for simplicity, therefore saving weight (over 100 kg) through reduced components _Supporting OEMs in producing simple, efficient cars _Lower-risk commercialization through patent ownership linked to key value
D	"So this is disruptive, you know, this will change how people commute. So today you can say, okay, this is a new idea. Nobody has done it before. But in two years, remember this talk when you will see lots of lots of [deleted car name to ensure anonymity] riding (. . .)."	_Enabling fast, time-efficient driving and parking in the city through adaptive width and driving behavior _Personalizing the in-car experience by using the personal smartphone as the car interface _Enabling flexible revenue opportunities through sharing capabilities	_Focusing on achieving economies of scale through fast adoption in key markets _Outsourcing production to achieve economies of scale _Key activities center around design, funding acquisition and marketing	_Sale and lease of cars to fleet managers, delivery companies and end consumers _Obtaining commissions earned from rented vehicles from users (fleet managers and end consumers) Allows to rent out vehicle to other drives via app _Refurbishing used vehicles for different segments for improved margins

(*continued*)

Table A2.

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
E	/	_Promoting the highest range of all EVs on the market _Creating a feeling of superiority and luxury by using selected materials and offering very high performance _Allowing multiple use cases through bidirectional charging _Providing a fast-charging network and a 15-min charging time for half the battery range	_Acquiring top talent from other EV startups to maximize performance in traditional (ICE) performance parameters _Vertically integrating the value chain to achieve economies of scale and control the value chain	_Charging premium prices with a direct to consumer-approach _High initial prices with few value-added services ensure profitability
F	"I believe most EV companies make something similar and focus on different customer segments. I think they all do something similar. I would not necessarily see [aspiring disruptor F] as disruptive because [. . .] redacted sells rather expensive cars with more functionality. However, in my opinion, the viewpoint could be disruptive: viewing [redacted] as a software product, not a car. However, their development is slower than announced in this area"	_Creating the feeling of technological superiority compared to other EV makers by regularly promising technologically challenging and new to the world improvements _Creating peace of mind through the development of a soft-and hardware ecosystem for consumers	_Comprehensive fast charger network ensures mobility without range anxiety _Direct to consumer approach to control customer experience _Continuous development and updating of software increases capabilities of cars _Vertical integration for efficiency and reliability	_Highly automated, efficient production and self-developed software help to maintain high margins and a very low time to market.

Table A2. (*continued*)

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
G	/	_Promoting an adventurous lifestyle (sustainable, outdoor) through offering camping features and add-ons _Increasing utility through rugged, 4-wheel drive functionality _Promoting the reconcilability of sustainable mobility and a premium feeling and exclusivity through their EV concept _Creating a lifestyle feeling by also selling gear	_Focusing on achieving economies of scale, operational efficiency and a high-end finish to evoke a premium user experience _Prioritizing software improvements, over the air updates and autonomous driving features _Prioritizing marketing capabilities by refraining from advertising and paid media	_Capturing above average profit margins by selling at premium price points _Offering over the air-updates with subscription offerings to increase the adventure capabilities (autonomy) of vehicles as a secondary revenue source
H	/	_Offering highly modular, functional design and structure in an EV for consumers, fleet owners and small businesses _Creating a feeling of exclusivity with a futuristic design, targeting pioneers and early adopters _Improving driver ergonomics by using steer by wire technology _Mimimizing maintenance leading to lower per-kilometer cost for car and fleet owners	_Designing in-wheel motors increase efficiency and maximize range _Prioritizing design and functionality paired with a futuristic appearance for differentiation _Fostering partnerships with established brands in various industries to secure economies of scale	_Selling skateboard allows high economies of scale and lower-cost production
I	/	_Customizing light vehicles for transport, municipalities and end consumer city mobility _Enabling new use cases through offering performance not technically feasible with ICEs	_Creating higher load capacity and power than comparable internal combustion engines make new applications viable (e.g. in steep terrain) _Consulting and consultative selling are key capabilities to tailor solutions to large customers	_Main revenue generation through small- and medium-series production and customization projects, targeting large fleet owners _Re-sale of batteries to recycling traders

(*continued*)

Table A2.

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
J	_"So there are some parameters for disruptive technologies, right? So one is the type of products or type of process or type of technology itself that enable it. But also there is a time element in there." _"So we are talking about 50 years of a shift towards EV. (. . .) So, there's energy generated from solar power and converted into the kilometers of the car, whereas if you into a normal battery electric vehicle, there is no such thing. And so the number of solar kilometers for EVs is zero. So there is another type of EV. But to me that is the disruptive technology that goes from planning to bringing it to market until it is delivered to market in a much shorter period than 50 years."	_Maximizing independence through solar- and battery-powered car for a high drive range and independence from charging stations _Increasing efficiency and sustainability by using smaller batteries implying less weight and therefore increased range and lower cost, in-wheel motors reduce energy loss	_Prioritizing engineering expertise in solar module development and minimizing wind resistance _Engineering and prototype production capabilities secure funding to subsequently produce car for mass market with affordable price	_Achieving high customer loyalty through mission- and values-based marketing for superior revenue opportunities __Pioneer image in solar-electric vehicle provides opportunity for premium pricing to validate concept

Table A2. (*continued*)

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
K	_"So look, it's all those factors that enable what you're looking at, which is this whole, you know, this whole disruptive piece. There's no one factor going to drive this." _"You know, your disruptive model, the disruption model, if you like, it's people, situations, policy, the need to go sustainable. All those things are just opening the door for an enabler like [redacted car name] to provide one of the solutions to achieving those objectives."	_Enabling flexible, lightweight urban mobility through a mix of a car and a bicycle to reach destinations previously unavailable for full EVs	_Increasing identification with brand through local pop-up assembly by local workers _Localizing the production and the design of the product	_Ownership, rentals, sharing and fleet management via a dedicated company-owned app increase revenue potential _Pop-up assembly with low skill requirement reduce fixed cost _Gradual ramp-up of production facilities to ensure that the run rate with funding money is long enough for scale-up after demand stabilizes
L	"From the vehicle function perspective, I do not think electric vehicles had been disruptive – vehicles still remained its old functions in transporting people and goods. It is disruptive in making an alternative energy source available. The world had long been living in the "anxiety" of running out of non-renewable energy (especially starting from 2010s). EV offers hope in mobility."	_Promoting cost-efficient, sustainable mobility within cities by producing purpose-made vehicles _Increasing the value for gig economy drivers by purpose-built entrances and exits for passengers	_Focusing on purpose-specific design _Acquiring talent from other local EV OEMs to build its production capabilities	_Selling cars to drivers for mobility platforms and fleet managers _Reduced unit cost through high volume in-house production

(*continued*)

Table A2.

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
M	_"We are disruptive. Why? Because there is still no adequate player in this market, I can only answer for the German market, where nobody can, in this number, produce electric utility vehicles." _"In the near future, I do not see anyone who would be able to do what we do."	_Providing a mobility ecosystem consisting of the electric vehicle, charging solution, service and maintenance, fleet management and energy storage	_Focusing on cost-efficiency in creating and delivering the mobility solution _Enabling optimization of fleet operations through real-time monitoring and analysis	_Selling vehicles to fleet owners _Optimizing uptime through smart vehicles and integrated digital technologies
N	_"I dont't think that it [aspiring disruptor N's product] is very disruptive because electric is already there (. . .) _I think cargo and solar is early stage but it is not extremely disruptive (. . .). Initially, when [aspiring disruptor J] started, it was more disruptive."	_Providing sustainable mobility through light vehicles with integrated solar panels for added range and maximized use through house power socket compatibility _Additional options for delivery fleets to reduce operating cost	_Prioritizing low energy usage and thereby enabling cost-efficiency for individual and commercial buyers _Enabling sustainable, space-optimized urban mobility at scale, especially for Asian regions	Selling vehicles to individuals and delivery fleet owners

Table A2. (*continued*)

Startup	Disruptive innovation context	Value proposition	Value creation and delivery	Value capture
O	_After my experiences in Silicon Valley, I have seen throughout my career that good ideas can't make it to market. Not because they are bad ideas but because displeasing an established industry is incredibly difficult _"I think it is easier in the software space and so this is from where some of this language came from (. . .). But in the world of hardware, there's huge amounts of capital expenditures that have to go into new technology in those cases so you have to have partners. (. . .) So you need to have people with a lot of money and the people with a lot of money are usually not the ones, with the exception of Elon Musk maybe, that are taking a huge risk"	_Maximizing independence from energy grid by integrating solar panels in the surface of the car _Enabling alternative revenue streams for car owners through solar panel integration (offering car for mobility services, generating and storing electricity) _Maximizing sustainability through the use of solar energy, and sustainable vehicle design _Enabling new use cases, such as energy sharing, through technological advancement	_Prioritizing affordability of the electric car through minimalistic design, bidirectional charging capability, small overall dimensions and maximum repairability of most components _Empowering owners to maintain and repair the vehicle through online education, excluding safety-relevant parts _Sacrificing speed for range, thereby promoting sustainable usage patterns	_Using a combination of traditional and community-based financing methods to secure funding, thereby reducing financing costs _Building a strong sense of community to securing financing for concept validation

Note(s): We reported the business models using the concept of value proposition, value creation and delivery and value capture, a widely used conceptualization of the business model e.g. Reinhardt *et al.* (2020)
Source(s): Authors' illustration

Table A2.