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SPECIAL TOPIC FORUM THEORY IN MANAGEMENT RESEARCH

SHAPING POSSIBILITIES: A DESIGN SCIENCE APPROACH TO DEVELOPING NOVEL STRATEGIES

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The goal of strategy is not only to address a given environment, but also to change it to a firm's advantage. In this article, we maintain that design science provides a useful theoretical foundation for understanding the development of novel strategies by shifting strategists' perspective from what is to what could be, from the past and present to the future, and from choosing among existing alternatives to discovering new problems and solutions. We propose a structured process based on design mechanisms, which enables strategists to overcome the impediments to generating novel strategies that have been identified in prior research. The process we theorize integrates (a) strategists' shaping intentions to transform an existing situation into a preferred one, (b) discovery-oriented exploration of problems and solutions based on designing without final goals, and (c) stakeholder dialogue to validate and extend novelty and value. Our ideas extend the micro-foundations of strategy with respect to the generation of strategic foresight and shaping intentions, as well as the work at the intersection of stakeholder strategies and complex societal problems.

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How can strategists systematically develop novel strategies? Strategy researchers have not asked this question as often as one might expect, as concerns about value capture have been more central to the field than concerns about novel value creation (Coff, 2010; Nickerson, Silverman, & Zenger, 2007). For example, Alvarez and Barney (2010: 576) noted that the strategy field has focused on "explaining returns from implementing traditional rational strategies but not on where those strategies come from." Further, when considering this question, research has identified multiple substantial challenges to the systematic generation of novel strategies. First, cognitive limitations arising from bounded rationality limit the ability of strategists to develop cognitively distant insights, to act when such insights emerge, and to persuade stakeholders of the potential value of the novel strategies (Gavetti, 2012). Second, developing novel strategies—like other forms of innovation—involves inherent uncertainty about the value of novel actions and resource combinations (Denrell, Fang, & Winter, 2003; Moeen, Agarwal, & Shah, 2020; Winter, 2012). Finally, decision-centric—as opposed to problem-centric—models of strategy making have emphasized decision-making processes for choosing among existing alternatives, leaving out essential steps of problem finding, problem formulating, and problem-solving (Nickerson & Argyres, 2018; Nickerson et al., 2007).

We propose that design science provides an important theoretical foundation for strategy research seeking to understand how strategists can address these challenges. Design science offers a distinctive approach to knowledge generation that differs from that of explanatory science (Romme, 2003; van Aken, 2005). This distinctive logic was articulated in *The Sciences of the Artificial*, by Herbert Simon (1969: 58–59), as being concerned with "how things ought to be" in contrast to the natural, explanatory sciences that "are concerned with how things are." Design science offers important theoretical principles for strategy making, as changing existing situations into preferred ones is a fundamental goal of strategy (Barney, 1986; Zajac, Kraatz, & Bresser, 2000). Indeed, Simon (1993: 138) observed:

At the most general level, defining the company mission and identifying its sources of comparative advantage are themselves design activities. At a more concrete level, the search for new products, the search for new markets and the interactions of products with markets are all design activities. None of them is simply a matter of choosing among available alternatives; all require discovering and fashioning new alternatives.

As Simon (1993) anticipated, strategy and organizational researchers have incorporated the study of design practices in new product development (Dalpiaz, Rindova, & Ravasi, 2016; Seidel & O'Mahony, 2014), introduction of new technologies (Adomavicius, Bockstedt, Gupta, & Kauffman, 2008; Hargadon & Douglas, 2001), establishing cultures of innovation (Elsbach & Stigliani, 2018; Hargadon & Sutton, 1997), and new business model generation (Amit & Zott, 2015; Demil, Lecocq, Ricart, & Zott, 2015; McDonald & Eisenhardt, 2020). Further, entrepreneurship researchers have applied design science to the conceptualization of entrepreneurial opportunities as "(designed) artifacts" (Berglund, Bousfiha, & Mansoori, 2020; Venkataraman, Sarasvathy, Dew, & Forster, 2012)

Collectively, these studies establish the importance of design practices for generating novelty and value. For example, Hargadon and Douglas (2001) showed how design is used to bridge novelty and familiarity in embedding new technologies within existing institutional arrangements. Demil et al. (2015) highlighted

customer centricity as a source of insight in the design of novel business models, and McDonald and Eisenhardt (2020) linked design practices to the generation and validation of new business models. These studies illustrate Romme's (2003: 564) characterization of the outcomes of design as "requiring non-routine action by agents," because they generate novel interactions and interdependencies. These studies testify to the capacity of design to generate novelty at different levels of analysis. Further, scholars have advocated that strategy making should be understood through a design lens (Boland, Collopy, Lyytinen, & Yoo, 2008; Garbuio, Lovallo, Porac, & Dong, 2015; Porac & Tschang, 2013; Rumelt, 2011).[1] Nonetheless, the strategy field has not systematically articulated how design science mechanisms for knowledge generation could be employed in strategy making to develop novel strategies (Romme, 2003; van Aken, 2005).

In this article, we theorize how design science can inform the development of novel strategies. We submit that a design science approach involves a shift from what is to what could be, thereby shifting the temporal focus of strategists from the past and present to the future. As the future is indeterminate (Alvarez & Porac, 2020; Lachmann, 1976), a temporal focus on the future necessitates imagining possibilities and generating options rather than choosing among existing alternatives. Strategy making therefore requires creative exploration. Further, design science emphasizes that strategies are "interventions" (van Aken, 2005: 23) that can improve existing systems or create new exchange relationships and market conditions. Thus, design involves reordering of interactions and reconfiguration of interdependencies (Dorst, 2015; Rumelt, 2011). A design science approach to strategy making, therefore, requires participatory processes that solicit stakeholder input and buy-in.

We propose a structured strategizing process that captures these distinctive mechanisms and provides a design-centric approach to developing novel strategies. We adopt Nickerson and Argyres's (2018: 592) definition of "strategizing" as "the process by which organizations assess their challenges, opportunities, and situations—as well as conceptualize possible alternative future states," and Rumelt's (2011: 134) definition of a "design-type strategy" as "an adroit configuration of resources and actions that yields advantage in challenging situations." The strategizing process we propose combines change-oriented shaping intentions and exploratory, discovery-oriented actions to generate knowledge about novel possibilities. Intentions guide the selection of the emergent solutions, and the emergent solutions are used to test and refine the knowledge generated, enabling strategists to evolve intentions and solutions based on multi-stakeholder feedback. Our framework articulates how a design science approach supports the generation of novelty while reducing uncertainty about value-creating potential of novel strategies. In this framework, strategists' intentions *and* stakeholder feedback provide complementary, artificial selection mechanisms (Levinthal, 2017; Levinthal, & Warglien, 1999) *during* the strategizing process, in contrast to blind or myopic arm's-length market selection (Alvarez & Barney, 2010; Levinthal & Posen, 2007). Our framework also advances understanding of how strategists can tackle complex, ambiguous, and ill-structured problems (Ferraro, Etzion, & Gehman, 2015; Levinthal, 2011) by combining intentions, exploration, and stakeholder engagement in a structured process.

The significance of our contribution rests on several intersecting areas of inquiry. First, our theoretical framework adds to the micro-foundations of strategy a structured process based in design science, for generating novelty and validating value creating potential in strategy making. We extend the micro-foundations of strategy research by shifting attention from individual-level strategic foresight to meso-level design processes for discovery and creative synthesis. Second, our framework advances strategic cognition research by articulating the role of shaping intentions as a cognitive mechanism that connects imagined possibilities to identifying concrete solutions and courses of action. Intentions provide direction, "means–end

coherence," and a degree of flexibility in future-oriented agency (Bratman, 1981: 260), making them an important construct for understanding how strategists shape their environments and enact preferred alternative states of the world (Gavetti, Helfat, & Marengo, 2017; Gavetti & Porac, 2018; Rindova & Fombrun, 1999). Third, we offer a novel perspective on shaping strategies by theorizing how the coupling of shaping intentions with social design processes gives shape to possibilities by developing novel, actionable, legitimated, and even cocreated strategies that can transform the status quo. We connect Simon's (1996) vision of design as shaping society's options for the future to firm-level strategies focused on value creation. Fourth, we theorize stakeholder dialogue as a means to not only legitimate and gain acceptance for firms' novel strategies, but also to extend their novelty and value through learning and cocreation, which are relevant to research on relational stakeholder theory (Bosse, Phillips, & Harrison, 2009; Bridoux & Stoelhorst, 2016), social value creation (Crilly & Sloan, 2012; Tantalo & Priem, 2016), and platform business models (Ricart, Snihur, Carrasco-Farré, & Berrone, 2020; Uzunca, Rigtering, & Ozcan, 2018).

IMPEDIMENTS TO THE DEVELOPMENT OF NOVEL STRATEGIES

Several strands of research have highlighted the need for a better understanding of how firms develop novel strategies. Such strategies are seen as important for superior firm performance as they introduce novelty in how resources are combined and created (Denrell et al., 2003; Rindova, Dalpiaz, & Ravasi, 2011), move firms away from current competitive equilibria (Gavetti, 2012; Penrose, 1959), and increase firms' capabilities to create and claim value in strategic interactions with buyers and suppliers (Brandenburger, 2017; Cattani, Sands, Porac, & Greenberg, 2018). Further, such strategies increase firms' capacity for "trying" to discover new opportunities, an effort that is valuable even when the strategies are not successful (Schmidt, 2015; Winter, 2012). While the ultimate success of firm strategies depends on many factors, the capacity for trying itself is argued to be valuable because it grows "the fund of variation that selection can draw on" (Winter, 2012: 292).

Strategy researchers agree that novel strategies are important for value creation, but disagree about how such strategies can be developed. Winter and colleagues (Denrell et al., 2003; Winter, 2012) have largely portrayed novelty as an outcome of serendipitous processes. Gavetti (2012: 271), in contrast, maintained that strategists can intentionally develop novel strategies, but identified "severe" behavioral impediments to doing so. Nickerson and Argyres (2018) located the problem in the strategy-making processes themselves, and submitted that a focus on decision-making over problem formulation limits the extent to which strategists explore novel directions. We focus on these three perspectives—among the numerous frameworks that have been developed to conceptualize strategy making (Hutzschenreuter & Kleindienst, 2006; Mintzberg, Ahlstrand, & Lampel, 1998)—because these prominent lines of thought in strategy research identify substantial impediments to the development of novel strategies, while emphasizing their importance.

Citing Schumpeter's (1911/1934: 104) arguments that strategists can envision alternative realities, and not just "draw consequences" from the current ones, Gavetti (2012) advocated for the importance of forming novel, cognitively distant representations of opportunities and strategies to pursue them ("novel strategies" from here on). Such strategies are likely to lead to superior performance as they move firms away from competitive equilibria. However, because cognitively distant opportunities are difficult to envision, strategists tend to search in competitively similar domains (Gavetti, 2012). In this view, bounded rationality, limited plasticity in action, and limited "*persuadability*," or the ability to legitimate novel strategies to external audiences, are key impediments to the pursuit of novel strategies (Gavetti, 2012: 276, italics in

original).

In contrast to this cognitive view, Denrell et al. (2003) and Winter (2012) located the emergence of novel and valuable strategies in serendipitous processes that combine existing and new resources. In their process view, foresight is unlikely, if not impossible, novelty is "cheap," and opportunities that are both novel and economically valuable are "needles in a haystack of mistakes" (Denrell et al., 2003: 981–982). Serendipity is seen as the primary driver of novelty, as, "for firms that discovered path-breaking strategic opportunities, it is likely that they deviated from established practice by necessity or mistake rather than as part of a plan" (Denrell et al., 2003: 287). However, despite their skepticism about ex ante foresight, Denrell et al. (2003) acknowledged the importance of strategic action and alertness, and conceptualized serendipity as a combination of effort, luck, alertness, and flexibility. Therefore, they saw the strategic insight that leads to a novel strategy not in defining the direction of development but in the "alertness [that] is required to recognize the lucky appearance of a new possibility and [the] flexibility [that] is displayed in redirecting the effort" (Denrell et al., 2003: 285).

Emphasizing the importance of problem formulation in strategy making, Nickerson and colleagues (Baer, Dirks, & Nickerson, 2013; Nickerson & Argyres, 2018; Nickerson, Yen, & Mahoney, 2012) proposed a problem-centered approach to strategy making that moves firms toward the discovery of new value streams. This approach "focuses on understanding the problem characteristics and the *corresponding impediments derived from human interactions* concerning the activities of problem formulation, problem-solving, and solution implementation" (Nickerson et al., 2012: 53, emphasis added). Importantly, these activities are impeded by "the strategy field's emphasis on decision-making and decision-theoretic frameworks and tools [that] give short shrift to problem formulation and the design and selection of processes that produce formulations" (Nickerson & Argyres, 2018: 593; also see Garbuio et al., 2015). Attending to these processes is important because the impediments to novelty in strategy making are many, including cognitive, social, and political challenges to incorporating divergent information and reconciling competing and often incompatible understandings of the situation.

In sum, strategy researchers working from different perspectives have recognized both the importance of, and the challenges to, generating novel and useful strategies in the face of complexity and ambiguity. These researchers have also called for the theorization of systematic strategic processes that mitigate these challenges (see Baer et al., 2013; Gavetti, 2012) with an emphasis on enhancing the capacity of strategists to formulate novel problems, imagine cognitively distant solutions, and develop them into actionable strategies.

A SOCIAL DESIGN FRAMEWORK FOR DEVELOPING NOVEL STRATEGIES

Preamble: Foregrounding Social Design within Design Science

Simon (1969: 56) proposed that design is "the principal mark that distinguishes the professions from the sciences." However, he also expressed concerns that its "methods of the cookbook … put design into disrepute and drove it from the engineering curriculum" (Simon, 1969: 80). To build a bridge between the natural sciences and engineering design, Simon (1969: 58) proposed "a science of design" comprising "a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process." The first edition of *The Sciences of the Artificial* (Simon, 1969) outlined the core paradigm for the science of design in engineering and computer science. The subsequent editions of the book (Simon, 1981, 1996; second and third editions, respectively) introduced the notion of "social design" and its distinctive curriculum. The need for a distinctive curriculum arose because "the design tools relevant for

these additional topics are in general less formal," yet "too crucial to the social design process to permit them to be ignored or omitted from the curriculum" (Simon, 1996: 166).[2]

Simon (1996) stressed that social design needs to address the goal ambiguity arising from acting toward an indeterminate future, and the goal conflict arising from the diversity of stakeholder interests with regard to that future. Simon (1996: 163) further proposed that our "limited ability to foretell the future" is inconsistent with the idea of "final goals" and that "what we call 'final' goals are in fact criteria for choosing initial conditions that we will leave to our successors." Viewed from this perspective, the criteria for effective social design emphasize "leav[ing] the next generation with a better body of knowledge and a greater capacity for experience. The aim here is to enable them not just to evaluate alternatives better but especially to experience the world in more and richer ways" (Simon, 1996: 163–164). In this view, social design supports the generation of variation as a valued goal in its own right (Simon, 1996).

To overcome the incompatibility of predefined final goals with such design contexts, Simon (1996: 162) proposed the idea of "designing without final goals"[3] as analogous to problem-solving without goals in science. Simon (1996: 162) stated that "making discoveries belongs to the class of ill-structured problem-solving tasks that have relatively ill-defined goals," and therefore "may also provide the most suitable model of a social design process." He illustrated this ostensibly paradoxical idea with the following example:

For example, when about fifty years ago an extensive renewal program was begun in the city of Pittsburgh, a principal goal of the program was to rebuild the center of the city, the so-called Golden Triangle. Architects have had much to say, favorable and unfavorable, about the aesthetic qualities of the plans that were carried out. But such evaluations are largely beside the point. The main consequence of the initial step of redevelopment was to demonstrate the possibility of creating an attractive and functional central city on this site, a demonstration that was followed by many subsequent construction activities that have changed the whole face of the city and the attitudes of its inhabitants. ... It is also beside the point to ask whether the later stages of the development were consistent with the initial one. … Each step of implementation created a new situation; and the new situation provided a starting point for fresh design activity. (Simon, 1996: 162–163)

We reproduce Simon's (1996) example in detail, as his writing on designing without final goals is sparse, but the example suggests some additional insights that we use to guide our theoretical framework. First, Simon (1996: 162) highlighted the generative potential of design activities to increase novelty and variation in the forms of new situations, new goals, and "fresh design activity." Not having a predefined final goal does not mean absence of intent, as indicated by the idea of a "principal goal" providing the impetus for social design activity. We build on this insight to theorize the role of shaping intentions that direct the process of designing without final goals in the context of developing novel strategies.

Second, social design enables actors to explore multiple possibilities, and to increase variation in both problems uncovered and solutions explored. In this example, Simon (1996: 163) submitted that "each step of implementation created a new situation; and the new situation provided a starting point for fresh design activity." He, thus, emphasized the value of design as a means of increasing variation and optionality. In fact, Simon (1996: 165) explicitly noted that designing without final goals "has much in common with the process of biological evolution" but that "evolution is not to be understood as a series of tournaments for the occupation of a fixed set of environmental niches" but rather as a process that "brings about a proliferation of niches." In the context of the development of novel strategies, this reasoning suggests that the novelty and

variation generated through design enable firms to create new niches and expand the offerings and options available in a given market. As we discuss in our theory development, this reasoning implies that it is important for strategy researchers to better understand the strategic value of variation and option generation, relative to the traditional emphasis in strategy research on selection—that is, decision-making and choice among alternatives (Allison, 1971; Garbuio et al., 2015).

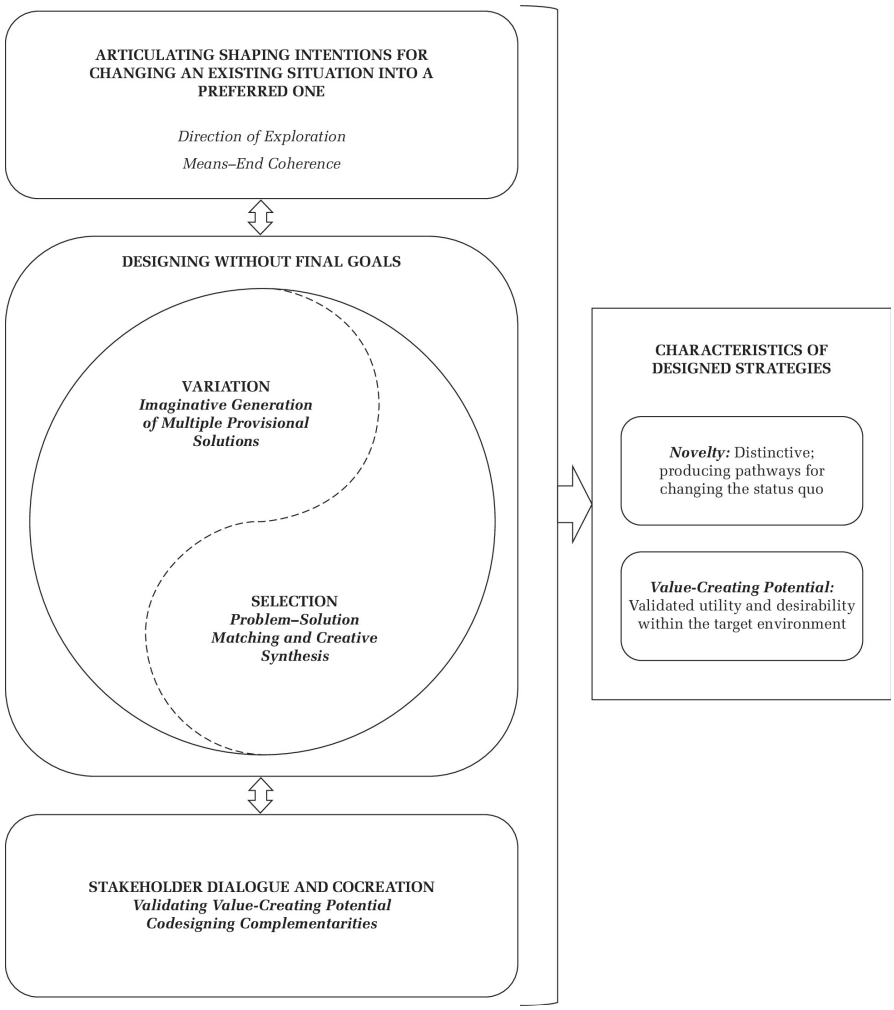
Third, Simon (1996: 153) emphasized that "the members of an organization or a society for whom plans are made are not passive instruments, but are themselves designers who are seeking to use the system to further their own goals." Social design, therefore, should anticipate—and embrace—active stakeholder engagement, as problem representations and solutions depend on the social processes that generate them. Stakeholder participation is important for both representing the problem and for developing and validating solutions (Baer et al., 2013; Romme, 2003). In the context of developing novel strategies, we theorize how strategists can use stakeholder dialogue to enhance the novelty and value of the strategies they are designing. These three principles provide the theoretical structure of our framework, discussed next.

A Structured Social Design Process for Developing Novel Strategies

Building on Simon's (1996) ideas about social design, we propose a structured strategizing process that employs design science mechanisms in the systematic development of novel strategies. Following Baer et al. (2013: 207), we define a "structured strategizing process" as a set of guidelines that direct interactions "to arrive at a desired outcome." In our developed framework, the desired outcome is novel strategies (although, as we describe below, the design process also helps validate their value-creating potential), and the set of guidelines are provided by the mechanisms within the three component processes.

Figure 1 depicts the strategizing process and its three core components. First, *articulating shaping intentions to change an existing situation into a preferred one* provides the impetus for the process, defines a broad direction of exploration, and ensures means–end coherence in the process of designing without final goals. Second, *designing without final goals* encompasses the discovery-oriented, iterative design activities that generate creative variation and enable selection through problem–solution matching. Figure 1 visually emphasizes the integration between variation and selection, as divergent interests and constraints are explored, reframed, and resolved through creative synthesis. Third, designing without final goals is informed by stakeholder dialogue that validates and enhances the strategic value of designed solutions. Thus, the third block of Figure 1 represents the validation and cocreation of novel strategies through *stakeholder dialogue*. This process attends to the interdependencies among actors and the reciprocal interactions between designers and stakeholders in strategic design situations. It casts stakeholders are not only sources of feedback and validation, but also potential cocreators, as they are designers in their own right. The framework further represents the three component processes as a dynamic recursive system, showing the intertwining of strategic intentionality and design-based discovery. The components of the process are expected to work together, as a system, and the extent of alignment among the components, as well as the quality of execution of each, will determine its efficacy. This conceptualization is in keeping with the orientation of design science toward guiding the development of "a general solution to [a] type of problem" (van Aken, 2005: 23). Each strategy-making process is a specific variant enactment, in a given context, of the general process we theorize. The effectiveness of specific enactments will depend on the competence of the professionals involved in the enactment.

FIGURE 1
A Structured Social Design Process for Developing Novel Strategies



The outcomes of this process are two characteristics of designed strategies that prior research has highlighted as being difficult to develop—novelty and validation of value creating potential. Whereas the ultimate effectiveness of this process depends on the specific variants designed by strategists in their contexts, application of the structured strategizing process should increase the likelihood that the strategies designed exhibit these attributes. Importantly, these attributes are the defining characteristics of creative outcomes (Amabile & Pratt, 2016). The structured process we propose, therefore, imbues strategy making with creative rationality—a topic we return to in the discussion section. We elaborate on the specific mechanisms contributing to these creative outcomes next.

Articulating Shaping Intentions to Change an Existing Situation into a Preferred One

The predominant conceptualization of future-oriented strategizing has been subsumed under the term "vision" (Westley & Mintzberg, 1989; Wiltbank, Dew, Read, & Sarasvathy, 2006). While widely used, the notion of vision lacks consistent definitions and clear empirical correlates. Finklestein, Harvey, and Lawton (2008: 5) summarized the issues as follows:

Despite its widespread use, the term vision remains ill defined and inconsistently applied. It has been conceived variously

as a form of charismatic leadership, an approach to scenario planning, a set of organizational values, a logic underlying action, and a projected business image.

As a result, the effects of vision on the development of novel strategies remain under-articulated. Efforts to distinguish visionary strategies from other types of strategies have characterized them as involving high levels of foresight and control, rooted in imagination and strategic projections (Rindova & Fombrun, 1999; Wiltbank et al., 2006), as well as big-picture thinking and long paths of analytical reasoning (Schilling, 2018). In foregrounding future-oriented imaginative strategizing, these frameworks assume that strategists have the cognitive capacities to conjure up high-dimensional problem representations in the face of indeterminate and uncertain futures (Alvarez & Porac, 2020).

These visionary perspectives are countered by the view of strategists as boundedly rational and temporally myopic. For example, Simon (1996: 157) submitted that both our foresight and the importance that we confer to future events "generally drops off sharply with their distance in time." Moreover, "our myopia is not adaptive, but symptomatic of the limits of our adaptability" (Simon, 1996: 157). Kahneman and Lovallo (1993: 25) elaborated that, in seeking to predict the future, strategists anchor in the past and use narrow "inside view" problem framing by "focusing on the case at hand, by considering the plan and the obstacles to its completion." To broaden the problem framing, Kahneman and Lovallo (1993: 25) proposed an "outside view" that shifts the focus away from the case at hand and instead considers "a class of cases chosen to be similar in relevant respects to the present one."

The design science approach we develop reconciles these opposing views by theorizing how shaping intentions combine with designing without final goals and stakeholder dialogue to bring together inside and outside views. It also addresses the concerns about the need for imagining the future in order to create it, while recognizing the constraints of bounded rationality and indeterminacy to doing so reliably (Nickerson & Argyres, 2018; Wiltbank et al., 2006). In contrast to visionary strategy conceptualizations that require high-dimensional problem representations, our framework explains how strategists can initiate the process with relatively low-dimensional problem representations in the form of "shaping intentions." We propose that shaping intentions are low-dimensional problem representations that define a direction for exploration and create means–end coherence throughout the exploration.

Our underpinning logic rests on the philosophy of intentions, which characterizes "intentions" as distinctive cognitive structures, different from beliefs, imaginings, and plans (Bratman, 1981). Specifically, Bratman (1981: 60) stated that an intention is a "representation of how the world is to be as a result of my intervention, a representation which, if my intervention is successful, will be true." This definition is important for strategy research, as it enables the conceptualization of intentions as representing both ends and means—"how the world is to be" in imagined preferred future states as ends, *and* the possible interventions to enact them, as means. Importantly, these representations are relatively abstract and low dimensional. Nevertheless, they reflect one's actual beliefs—that is, knowledge about what might be appropriate and effective interventions. For example, Daniel Schreiber, CEO and cofounder of insurance company Lemonade articulated shaping intentions to transform insurance in stating that, "Before looking into how insurance actually works, we tried to sketch out how we think it ought to work" (Gogel, 2016: para. 10). His team, including behavioral economist Dan Ariely, built on behavioral science about reducing cheating behavior (Ayal, Gino, Barkan, & Ariely, 2015) to develop a novel strategy in the insurance industry. The strategy involves reducing insurance costs by cultivating trust in order to reduce false claims. Sharing

profits with members and inviting them to select charities to donate to are specific design choices intended to solve the trust problem. As this example illustrates, shaping intentions "give shape" to possibilities by defining a direction of exploration and development. Possibilities reflect an actor's imagined "transformation of one state of affairs into another" as well as "a course of action open to him [or her]" (Shackle, 1973: 401). In the enactment of possibilities, intentions are the cognitive mechanism that connects preferred future states to unfolding courses of action.

A well-known example of articulating shaping intentions is Steve Jobs's keynote address at Macworld Expo in 2001 (Jobs, 2001), where he stated that, "the Mac can become the digital hub of our new emerging digital lifestyle, with the ability to add tremendous value to these other digital devices." This low-dimensional representation of a preferred and intended future was enacted through a series of design actions, including the launch of iTunes, announced in the same keynote and the introduction of the iPod nine months later. Of relevance to illustrating the distinction between vision and shaping intentions is the little-known fact that Bill Gates shared a similar possible future a year earlier in a keynote address at the 2000 Consumer Electronics Show (CES).[4] However, whereas Gates shared an imagined future, Apple took the next step and articulated shaping intentions as indicated in the assertion "Let me tell you where we are going" (Jobs, 2001), thereby *defining a direction for exploration and development* that would position the Mac as a digital hub, creating value across multiple digital devices. Apple followed this up with sustained design activities along this vector across a broad set of verticals. One industry observer described Apple's digital hub strategy as follows:

Apple moved quickly into the "digital lifestyle age," adding numerous programs to its portfolio. iDVD and iTunes were announced during the Digital Hub keynote. In 2002, Apple released iPhoto and put all four applications under the iLife umbrella for the first time. Jobs set out for the Mac to become the central place for all things multimedia, and Apple delivered. GarageBand and iWeb were introduced in 2004 and 2006, respectively, adding music and web content creation to the suite of applications. … Integration between the programs became deeper as the individual titles became more powerful. (Hackett, 2015: paras. 6, 7)

The above example illustrates another important aspect of intentions; namely, that they provide "means–end coherence" (Bratman, 1981). While targeting different verticals, Apple's subsequent actions and resource allocations exhibited coherence, captured in the "iLife" framework. The iLife framework coordinated the development of applications for "all things multimedia," while the integration among specific applications increased the value of each, and of the strategy as a whole. Intentions ensure coherence among multiple design activities, thereby supporting the development of a novel strategy that matches Rumelt's (2011: 134) definition of a good, designed strategy as "an adroit configuration of resources and actions that yields advantage in challenging situations." In Apple's case, the challenging situation was the predicted obsolescence of the desktop computer in the connected devices era.[5]

A third important aspect of intentions is that they combine coherence with flexibility in the selection of means, as sub-intentions can be added or removed (Bratman, 2000) as the firm learns about new avenues for value creation and capture, for example. Within the arguments of our framework, the flexible coordination that intentions provide accommodates the variation introduced through designing without final goals and stakeholder input. In this respect, intentions differ from plans, which "typically concern relatively specific courses of action extended over time" (Bratman, 2000: 41). Plans, therefore, are a source of stability in

temporally extended agency, whereas shaping intentions provide direction and means–end coherence without overly constraining the possible pathways and the selection of means.

To summarize, by articulating shaping intentions, strategists can initiate a strategizing process that does not require an upfront high-dimensional problem representation, and instead enables the representation to be constructed through the design process. Articulating shaping intentions defines a direction of exploration and ensures means–end coherence. The ends are neither predetermined nor fixed as they are anchored in knowledge and beliefs that are updated in the process of design. By articulating shaping intentions that provide a direction of exploration for the firm, the industry, or society (Dalpiaz et al., 2016; Gavetti et al., 2017; Levinthal, 2017), strategists create a strategic vector[6] that aligns subsequent choices and actions during the social design process. This directional selection function of intentions comports with the notion of "artificial selection" (Levinthal, 2017), in which intentionality directs an evolutionary trajectory without necessarily controlling it. Intentions are what distinguish artificial selection—and, in our context, the selection of novel strategies generated through social design—from the "pure Darwinian process" of market selection (Levinthal, 2017: 282). This approach not only reduces the demands on strategists' foresight to select the right problem ex ante, but also avoids the cost of foreclosing possibilities that could not have been imagined in the absence of the design processes we discuss next.

Designing without Final Goals

By articulating shaping intentions, strategists define a direction for exploration and provide criteria for coherence. By engaging in *designing without final goals*, they generate the variation through which the space of multiple possibilities is explored and creative novel strategies are formed. Recall that Simon (1996: 163) maintained that variation in itself makes design a valued activity due to its potential to generate "a better body of knowledge and a greater capacity for experience." Simon (1996: 165) however also warned that designing without final goals, "no less than evolution, is myopic" and "short-sighted" if not entirely "blind." Thus, considering primarily social design outcomes at the societal level, Simon (1996: 1967) emphasized variation over selection, stating that an "essential task" for social design is "simply to keep open the options for the future or perhaps even to broaden them a bit by creating new variety and new niches." In this section, we theorize the specific mechanisms of designing without final goals for the development of novel strategies, articulating the mechanisms that generate variation *and* enable selection.

Variation: Imaginative generation of multiple provisional solutions Design theories provide important insights into how designers use forms to concretize abstract ideas, and imagine multiple possible avenues for exploring problem spaces and solutions. Embodiment in form brings detail and context in focus (Boland et al., 2008) and taps into tacit knowledge that would not be accessed without the act of creating a provisional solution in some form (Stigliani & Ravasi, 2018). As architect Sir Richard MacCormac (quoted in Cross, 2010: 32) explained, "What you need to know about the problem only becomes apparent as you're trying to solve it." Design research finds that, indeed, designers explore problems through a series of attempts to create solutions (Eastman, 1970; Lawson, 2005).[7] Representing partial and provisional solutions in form concretizes and deepens problem representations, and helps generate new knowledge (Hargadon & Sutton, 1997; Shearer, 2015; Stigliani & Ravasi, 2012). Embodiment in form captures observations from diverse contexts—technical, social, socio-cultural, and economic—and enables designers to explore multiple types of interactions among them (Lawson, 2005; Romme, 2003). Forms enable designers to surface new problems and deepen understanding of currently considered problems. The identification of critical details

helps them recall relevant knowledge, the relevance of which is revealed only by giving form to the ideas.

By embodying ideas in form—through the creation of material and visual artifacts—designers "give shape" to possibilities and do so repeatedly and in many provisional forms. Design theorists describe how designers use sketching as a means to think at different levels of abstraction simultaneously—about the overall concept and about detailed aspects of its implementation (Lawson, 2005). The low-cost nature and utility of such representations is captured in numerous examples of innovations, strategic initiatives, and even policy strategies sketched on restaurant napkins. A well-known example of such visualization in strategy making is Herb Kelleher's sketch of the possibility of a low-cost, point-to-point airline. On a cocktail napkin, he drew a simple triangle, and asked: "What if we were to create a local airline that connected Dallas, Houston, and San Antonio?" (Cherches, 2020). Examples of more systematic representations of strategic options in form include storyboards, implementation scripts, role-plays, as well as quick and inexpensive prototypes and experiments (Liedtka & Ogilvie, 2011). Embodiment in form supports the generation and discarding of provisional solutions that are created not to solve a predefined problem, but to surface what might be possible, and thus to uncover previously unrecognized problems and options.

Concertizing ideas in multiple provisional forms serves as a mechanism that increases novelty and variation, as it overcomes one of the factors that contribute to "failures of imagination" in organizational settings. As Weick (2005: 426) explained:

Imagination fails in part because organizing favors a related capability, "fancy," and fancy gets mistaken for imagination. This mistake equates imagination with reshuffling remembered experience, and ignores imagination as the joint capability to create new entities which serve as associables and new principles of associating that go beyond mere linear sequencing.

When strategists concretize their ideas in form, as designers do, they create new entities that invite further associations and creations. The form itself is less important than the act of creating new entities that express and sustain imaginative thinking. By concretizing ideas in multiple provisional forms, strategists can engage with multiple mental and enacted variants, which serve as experiments in new ways of associating. Repeatedly experimenting with new ways of associating reveals new principles for associating. The new principles can guide the development of strategies that are not only cognitively distant, but also imaginative, meeting Weick's (2005) criteria for imagination—in that they represent as yet non-existent pathways to value creation and capture, often unify the empirical (discovered in context) and the ideal (articulated in shaping intentions), and extend strategic actions beyond the scope of prior experience.

The novel strategies developed through this process are both imaginatively ideated and empirically grounded in contextual realities. They reflect both flights of imagination and the specific constraints and priorities derived from immersion in the context. The imaginative aspects of novel solutions are iteratively refined for fit with the context; and, conversely, contextual constraints captured in early solutions are revisited and rethought through imaginative experimentation. Novelty, therefore, flows both from the subjective viewpoints of strategists—reflecting their deep knowledge (Kor, Mahoney, & Michael, 2007; Mahoney & Michael, 2005) and their unique theories (Felin & Zenger, 2017; Whittington, 2019) that are reflected in shaping intentions and initial forms—and from the specificity of observations they derive from

immersion in, or closeness to, context.

Selection: Problem–solution matching and creative synthesis Designing multiple provisional solutions enables designers to explore problems and solutions simultaneously (Lawson, 2005; Stigliani & Ravasi, 2012). As the material representations of provisional strategic problems constructed by strategists evolve, they simultaneously provide solutions and raise new questions. Importantly, these processes not only generate variation but also enable selection, as with progressive iterations, relevant aspects of the problem and the effective solutions that address it become more apparent.

Problem–solution matching takes place in the design process, as representations of partial and provisional solutions are discussed, elaborated, revised, and contextualized (Hargadon & Sutton, 1997; Stigliani & Ravasi, 2012). A multiplicity of actors interacting with the visual or material representations generate a multiplicity of relations, interpretations, and new possibilities (Glaser, 2017). Because different actors perceive such representations differently, receiving inputs from diverse actors surfaces diverse viewpoints and accommodates them pragmatically. Incompatibilities among competing views both stimulate novelty, and require redesign and redefinition, which is accomplished through creative synthesis (Harvey, 2014; Poole & Van de Ven, 1989). Previously disparate solutions are combined and synthesized. "Creative synthesis" is an alternative selection mechanism to the selection among competing alternatives in variation selection models of creativity (Harvey, 2014). The idea of creative synthesis builds on research on group collaborations that shows that creative outcomes result from dialectic discussion that integrates diverse perspectives (Hargadon & Bechky, 2006). Creative synthesis accomplishes selection through the dialectical resolution of differences and the creation of synthetic solutions that retain multiple valuable options by synthesizing them (Dalpiaz et al., 2016; Harvey, 2014).

Design theorists similarly maintain that creative synthesis is required to reconcile "the variety of interests —technical, financial, social, aesthetic, etc.—that inevitably have to coalesce around a major project [and thus] designing becomes not just a personal, cognitive process, but a shared, social process" (Cross, 2011: 19–20). Creative synthesis enables designers to avoid a compromise-based incorporation of diverse perspectives to gain the benefits of novelty and legitimacy (that is akin to the process satirized in the expression "A camel is a horse designed by a committee"). Instead, creative synthesis provides the mechanism through which elements of different perspectives are retained and transformed. Further, the retention and transformation of diverse ideas—so that previously unrelated concepts are combined in novel ways—both develops the solutions and *selects* the features, attributes, and pathways that the collective process has identified as viable and desirable. Embodying solutions in form thus improves problem–solution matching and shapes possibilities from abstract ideas into concrete action plans and action patterns. Through this mechanism, social design gives coherence to the complex set of choices that must align in a good, design-type strategy (Rumelt, 2011).

Selection through creative synthesis in this problem–solution matching process goes beyond artificial evolution guided by strategists' intentions (Levinthal, 2017). It incorporates empirically grounded discovery of possibilities that are narrowed by problem–solution matching, which allows both the right problems and the right solutions to emerge. The "rightness" of problems and solutions is defined by means–end coherence constraints of shaping intentions *and* the creative exploration of context. The creativity inherent in the process challenges some initially imagined constraints, as the flexibility of intentions allows for changes suggested by creative solutions. Shaping intentions, therefore, play a guiding role, with few aspects remaining fixed and many novel aspects being uncovered. Consequently, the solutions developed could be

novel and surprising, yet recognized as right, based on coherence with shaping intentions. Importantly, shaping intentions support the willingness to commit resources to further development, and to open the process to a broader range of stakeholders.

How these ideas apply to the development of novel strategies is illustrated in Toyota's efforts to develop a novel strategy for transforming itself from an auto manufacturer into a "mobility" company—an intention it explicitly articulated in 2018 (Toyoda, 2018). In the same year, it also revealed a futuristic design artifact it called the "e-Palette." While the artifact resembles a pleasant-looking, transparent cargo container, Toyota described it as a "fully-automated, next-generation battery electric vehicle designed to be scalable and customizable for a range of Mobility as a Service businesses" (Hawkins, 2018: para. 2). Toyota shared imagined possibilities of deploying it in a variety of connected mobility services ranging from ride sharing to e-commerce and medical clinics. However, the enactment of these possibilities was left to a similarly wide-ranging "e-Palette Alliance" including Amazon, Didi Chuxing, Mazda, Pizza Hut, and Uber (Hawkins, 2018: para. 5). While such futuristic artifacts are often dismissed as "concepts," our framework suggests that they can be understood as provisional solutions designed to enact strategists' intentions and select a viable novel strategy by incorporating the contributions of others. By leaving many of the features and applications open to the design efforts of its partners, Toyota seeks to stimulate new rounds of design activities—by Toyota *and* by its partners. Recognizing the paradoxical nature of its approach to developing its novel strategy in the uncertain future of mobility, President Akio Toyoda (2018) quipped, "Just think how good e-Palette would be at Burning Man" (Hawkins, 2018: para. 4).

Toyota's approach to developing its novel strategies highlights the critical importance of provisional exploratory solutions that allow strategists to converge on viable yet open-ended solutions that have uncovered some, but not all, issues around technology, usability, and value-creation or value-capture tensions (Amit & Zott, 2015; Pitelis, 2009). This approach shows how problem–solution matching combines creative exploration and selection, and affords strategists a selection process that is neither entirely controlled by them, nor left entirely to selection by the market. Instead, it involves vetted provisional solutions that are developed sufficiently to enable others to engage and contribute.

This approach to addressing the ill-defined problems that strategists face differs from received wisdom in strategy about requisite analytical rigor in identifying problems, criteria of merit, and relevant resources. As a solution-based problem-solving approach, it improves problem–solution matching, thereby improving problem formulation to arrive at solving the right problem (Mitroff & Featheringham, 1974; Nickerson & Argyres, 2018). The "rightness" of the problem is discovered and constructed in the process of design, rather than posited ex ante. Thus, solution-based problem exploration reduces the burden of selecting the right problem upfront. Further, embodiment of partial and provisional solutions in form enables strategists to test a large number of options relatively cost-effectively, while iteratively moving toward a well-defined desirable option, which is critical to a good strategy (Kogut & Kulatilaka, 2001; Nickerson & Argyres, 2018). Finally, this solution-based approach to problem-solving suggests that, by forgoing a degree of control over the process, strategists may discover fundamentally novel possibilities, thereby increasing the novelty of their strategies.

The process accommodates both the knowledge of strategists and the gaps in it, as they develop novel strategies in the face of uncertain and indeterminate futures. Strategy researchers have emphasized the importance of experimentation for developing new knowledge under uncertainty (McDonald & Eisenhardt, 2020; Ott, Eisenhardt, & Bingham, 2017). However, experimentation in strategic settings has been

understood from the perspective of scientific inquiry, whereby decision-makers test one or more specific hypotheses (Camuffo, Cordova, Gambardella, & Spina, 2020). Design science, by contrast, suggests experimentation to discover what could be created in order to change what is true today. In other words, design experimentation does not confirm or disconfirm specific hypotheses, but instead creates multiple, variant, provisional solutions. Strategists like Toyoda, who adopt a solution-based approach to problem-solving position their firms to generate multiple acceptable solutions, "each likely to prove more or less satisfactory in different ways and to different stakeholders, such as clients or users" (Lawson, 2005: 44–45). As a result, strategists can explore multiple possibilities with different partners, increasing the potential of novel strategies to create value for different stakeholders, and surfacing new problems and opportunities.

Contextual Validation of Value Creating Potential through Stakeholder Dialogue

Designing without final goals sustains imaginative ideation through closeness to, and immersion in, various aspects of the context. Stakeholders associated with these different contexts—technical, cultural, legal, and so on—are called upon to provide input into development and ideation, as well as ongoing feedback and opportunities to test provisional solutions. This role of stakeholders reflects Simon's (1996) reconceptualization of "the client" in social design being society as a whole, and stakeholders as designers themselves. This reconceptualization suggests that stakeholders could be cocreators of firm's novel strategies and the worlds within which they are to be implemented.

We therefore propose that stakeholder dialogue is a core component process in developing novel strategies. Through stakeholder dialogue, strategists engage in persuasion and learning to validate provisional solutions. Furthermore, they can unearth opportunities to build potential complementarities as stakeholder dialogue opens up vistas into stakeholders' plans, aspirations, and goals (Crilly & Sloan, 2012; Cuppen, 2012). As such, it can address the problem of limited access to the strategizing processes of "others" (Winter, 2018). The goal of stakeholder dialogue is to work actively with stakeholders to gain insights into their intentions and priorities, as well as to shape those based on the novel possibilities that the firm posits in its shaping intentions. In addition, stakeholder dialogue may indicate the need for the firm to alter its shaping intentions, redefine opportunities, or cocreate opportunities with stakeholders. Therefore, we discuss two mechanisms through which stakeholder dialogue promotes novelty and validation of potential value.

First, a process of stakeholder dialogue enables strategists to *validate the provisional solutions* they are developing in the context of target environments for their implementation (Baer et al., 2013; Romme, 2003). For example, the founders of Rent the Runway extensively engaged with stakeholders within their environment, including top designers, potential customers, and IT developers, to actively learn from them about potential demand and supply conditions, which they needed to navigate in their market entry strategy. In doing so, they built critical insights into the market, as well as buy-in from renowned designers such as Diane von Furstenberg who helped legitimate their initially controversial strategy (Eisenmann & Winig, 2011).

The contextual validation of provisional solutions rests on two interrelated processes that have been highlighted in prior design and strategy research: persuasion and learning (Pontikes & Rindova, 2020). These two processes often involve different activities and different organizational units, whereas we suggest that the process of design brings them together. In terms of persuasion, provisional solutions embodied in scenarios, visual simulations, or a specific novel artifact, such as Toyota's e-Palette, can alter stakeholders'

experiences, beliefs, and expectations, thereby facilitating the acceptance of novelty (Hargadon & Douglas, 2001) and the recognition of its value (Rindova & Petkova, 2007). This idea is important in the light of the arguments in prior research that firms may be "substantially bounded in their ability to legitimize new courses of action" and that new courses of action "often require proactive efforts to shape selection criteria for their potential to be expressed" (Gavetti, 2012: 274). In terms of learning, social design provides concrete mechanisms for participatory problem-solving, where stakeholders with different knowledge and perspectives contribute to evolving solutions. These processes, however, may be constrained in scope and participation due to their complex and competitive nature (Baer et al., 2013). Using stakeholder dialogue for collaborative problem-solving and learning can enhance the creative synthesis process and resolve often long-standing contradictions between firms and their stakeholders.

Second, stakeholder dialogue around provisional problems and solutions enables firms and stakeholders to codesign complementarities in their strategies. Proactive dialogue with stakeholders, and the worlds they live in and organize, is conducive to unearthing stakeholder intentions relative to the firm's strategies, and developing relational approaches for joint value creation or cooperative implementation with the focal firm (Bridoux & Stoelhorst, 2016). The orientation a firm adopts toward its stakeholders is a "strong situational cue" that affects stakeholders' models for relating to the firm (Bridoux & Stoelhorst, 2016: 230). This argument suggests that, by engaging in stakeholder dialogue, firms may shape how stakeholders view and respond to a novel strategy. The collaborative processes of social design provide a context for *building complementarities with stakeholder strategies*. We see such opportunities at both ends of the stakeholder spectrum—to enroll stakeholders with complementary interests in collaborative realization of the strategist's shaping intent, or to resolve long-standing contradictions with stakeholders with oppositional interests and agendas (Ricart et al., 2020). On the collaborative side, a supportive or symbiotic relationship may emerge, in part, due to the transformative potential of novel strategies. For example, these strategies may create welcome rearrangements of economic, technological, and social interactions that may have been considered impossible or strategically obstructed (e.g., the level of access to luxury fashion provided by Rent the Runway, or customization of prosthetics by Bespoke). Conversely, in this process, competitive, antagonistic interactions over divergent agendas may be unavoidable. However, by presenting stakeholders with provisional solutions that support communication and learning, social design processes enable dialectic problem reformulation (Cuppen, 2012) or creative synthesis. Where a synthesis is not possible, stakeholder dialogue can equip strategists with a better understanding of stakeholder intentions that can be integrated in the implementation of the novel strategies developed through social design.

When joint value creation is achieved, it can also generate higher levels of novelty based on stakeholders' inputs as well as suggestions about implementation as it might pertain to their contexts. For example, Toyota partnered with the Olympics organization as a pilot context for the e-Palette as a transportation solution. This partnership has identified accessibility as an important issue, leading to the development of an "Accessible People Mover" (OlympicTalk, 2019), a new mobility solution that further enacts Toyota's shaping intentions to transform itself into a mobility services company. Further, stakeholders may originate communications that may also contribute to the persuasive aspects of design based on advocacy and grassroots mobilization in favor of a firm's strategy, although it must be acknowledged that they could also advocate against the firm's strategy (Ricart et al., 2020). Experienced designers routinely reconceptualize systemic relations across multiple stakeholder imperatives, and integrate the perspectives of multiple stakeholders into a coherent design (Shearer, 2015). Problem redefinition could change how

situations are framed and value-added understood and attributed (Cattani et al., 2018). As Bridoux and Stoelhorst (2016: 232) have maintained, firms can affect stakeholder actions and contributions to joint value creation "because managers shape how individual stakeholders relate to the firm and to each other."

DISCUSSION

Strategy researchers have maintained that novel strategies are important for firm performance as they enable firms to move away from competitive equilibria (Gavetti, 2012), regenerate sources of value creation and capture (Nickerson et al., 2007), and create profitable competitive asymmetries (Brandenburger, 2017; Gavetti & Porac, 2018). However, a range of cognitive constraints and social frictions have been identified as impediments that make the development of novel strategies difficult (Denrell et al., 2003; Gavetti, 2012: Levinthal, 2017; Nickerson & Argyres, 2018; Schmidt, 2015). Whereas examples of novel strategies in the business world abound, they tend to be associated with visionary entrepreneurs who transform mundane products into intelligent devices, as Tony Faddell did with the Nest thermostat; who create new dimensions of value, as Howard Schultz did in transforming specialty coffee into an experience; and who break trade-offs embedded in current competitive alternatives, as Elon Musk did by introducing a performance electric car. Further, "entrepreneurial insights" are often emphasized in discussions of "good" (Rumelt, 2011: 77) or "great" (Brandenburger, 2017: 220) strategies, while the systematic processes through which firms can generate them remain undertheorized. This gap has been highlighted by calls for theorizing structured strategizing processes, as "mechanisms that may serve to mitigate the biases plaguing the formulation of strategic problems into value-creating strategies" (Baer et al., 2013: 208).

Responding to these calls, in this article, we asked: "How can strategists systematically develop novel strategies?" We address this question by proposing a structured process based on design mechanisms, which enables strategists to overcome the impediments to generating novel strategies that have been identified in prior research. The process we theorize integrates strategists' shaping intentions to transform an existing situation into a preferred one, a discovery-oriented exploration of problems and solutions based on designing without final goals, and stakeholder dialogue to validate and extend novelty and value. Our ideas offer a new understanding of how strategists can develop novel strategies, both at the level of the overall structured process and at the level of the specific mechanisms of its component processes. Our framework proposes alternative mechanisms to both individual foresight (Gavetti, 2012) and the use of strategy templates (Amit & Zott, 2015) by theorizing a social design process that enriches the foresight capacities of strategists and uncovers new possibilities through immersive inquiry, creative exploration and synthesis, and active dialogue with diverse stakeholders.

Our framework advances understanding of the development of novel strategies by deepening the theoretical links between design science and strategy making (Boland et al., 2008; Garbuio et al., 2015; Porac & Tschang, 2013; Romme, 2003, Rumelt, 2011). First, we foreground the temporal shift from the past or present to the future based on the design science emphasis on transforming an existing situation into a preferred one. We see this shift as requiring strategists to address the indeterminacy of the future (Alvarez & Porac, 2020). Our framework recognizes that the future's indeterminacy generates an expansive space for variation, thereby creating challenges to identifying both the problems that would be most relevant and the solutions that could address them. We theorize how the combination of shaping intentions and designing without final goals enables strategists to explore this variation while relying on shaping intentions to give direction and coherence to the strategizing process.

Second, our framework articulates how design processes, such as embodying ideas in form, and exploring problems by creating provisional solutions to solve them, sustain imaginative thought throughout the strategizing process. We address how strategists can overcome the failures of imagination in organizational contexts in advancing toward an indeterminate future (e.g., Weick, 2005). Specifically, we theorize how embodying provisional solutions in form preserves the concreteness of experience that sustains imagination and enables creative synthesis of diverse viewpoints. Through these mechanisms, the process generates two outcomes that define creativity: novelty and potential value (Amabile & Pratt, 2016). Thus, to develop novel strategies, the process produces procedural rationality that is also creative rationality.

Third, we conceptualize this strategizing process as a participatory architecture involving an expandable set of actors, starting with the strategic leadership team (similar to current models of strategy making; e.g., Baer et al., 2013; Foss, Klein, Kor, & Mahoney, 2008), and extending outward to include designers and stakeholders. We articulate how both novelty and value-creating potential are enhanced by engaging with stakeholders as designers and cocreators. We discuss the implications of these contributions for future strategy research next.

Incorporating Intentions into the Micro-Foundations of Strategy

A distinguishing characteristic of design science is the emphasis on transforming existing situations into preferred ones (Romme, 2003; Simon, 1996; van Aken, 2005). We theorize shaping intentions as a cognitive mechanism that guides such transformations by defining directions of exploration and criteria for action and choice. In our framework, intentions provide the means–end coherence in the creative, exploratory process of designing without final goals. Historically, strategy research has equated design with planning (Mintzberg et al., 1998), as planning brings prospective coherence to actions. Intentions share with planning an orientation toward taking actions, which makes them a directional force in the generation of novel strategies. However, in contrast to planning, intentions do not specify future actions in detail to the same extent that plans do, but instead enable actors to maintain means–end coherence as situations evolve (Bratman, 1981).

Our theorization of shaping intentions offers a starting point for future research on the role of different forms of prospective thought in future-oriented strategizing. One area of research we have pointed to is the link between intentions and exploration of multiple possibilities. Specifically, we have argued how intentions provide an effective coordinating mechanism to preserve strategic priorities while imagining and exploring multiple possibilities. This is a germane area for future inquiry, as *how* strategists connect imagined desirable future states (ends) to means for accomplishing them remains poorly understood (Wiltbank et al., 2006). By focusing actors on identifying means for accomplishing desired states, intentions "have reason-giving force" (Bratman, 1981: 254) that increases commitment to and further planning of specific courses of action. As such, they help strategists fashion possibilities in relation to imagined future states. In an indeterminate future, intentions connect imagination to action by pointing to pathways that are actionable, yet open ended, for further exploration and evaluation. Future research is needed on how shaping intentions should be articulated to both bring into focus actionable means, *and* direct open-ended exploration.

Significant opportunities to advance strategy research exist in examining how shaping intentions affect competitive behavior in dynamic industry environments. We have used several illustrative examples in this article that foreground the importance of shaping intentions under conditions of industry disruption and change. They illustrate how shaping intentions solve core strategic problems by seeking to create a future that looks different from the past or the present, thereby transforming the status quo. For instance, Apple

bucked prevailing thinking in the PC industry in 2001 by articulating shaping intentions to become the hub of the digital lifestyle, thereby departing from "the prevailing order" in "pursuing strategic greatness" (Gavetti & Porac, 2018: 354). Toyota's shaping intentions for "on-demand mobility" reflected a shift in its understanding of competition in its industry, seeing Google, Apple, and Facebook as its new competitors (and collaborators). Pepsi's CEO Indra Nooyi outmaneuvered the Coca Cola Company by articulating shaping intentions in 2010 for strategic renewal defined along three vectors for development—"fun for you," "better for you," and "good for you" (Economist, 2010)—that sparked a range of innovations and drove superior performance. These examples provide some initial intuition for future research addressing the competitive implications of shaping intentions as defining a strategic direction that both responds to *and creates* industry disruption and transformation.

Future research on shaping intentions is also of relevance to understanding the differences between social design and emergent strategies. Emergent strategies enable strategic change and renewal through bottom-up exploratory processes (Burgelman, 1983; Mintzberg, 1978). In this respect, emergent strategies are similar to social design processes, leveraging immersion in context to discover novel trajectories of action (Burgelman, 1983). However, they do so primarily through local problem-solving. As Mirabeau and Maguire (2014: 1203) observed, Mintzberg's (1978) original conceptualization of "emergent strategy" characterized it as a pattern that emerges through "autonomous behavior resulting from local problem-solving" actions "despite or in the absence of intentions." In contrast, our theory suggests that shaping intentions direct problem-solving in a way that multiple problem-solving efforts could build on one another, and cumulate into progressively more validated novel solutions. Future research should consider how local problem-solving could connect to such design processes. More generally, future research would benefit from examining how emergent strategies and social design processes may complement each other in the discovery of problems through local problem-solving and creative exploration directed by shaping intentions.

The Creative Rationality of Design-Based Strategizing

The strategizing process we theorize takes into account Simon's (1996) argument that social design is a collective process, and that problem representations themselves are an outcome of the organizational arrangements that produce them. Our framework addresses repeated calls in strategy research for the theorization of structured strategic processes through which strategists can overcome the impediments arising from bounded rationality and divergent viewpoints (Baer et al., 2013; Gavetti, 2012). For example, Gavetti (2012: 268) observed that the purposeful design of structured processes can help strategists "reliably manage" the development of cognitively distant strategies. Baer et al. (2013: 197) made a similar argument and developed a theoretically deduced process of "collaborative structured inquiry" to improve problem formulation in strategy-making teams. These studies bring into focus the design and use of structured processes that spell out intermediary steps, or subprocesses, that reliably enhance the desired outcomes (Baer et al., 2013).

Structured processes, we argue, give primacy to structured interactions over individual cognitive processes, where "the micronature of these mental processes and the sociostructural context in which they occur [can] be understood jointly" (Gavetti, 2012: 278). As this AMR Special Topic Forum addresses the need for examining the theoretical foundations of management research, we see an opportunity for strategy research to accord greater attention to meso-level, normatively designed structured processes that enable strategists to better address the complexity and ambiguity of strategic situations. Such a proposal is

consistent with a design science approach that can guide the theorization of processes that could or should exist, even if they are not yet observed "in the wild."

Another argument for focusing on structured strategizing processes is that they may provide an organizational-level analog to individual procedural rationality. In keeping with Simon's (1976: 76) arguments that "procedural rationality depends on the process that generated it," we suggest that the process we theorize generates procedural rationality that is also creative rationality, as its outcomes are essentially the outcomes that define creativity and potential value (Amabile & Pratt, 2016). The notion of creative rationality is associated with the works of Dewey (1922) that proposed that creative rationality involves exploration of potential actions in imagination. Specifically, Dewey (1922: 190) proposed deliberation as a reasoning process for creative exploration, involving "a dramatic rehearsal (in imagination) of various competing possible lines of action." Rehearsal in imagination allows individuals to experiment to find out "what the various lines of possible action are really like" (Dewey, 1922: 190). As we discussed, the process of designing without final goals involves functionally similar imaginative experiments, with the important distinction that embodying provisional solutions in forms makes imaginative experiments available for elaboration, creative synthesis, and cocreation—within the firm and with stakeholders. The mechanisms of designing without final goals therefore accord the advantages that Dewey (1922) associated with individual creative rationality; namely, exploring and experimenting without consequences, to discover and embrace new ends and means. In addition, the creative rationality in the strategizing process we theorize is enhanced by the contributions of multiple and diverse actors. We see vast opportunities for future research on creative rationality as a strategic and organization-level construct.

Engaging Stakeholders as Designers and Cocreators

The third contribution of our framework is to propose a strategizing process that involves an expandable set of actors, according a significant role to stakeholders as designers and cocreators. Strategy research has long been concerned with how firms interact with stakeholders but has often focused on them as exogenous influences that function as evaluative audiences, such as sources of institutional rules (Kacperczyk, 2009), resource dependence (Pfeffer & Salancik, 1978), and stakeholder activism (Ricart et al., 2020). Recent work on relational stakeholder theory has critiqued this "outside-in" focus and has called for the development of "inside-out" approaches whereby the firm defines strategically how it engages with its stakeholders (Bridoux & Stoelhorst, 2016; Crilly & Sloan, 2012; Rindova & Fombrun, 1999). Our framework contributes to this inside-out view by spelling out how social design processes can be used to bring stakeholders into the strategizing process.

The process we theorize comports with Ferraro et al.'s (2015: 374) concept of "participatory architecture," defined as "structure and rules of engagement that allow diverse and heterogeneous actors to interact constructively over prolonged timespans." Consistent with this idea, we theorize that social design affords strategists the flexibility to invite different categories of actors to participate in different aspects of the process. For example, firms can develop varying combinations of internal design capabilities, stable stakeholder interfaces, as well as market contracts, depending on their strategic goals, the nature of technologies employed, and competitive contexts more broadly. In the process, they can leverage participatory design practices, which range from consultative initial inputs to coproduction, wherein responsibility for the design outcomes are shared (Dorst, 2015). We recognize that including stakeholders in the strategizing process can compromise secrets and may be detrimental in adversarial situations. However,

it is important for future research to not assume that secrecy is necessarily a source of advantage, as it can also present obstacles to effective strategizing. For example, using the process for developing novel strategies that we propose can help overcome the inherent opacity at interfaces with stakeholders due to lack of access to the strategizing processes of stakeholders (Winter, 2018).

To help clarify these trade-offs, future research on how firms govern and organize the contributions of stakeholders in social design processes will be valuable. More broadly, such research will advance our understanding of the effectiveness of social design in different strategy-making approaches—for example, inside out versus outside in, top down versus bottom up, inclusive versus adversarial—as well as new approaches that emerge in ecosystems and platform business models. For example, platform business models problematize the distinction between insider and outsider stakeholder audiences, as they rely on direct contributions from outside stakeholders for the generation of their value propositions (Ricart et al., 2020). As such, they are expected to develop inclusive value propositions and other forms of interactions that support formal and informal collaboration and support. Also, work on emerging coalitions around sustainability (Dorobantu & Odziemkowska, 2017) and participatory architectures for addressing grand challenges (Ferraro et al., 2015) points toward specific forms of organizing for codesign and cocreation processes.

Additionally, a central component of our framework is stakeholder dialogue, reflecting Simon's (1996) ideas about society as "the client" in social design and of users as designers themselves. We have theorized how stakeholder dialogue increases stakeholders' receptivity to the firms' strategies (the issue of persuadability), as well as improves the strategies themselves (the issue of learning). Further, by according users—and stakeholders more broadly—the role of designers, we extend thinking about their role beyond legitimation to include cocreation. Stakeholder dialogue, we submit, enables firms not only to receive feedback and validate specific strategies, but also to cocreate and codesign with stakeholders. This conceptualization of stakeholder involvement addresses some limitations of the "human-centered" definition of design in design thinking toolkits that has been critiqued for focusing "strategic attention too much on a human-centered approach to the neglect of other strategic issues" (Elsbach & Stigliani, 2018: 2300). These authors suggest that "future research should examine how managers may include any number of broader strategic goals, beyond human-centeredness, in problem-solving guided by design thinking" (Elsbach & Stigliani, 2018: 2300). Our framework provides a direction for future research to address this issue, by examining how different stakeholders are given opportunities to contribute to firms' novel strategies by participating in the social design process.

Stakeholder participation, we note, may come at a cost. For example, strategists must navigate a vast amount of inputs from a range of stakeholders. In ill-defined situations, knowing the relevance and quality of inputs may be difficult, and the difference between valuable and counterproductive directions may not be apparent. Our reasoning is that, by recognizing that stakeholders are designers themselves, firms can seek opportunities to codesign complementarities with stakeholder strategies, as illustrated by the example of Toyota's novel strategy for mobility. This idea opens up an important direction for research on both stakeholder relations and the development of novel strategies. We expect considerable variation in the extent to which firms can design such complementarities based on the firm's "relationship to society" (Crilly & Sloan, 2012: 1174), pre-existing stakeholder relations (Bridoux & Stoelhorst, 2016), and its own level of design-related knowledge and capabilities (Dalpiaz et al., 2016; Rindova et al., 2011), all of which present fruitful directions for future research.

Potential Challenges and Boundary Conditions

As several scholars (e.g., Alvarez & Barney, 2010; Nickerson et al., 2012) have maintained, the strategy field excels in understanding how firms capture value and exploit opportunities, but has developed limited knowledge about how firms create them. That is not surprising, as the strategizing process is fraught with the challenges of ill structuredness, complexity, and uncertainties about reconfiguring interdependencies (Ferraro et al., 2015; Kacperczyk, 2009; Levinthal, 2011; Nickerson et al., 2012). The framework we have proposed seeks to address these challenges through the use of a structured social design process. This process presents a general solution to the problem of developing novel strategies, the specific variants of which are enacted by strategists in context (Romme, 2003; van Aken, 2005). Whereas we have articulated the mechanisms that underpin the effective enactment of the process, we also wish to highlight some potential implementation challenges.

First, whereas design thinking has gained popularity and a degree of legitimacy with senior leadership, its adoption has focused on specific design techniques, used primarily for product and service redesign (Elsbach & Stigliani, 2018). Without an understanding of how design could be connected to firm strategy, which stakeholders should be involved, and how their participation should be organized, the process is unlikely to contribute to the development of novel strategies. As a result, strategists may "go through the motions" without generating novelty and value-creating potential, leading them to dismiss the role of design in strategy making. We emphasize that strategizing using social design requires higher levels of personal involvement, tolerance for ambiguity and open-endedness, as well as comfort with creative friction and lack of hierarchy, than are typically observed in companies (Dyer, Gregersen, & Christensen, 2010). Second, the process we propose may lead the firm in directions that stretch its existing capabilities and require costly investments, as well as the adoption of new practices (Dalpiaz et al., 2016; Rindova et al., 2011). This need can create internal frictions about goals, norms, appropriate means, and firm identity. Third, design-based strategizing requires immersion in multiple, heterogeneous contexts, including technological, cultural, social, and economic domains (Lawson, 2005). However, firms may employ routines and norms that favor familiar knowledge domains over new ones, and epistemically similar domains (e.g., science and technology) over epistemically distant ones (e.g., humanities) (Romme, 2003). To the degree that strategists apply the framework without changing existing norms, they may end up emphasizing plans instead of articulating intentions, prioritizing knowing over imagining, and ultimately seeking to make decisions rather than formulate and solve problems. Fourth, strategists may default to asserting managerial authority in seeking to evaluate and select solutions, instead of trusting and accepting the outcomes of dialectical resolution through creative synthesis. This is more likely to occur when strategists lack the personal involvement and commitment to the entire process and its creative rationality.

As design science is based on different assumptions from those underpinning the rational–analytical models predominant in strategy research (Gavetti & Rivkin, 2007), we also note some key potential boundary conditions of our framework. First, as shaping intentions are required for initiating the social design process, the framework assumes that strategists are desirous of generating transformative change. Thus, we have argued that the articulation of shaping intentions to transform an existing situation into a preferred one is a pre-condition for using social design as a strategy-making process. Further, we theorize that intentions reflect strategists' true beliefs about the desired future state and appropriate means to achieve it. The extent to which strategists have such means in the form of organizational resources (Kor & Mahoney, 2004; Penrose, 1959), supportive corporate boards, or other institutional arrangements likely plays an important role. For example, Nooyi's ability to enact her shaping intentions critically depended on support

from PepsiCo's board of directors. In addition, she and her senior leadership team trained in design methodologies as part of creating the philosophy and expertise necessary to translate her shaping intentions into specific strategies (Ignatius, 2015). Future research on the relative importance of enabling means versus constraints will improve our understanding of the conditions under which strategists can benefit from using social design to develop novel strategies or pursue transformative change.

Second, we expect that the framework will be more effective in the development of novel strategies in contexts characterized by ill-defined, ill-structured problems (Levinthal, 2011), than in contexts characterized by "problems having clear-cut and limited goals" in which engineering design may be more appropriate (Simon, 1996: 150). In prior research, contexts of the former type are associated with nascent industries (McDonald & Eisenhardt, 2020), grand challenges (Ferraro et al., 2015), far futures (Augustine, Soderstrom, Milner, & Weber, 2019), and entrepreneurship (Berglund et al., 2020; Venkataraman et al., 2012). However, the current pervasive disruption due to a variety of environmental, social, medical, and political trends suggests that strategists will increasingly face problems that are ill defined, rapidly changing, and increasingly "wicked" in a variety of industries (Garbuio et al., 2015). These changes suggest that firms across a variety of industries will have to grapple with the type of problems that can be addressed with our framework, providing opportunities for future research to explore the broader applicability of the framework.

Third, the efficacy of the social design process for developing novels strategies may be affected by the power dynamics and contestations within the external and internal stakeholder contexts of the firm. Since social design requires collaboration with external stakeholders and other actors, our framework may not be suitable in contexts where secrecy is of paramount importance. Additionally, strategizing without final goals may face challenges from internal stakeholders, if seen as competing with internal innovation systems, resulting in power struggles, reputational risks, and implementation failures. Thus, whereas the idea of strategy making "without final goals" is often recommended for start-ups (Wiltbank et al., 2006) and celebrated in the culture of pivots (Hampel, Tracey, & Weber, 2020), it may be scorned in contexts where firms are subject to established performance expectations (Benner & Ranganathan, 2012). Understanding how organizational and institutional arrangements enable or hinder the social design process will provide important contextualization regarding the effective variants of the general process we propose.

CONCLUSION

In this article, we have proposed a structured process that represents a "designerly way" of strategy making—one guided by shaping intentions, employing processes of designing without final goals for broad exploration and creative synthesis of diverse viewpoints, and engaging stakeholders as designers in their own right. We hope that our framework provides a foundation for a broader incorporation of social design as a paradigm for developing novel strategies that can effect transformative change. As the strategy field continues to deepen its theoretical foundations, we postulate that greater incorporation of design science could strengthen our theories of strategic creative agency. Such theories can advance research and practice about the role of firms in driving transformative change, and in addressing some of the most vexing challenges for their industries and society at large.

FOOTNOTES

1. For example, Garbuio et al. (2015: 452) maintained that design and strategy are "analogous domains as they both deal with ill-defined, wicked problems," and Porac and Tschang (2013: 253) stated that "'design' should be as central to theories of management as 'decision.'"

2. We note that the distinction Simon (1996) sought to emphasize has often been either overlooked or blurred (Huppatz, 2015). For example, recently, Berglund and colleagues (2020: 8, italics in original) stated that, "from the perspective of the sciences of the artificial (Simon, 1996), all design is structurally similar in that it concerns the *interface* between *inner* and *outer* systems, where design is defined as the gradual development of an artifact that is made to fit and therefore connects the two." This statement provides a useful generalization, but blurs the critical distinction that Simon (1996) emphasized.
3. Simon (1996: 164) recognized that "designing without final goals" might appear to be "a contradiction in terms" as "the very concept of rationality implies goals at which thought and action are aimed."
4. Gates stated, "For the first time, people will access over the Internet their favorite music, books, videos, and friends and family from their homes, cars, offices, malls and even outdoors. People will be able to choose from any number of devices for access to television shows, electronic messages and videoconferencing, and for streamlining mundane household tasks" (Microsoft Corporation, 2000).
5. Whereas, in the case of Apple, the close integration between its shaping intentions and design activities rested on its idiosyncratic resources of strong design capabilities, we do not see the possession of such resources as a necessary condition for the coherence function of shaping intentions in developing novel strategies.
6. We thank an anonymous reviewer for suggesting this term and conceptualization.
7. For that reason, design is often characterized as a solution-based approach to problem-solving (Lawson, 2005).

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