How design practices assist new venture teams in creating entrepreneurial opportunities

KLENNER Nico Florian*; GEMSER Gerda and KARPEN Ingo

RMIT University, Australia
* Corresponding author: nico.klenner@rmit.edu.au
doi: 10.33114/adim.2017.82

Research at the intersection of business and design has focused extensively on examining the importance of design for innovation. In this conceptual article, we explore the less considered topic of design for entrepreneurship. We start from the premise that there are similarities in the context in which designers solve problems and entrepreneurs create opportunities and that designers enact certain routinized ways of working that may enable the creation of entrepreneurial opportunities. The main contribution of this article is that we propose a conceptual framework and formulate six propositions depicting the ways in which design practices can enable three antecedents of successful opportunity creation: the ability to generate ideas, the ability to change opportunity beliefs, and the ability to take action.

keywords: design practices; opportunity creation; design; entrepreneurship

Introduction
In entrepreneurship practice, we have observed the rise of an interesting and important phenomenon: designer co-founded new ventures. The emergence of this phenomenon is evidenced by numerous examples of designer co-founded ventures that achieved exceptional business success. One of the most prominent examples of a company exhibiting success under the reign of a designer co-founded team is AirBnB, which was co-founded by two design graduates who met at Rhode Island School of Design: Joe Gebbia and Brian Chesky; and Nathan Blecharczyk, a technical co-founder with a degree in Computer Science. Through building an online peer-to-peer accommodation marketplace to connect hosts and travelers, AirBnB’s founding team created an entrepreneurial opportunity that resulted in outstanding commercial success and a valuation of USD 30 billion (Newcomer & Huet, 2016).
The effectiveness of designer co-founded ventures is evidenced by a recent report which states, that 21% of startups across all sectors with a valuation exceeding one billion US dollars have co-founders who have embraced design or come from a design, arts, or human-centred background including architecture, design, music, visualisation, fine arts or media arts (Maeda, 2016). These developments have been recognized by actors in the startup ecosystem, and various support initiatives were established, such as specialized incubators and accelerators, educational programs for entrepreneurial designers and venture capital funds appointing designers to their management teams. Notable examples are Designer Fund, a venture fund specializing in startups co-founded by designers and 30 weeks, an incubator helping designers to transform into founders. But also more traditional actors in the venture capital sector have entered the space and appointed partners with design expertise: for example, John Maeda, former President of the Rhode Island School of Design with Kleiner, Perkins, Caufield and Byers and Irene Au, formerly heading design teams at Google and Yahoo, with Khosla Ventures.

Paralleling practitioner interest in exploring the intersection of design and business, interdisciplinary research involving the two fields has been embraced by academia. Especially innovation literature increasingly acknowledges that design can be an effective approach for innovating (e.g., Brown, 2008, Brown, 2009; Calabretta & Gemser, 2015; Brown & Martin, 2015; Kolko, 2015; Yoo & Kim, 2015; Verganti, 2013). Although there are many parallels between innovation and entrepreneurship (Bessant & Tidd, 2007) and even though the likely contribution of design for entrepreneurship has been suggested in the design literature (e.g., Gunes, 2012; Hirsch, 2012; Matthews, 2009; Matthews, Bucolo & Wrigley, 2011; O’Grady, 2012), research at the intersection of design and entrepreneurship remains underdeveloped, and insight on designers’ contribution to entrepreneurship is lacking.

While there is prior practical and academic evidence that suggests that design and entrepreneurs’ design expertise might play an essential role in entrepreneurship, there remain a wealth of unexplored aspects of the phenomenon offering an opportunity to study the processes enabling the phenomenon’s emergence. This study takes a first step at discerning the possible contribution of design to entrepreneurship by examining how design practices can facilitate the successful creation of entrepreneurial opportunities. Prior research suggests that designers engage in certain design practices (‘ways of doing’) for problem-solving that are distinct from more traditional problem-solving approaches (e.g., Calabretta & Gemser, 2015; Karpen, Gemser & Calabretta, 2017). Solving design problems and creating entrepreneurial opportunities both require individuals to navigate in situations characterized by uncertainty, ambiguity, and isotropy (Buchanan, 1992; Sarasvathy, 2001, 2008). These parallels suggest that routinized design practices not only aid designers in solving design problems but may also assist new venture teams in creating entrepreneurial opportunities. As a consequence, applying design practices might impact entrepreneurs’ efficacy in developing entrepreneurial capability, which is defined as ‘the ability to identify a new opportunity and develop the resource base needed to pursue the opportunity’ (Arthurs & Busenitz, 2006, p. 199).

In this conceptual paper, we examine more in-depth how design practices might inform the successful creation of entrepreneurial opportunities. To do so, we build on extant
literature in the field of innovation and design (e.g., Calabretta & Gemser, 2015; Karpen, Gemser & Calabretta, 2017) and in the field of entrepreneurship (e.g., Alvarez & Barney, 2007; Gaglio & Katz, 2001; Sarasvathy, 2001; Sarasvathy, 2008; Sarasvathy et al. 2003). Following Alvarez and Barney (2007), we make a conceptual distinction between opportunity discovery and opportunity creation and propose that the enactment of design practices will be particularly useful for opportunity creation.

In what follows, we present the findings of our literature review and develop a conceptual framework depicting how design practices may be applied in opportunity creation. We propose several ways how the enactment of design practices might inform the ability to create opportunities and explain under which circumstances these design practices will be most effective. Finally, we discuss how our framework might be tested and explore its implications for future empirical studies on design in entrepreneurship.

**Literature review**

*Perspectives on entrepreneurial opportunity*

In the entrepreneurship literature, the ability to identify entrepreneurial opportunities is regarded as one of the most important abilities of entrepreneurs (Ardichvili, Cardozo & Ray, 2003) and in the past significant scholarly attention has been placed on the study of opportunity identification (e.g., Ardichvili, Cardozo & Ray, 2003; Gaglio & Katz, 2001; Eckhardt & Shane, 2003; Shane & Venkataraman, 2000). Some authors even argue that opportunity identification represents the most distinctive and fundamental of entrepreneurial behaviour (Gaglio, 1997; Kirzner, 1979; Stevenson & Jarillo, 1986; Venkataraman, 1997) and suggest that a better understanding of the ways in which individuals identify opportunities and exploit opportunities might distinguish the domain of entrepreneurship research from the domains of strategic management, economics, and other social science disciplines (Venkataraman, 1997). One of the fundamental questions in this line of research has been "why, when and how some people, and not others, discover and exploit opportunities" (Shane & Venkataraman, 2000, p. 218).

There is an ongoing debate among entrepreneurship scholars about classifying different ways in which opportunities are identified. For example, DeTienne and Chandler (2004) distinguish four ways in which opportunities are identified; active search, passive search, fortuitous discovery and opportunity creation. Another classification comes from Sarasvathy and colleagues (2003), who make a distinction between opportunity recognition, opportunity discovery, and opportunity creation. A simpler, yet popular distinction comes from Alvarez and Barney (2007), who distinguish between two opposing theoretical streams: opportunity discovery and opportunity creation.

According to Alvarez and Barney (2007), the opportunity discovery perspective and the opportunity creation perspective differ along three central assumptions. Firstly, both perspectives follow different theoretical assumptions concerning the nature of opportunities. While the opportunity discovery perspective assumes that opportunities exist independent of entrepreneurs, the opportunity creation perspective assumes that opportunities do not exist independent of entrepreneurs. Hence, there is a conceptual distinction between ‘discovering’ objectively existing opportunities; for example through offering new products and services to an existing market, and ‘creating’ opportunities, for
example through establishing entirely new markets by anticipating changing customer needs. Secondly, both perspectives follow different assumptions concerning the nature of entrepreneurs. While the opportunity discovery perspective assumes that entrepreneurs differ in some important ways from non-entrepreneurs and these differences exist ex-ante, the opportunity creation perspective assumes that entrepreneurs may or may not differ from non-entrepreneurs ex-ante, and that differences may emerge ex-post. This distinction has a fundamental impact on research design. While research following the opportunity discovery perspective often examines the individual entrepreneur as the unit of analysis, research following the opportunity creation perspective is rather interested in the processes entrepreneurs follow. Thirdly, each perspective follows different assumptions concerning the nature of the decision-making context. While the opportunity discovery perspective assumes that entrepreneurs make decisions in a decision-making context characterized by risk, the opportunity creation perspective assumes that entrepreneurs make decisions in a decision-making context characterized by uncertainty. While ‘true uncertainty’ presents itself as a phenomenon that is unmeasurable and is experienced in situations in which one lacks the necessary information to predict odds accurately, ‘risk’ has been defined as a type of uncertainty that is susceptible to measurement and is experienced in situations in which we can convert given information into an effective certainty (Knight, 1921).

Given the ontological assumptions of the two perspectives, we propose that the application of design practices can be effectively studied when assuming an opportunity creation context. Thereby, we will focus our theorizing on the opportunity creation perspective. In the opportunity creation perspective, entrepreneurial opportunities are defined as: (1) New ideas or inventions that may or may not lead to the achievement of one or more economic ends that become possible through those ideas or inventions; (2) Beliefs about things favourable to the achievement of possible valuable ends; and, (3) Actions that generate and implement those ends through specific (imagined) new economic artifacts (the artifacts may be goods such as products and services, and/or entities such as firms and markets, and/or institutions such as standards and norms) (Sarasvathy et al., 2003, p. 143). Given this definition of entrepreneurial opportunity, the application of design practices should help new venture teams to achieve three outcomes; (a) generate ideas or inventions; (b) change beliefs favourable to the achievement of possible valuable ends, and (c) take action to generate and implement these ends through (imagined) new economic artifacts.

In what follows, we will introduce the concept of design practices and discuss how certain design practices might be applied to the opportunity creation process and aid new venture teams to generate ideas, change beliefs, and take action.

Design and design practices
While design’s growing contribution to business has been recognised (Liedtka & Ogilvie, 2011) and design thinking has become a ‘hot topic’ in the management literature (Brown & Martin, 2015; Kolko, 2015; Yoo & Kim, 2015), research exploring the potential synergies between design and entrepreneurship is relatively light and the specific contribution of the design process and designers role in entrepreneurship remain largely unknown. This is rather surprising, as design science has been influential on entrepreneurship theory
through the emergence of the opportunity creation perspective (Sarasvathy, 2003) and
effectuation theory (Sarasvathy, 2001, 2008), which consider effectuation theory to be ‘at
heart a theory of design’ (Sarasvathy, 2004, p.522). Opposed to other theories in the field,
in effectuation theory firms are seen as artifacts (Simon, 1996), and thereby
entrepreneurship can be studied as a science of the artificial (Sarasvathy, 2004). Sar
asvathy (2004) further suggests ‘the existence of a maker’ (p. 529) who creates firms in
a context of uncertainty where neither means nor ends are predetermined.
Entrepreneurship, as seen from the perspective of effectuation and entrepreneurial
opportunity creation, has many similarities to the context designers often navigate in
when solving problems. Entrepreneurs often deal with situations closely related to a
concept resembling a distinct sort of problems often addressed by designers and thereby
well-grounded in the design literature: wicked problems (e.g., Buchanan, 1992). Wicked
problems are a “class of social system problems which are ill formulated, where the
information is confusing, where there are many clients and decision makers with
conflicting values, and where the ramifications in the whole system are thoroughly
confusing” (Churchman, 1967, p. B-141). In the opportunity creation perspective,
entrepreneurial opportunities are created through abductive reasoning processes
(Sarasvathy et al., 2003). Abductive reasoning has also been identified as a fundamental
characteristic of design and design thinking (Dorst, 2011). Dorst (2011) refers to abductive
reasoning as the answer to design challenges that require a reasoning mode aimed at
creating value through identifying relevant means and working principles, neither of which
are given at the start of the process. These concepts relate back to philosopher Peirce
(1934) who distinguished between three reasoning modes: “Deduction proves that
something must be; induction shows that something actually is operative; abduction
merely suggests that something may be” (p. 171).
While research on the outcomes of design and design as a process or method for problem-
solving in an organizational context has been around for a relatively long time, research on
design practices and how these designerly ways of doing affect outcomes, is relatively
recent (e.g., Calabretta, Gemser & Karpen, 2016; Karpen, Gemser & Calabretta, 2017).
Karpen and colleagues (2017) studied how service design can be leveraged in
organizations, and they proposed a capability-practice-ability portfolio, delineating firm-
level capabilities, individual abilities and six interactive design practices that contribute to
the strategic use of service design in organizations. According to Karpen and colleagues
(2017), the application of design practices (i.e. actions) is enabled by individual’s design
abilities, which can be seen as conditions for such action. Further, designers’ abilities and
design practices are the foundations of firm-level design capacity.
We will use the design practices as identified by Karpen and colleagues (2017) to form the
theoretical frame for this study as these design practices seem to cover a broad spectrum
of designerly ways of doing. This list of design practices supporting our theorizing is
illustrative, rather than exhaustive and allows us to illustrate how design practices can
impact each of the three antecedents of opportunity creation.
The six design practices identified by Karpen and colleagues (2017) are the practice of
e envisioning, the practice of representing, the practice of condensing, the practice of
reframing, the practice of aligning with brand values and the practice of bonding. The
practice of envisioning (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in
creating future scenarios and using these as departure points for developing design solutions and future experience settings. The practice of representing (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in identifying and prioritizing the needs of relevant stakeholders, especially customers, giving primacy to human desirability over feasibility and viability considerations. The practice of condensing (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in structuring, summarizing, and synthesizing information and thereby connecting the dots between important design elements. The practice of reframing (Calabretta & Gemser, 2015; Karpen, Gemser & Calabretta, 2017) describes designers’ efforts to frame a problematic situation in new and interesting ways, by the adoption of new frames for interpreting the situation. The practice of aligning with brand values (Karpen, Gemser & Calabretta, 2017) refers to designers’ efforts to align their design with brand values. The practice of bonding (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in establishing a comfortable and relational psychosocial context for constructive interaction and ideation.

In what follows, we suggest that all six design practices may be applied by new venture teams and we make several propositions on how specific design practices might aid entrepreneurs to generate ideas, change opportunity beliefs and take action on an opportunity.

**Conceptual model**

The main contribution of this paper is that we propose six ways in which design practices can assist new venture teams to generate ideas, change opportunity beliefs, and take action. These three process steps originate from the opportunity creation literature (Sarasvathy et al., 2003) and can be seen as the antecedents of successful opportunity creation. We will theorize how exactly specific design practices can aid new venture teams in achieving these outcomes and successfully create entrepreneurial opportunities. As a result of our theorizing, we derive six propositions, which embody major points of departure for further empirical investigation. Figure 1 depicts a visual representation of our framework, and it summarizes how specific design practices are related to ideas, beliefs, and actions. Each of the design practices and their contribution to enable the ability to generate ideas, change beliefs, and take action will be discussed in detail in the following subsections.
Figure 1  The impact of design practices on opportunity creation

Envisioning future scenarios
The practice of envisioning (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in creating future scenarios and using these as departure points for developing design solutions and future experience settings. This practice relies on designers’ ability to handle the unknown and complex; the ability to execute projects that are explorative in nature and contain much ambiguity, and uncertainty as regards to context factors and potential outcomes. Enacting this practice enables new venture teams to envision future scenarios, through which they can systematically generate a large number of ideas for new economic artifacts that feed into the opportunity creation process. Thereby, new venture teams will enlarge the volume of ideas that might be turned into entrepreneurial opportunities. These ‘idea sets’ have previously been described as the complete stock of entrepreneurial ideas – ranging from the ‘spark’ of an idea to fully commercialized ideas – a person has accessible in memory at any given time (Hill & Birkinshaw, 2009). Davidsson (2015) defines new venture ideas as imagined future ventures; i.e., an imaginary combinations of product/service offering, markets, and means of bringing the offering into existence.

By continuously broadening the volume and quality of their idea sets and new venture ideas, new venture teams actively lay the foundation to be able to identify potential future opportunities. Prior research has shown that individuals who can brainstorm many solutions to problems have a higher tendency to find the most innovative solution (Osborn, 1957; Proctor, 1995; Shepherd & DeTienne, 2005). Hence, we suggest that the practice of envisioning might not only serve new venture teams to generate a large number and variety of ideas, but it might also increase the innovativeness of these ideas and subsequently create more innovative entrepreneurial opportunities.

- **Proposition 1:** The practice of envisioning assists new venture teams to systematically generate a large number and variety of ideas, which aids in increasing the innovativeness of the resulting opportunities.
Representing customers and other stakeholders

The practice of representing (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in identifying and prioritizing the needs of relevant stakeholders, especially potential users and customers, giving primacy to human desirability over feasibility and viability considerations. This practice relies on designers’ ability to polysensorize; the ability to stimulate stakeholders engagement by providing different types of experiences. Enacting this practice enables new venture teams to identify and prioritize the needs of relevant stakeholders and thereby generate ideas for new economic artifacts. Changing one’s viewpoint and seeing an idea from the perspective of customers or other stakeholders enables new venture teams to detect previously ignored aspects. Taking the perspective of a customer or other stakeholder groups can change the beliefs about things favorable to the achievement of possible valuable ends based on customer or stakeholder insights. For example, by taking the perspective of an extreme user of a product or service the practice of representing will aid new venture teams to take the perspective of this particular customer group to achieve deep customer insight and translate the specific requirements of this customer group into products and services that will satisfy the extreme needs of this customer group. According to Ardichvili and colleagues (2003) specific knowledge about customers, for example, knowledge of customer problems and knowledge how to serve customers, are important factors that influence the opportunity identification process.

- **Proposition 2**: The practice of representing assists new venture teams to see an opportunity from various stakeholder perspectives, which aids in generating ideas for new economic artifacts to satisfy stakeholder needs.

Structuring, summarizing and synthesizing information

The practice of condensing (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in structuring, summarizing, and synthesizing information and thereby connecting the dots between important design elements. This practice relies on designers’ ability to think through systems; the ability to focus on optimizing whole systems, including all relevant stakeholders and resources, rather than seemingly disparate parts thereof. Enacting this practice enables new venture teams to adjust their beliefs about a given idea based on newly accessible information and effectively communicate the information to key stakeholders. Enacting this practice enables new venture teams to navigate in situations of information overload. Prior research suggests that entrepreneurs often face situations that tend to overload individual’s information-processing capacity and are characterized by high levels of uncertainty, novelty, emotion, and time pressure (Baron, 1998). Enacting this practice enables new venture teams to comprehend information better, which might lead to insight that would otherwise remain incomprehensible to the entrepreneur. Prior research has shown that comprehending information and making new associations between information is a central process underlying business opportunity identification (Mitchell et al., 2007; Shane 2000) and the practice of condensing might aid comprehension and trigger such new associations.

- **Proposition 3**: The practice of condensing enables new venture teams to structure, summarize and synthesize information, which aids in generating new
ideas by being able to comprehend information better and by making new associations.

**Reframing problems into opportunities**

The *practice of reframing* (Calabretta & Gemser, 2015; Karpen, Gemser & Calabretta, 2017) describes designers’ efforts to frame a problematic situation in new and interesting ways, by the adoption of new frames for interpreting the situation. This practice relies on designers’ ability to experiment; the ability to continuously learn and adjust from testing and playing with solutions toward desired scenarios, unhindered by fear of failure. Enacting this practice enables new venture teams to change their beliefs about a given idea through several ways and build opportunity confidence. Opportunity confidence is the result of an actor’s evaluation of a stimulus, such as an external enabler or a new venture idea, and the basis for the creation of new economic activity (Davidsson, 2015). Firstly, it enables new venture teams to run mental simulations and activates counterfactual thinking, which aids new venture teams to break existing means-ends frameworks and thereby impact on the opportunity identification process (Gaglio, 2004). Running mental simulations involves contrasting reality (what is or what was) with a mental image of what might have been or what could be (Sanna, 2000). Counterfactual thinking aids individuals in challenging assumptions, uncovering potential underlying causes, generating useful questions, or raising provocative hypotheses about causality and intervening antecedents (McGuire, 1997). Secondly, we suggest that enacting this practice can enable new venture teams to avoid the framing effect, a cognitive bias that leads individuals to rely on an initial frame of reference, even though this frame of reference might be inadequate (Tversky & Kahneman, 1986). Thirdly, we suggest that enacting this practice can enable new venture teams to develop veridical perception (Gunders, 1990), which has previously been described as the willingness to challenge assumptions. Gaglio and Katz (2001) proposed that alert individuals who are impervious to framing effects might be more successful at identifying entrepreneurial opportunities. Finally, we suggest that the *practice of reframing* might lead new venture teams to reframe problems into opportunities by perceiving new patterns in the available information (Baron, 2006).

- **Proposition 4**: The practice of reframing assists new venture teams in reassessing problematic situations, which enables them to change their beliefs about an idea and reframe problems as opportunities.

**Aligning with brand values**

The *practice of aligning with brand values* (Karpen, Gemser & Calabretta, 2017) refers to designers’ efforts to align the design of a product or service with deeper brand values. This practice relies on designers’ ability to stimulate, facilitate, consolidate and reconcile existing as well as new brand stories across various contexts and stakeholder perspectives. Enacting this practice enables new venture teams to shape the belief that an opportunity aligns with the values of the brand, and most importantly reflects the values of customers and key stakeholders. Insofar, this practice informs the development of opportunity beliefs, which are known to be shaped by information, experience, and deeper values (McMullen & Shepherd, 2006). The more entrepreneurs perceive an idea as generally feasible and generally desirable, the more certain their belief that an idea constitutes an opportunity (Grégoire, Shepherd & Lambert, 2010). Creating alignment between the
deeper brand values and the values of customers in the target market will enable new venture teams to perceive an idea as feasible for the brand and desirable for customers and key stakeholders. Strong alignment will strengthen individuals’ belief that an idea can develop into an opportunity that promises market success. On the other hand, enacting the practice of aligning with brand values offers new venture teams a screening mechanism by which potential opportunities that do not align with the deeper values connected to the brand can be abandoned and instead alternatives can be pursued.

• **Proposition 5**: The practice of aligning with brand values enables new venture teams to ensure that there is sufficient alignment between brand values and stakeholder values, which is necessary to create ideas that will resonate with the market and promise market success.

**Bonding with stakeholders**

The practice of bonding (Karpen, Gemser & Calabretta, 2017) describes designers’ efforts in establishing a comfortable and relational psychosocial context for constructive interaction and ideation. This practice relies on designers’ ability to empathize; the ability to sense and share another’s thoughts, feelings, and experiences, and to react to and embed these into design processes or outcomes. Enacting this practice enables new venture teams to bond with key stakeholders and lay the ground to achieve the commitment of these key stakeholders to provide the resources necessary to take action on a specific opportunity and be able to create new economic artifacts. Enacting the practice of bonding can influence entrepreneur’s ability to expand their social network by creating new ties and tapping into network members’ social networks. Doing so will aid new venture teams to acquire new resources in the form of knowledge and stakeholder commitments (Sarasvathy, 2001). Individuals were previously found to be more likely to pursue entrepreneurial opportunities when they possess nonspecific human capital, general skills, and qualities, and an extensive social network (Lee & Venkataraman, 2006). As the opportunity creation perspective posits that an opportunity does not exist before an entrepreneur takes action on it, this step is crucial for opportunity creation.

• **Proposition 6**: The practice of bonding enables new venture teams to connect with stakeholders, which aids new venture teams to add new means to the venture and develop the necessary resources to take action on an opportunity.

**Effectiveness and interaction between practices**

Practices are by their very definition interactive and socio-culturally embedded, and they often stretch into a meso-organizational level, such as teams or departments (Karpen, Calabretta & Gemser, 2017). Also, practices can be individually performed, but they are collectively framed, shaped and manifested in contextual interdependencies (Warde, 2005). Thereby, when assessing the effectiveness of design practices for opportunity creation, it is crucial to relate the effectiveness of a given practice to the context (for example, individual or department/team) and take into account alternative practices that might effectively contribute to the opportunity creation process. For example, while a certain design practice might be effective when applied by an individual entrepreneur with a professional design background, other practices might be more effective when jointly performed in a multi-disciplinary team context. Such alternative practices might stem from team members’ diverse professional backgrounds, they may vary drastically
between various founding teams and the degree of routinization may change over time, as “practices are skilful behaviours, dependent (as the term suggests) on practice until they become automatic” (Scheer, 2012, p. 202). Furthermore, to determine the effectiveness of specific practices for generating ideas, forming opportunity belief and inducing action, entrepreneurs will need to assess the relative effectiveness of each practice throughout the opportunity creation process. Thus, while we have previously discussed how each of the six design practices might inform the antecedents necessary to create entrepreneurial opportunity effectively, it is important to highlight that their effectiveness will likely be dependent on the context, the interaction between the six design practices and the interaction between design practices and alternative professional practices.

Discussion
In this article, we have delineated six design practices that enable new venture teams to influence three antecedents of successful opportunity creation; entrepreneurs’ ability to generate ideas, change beliefs and take action. We have further proposed the mechanisms of how design practices inform these outcomes. The resulting conceptual model should be further explored through empirical research, for example through a qualitative study exploring if and how new venture teams apply the six design practices when they create entrepreneurial opportunities. It might be, that qualitative research might uncover additional design practices and mechanisms, which have not been part of our propositions. Furthermore, the conceptual framework could be further explored by studying new venture teams and allow for a comparison of the effectiveness of design practices, when applied by entrepreneurs with a design background, as compared to entrepreneurs with another professional background. Further promising research avenues are to explore the interplay between design practices and the interplay between design practices and non-design practices.

Previously, we suggested that design practices are particularly effective when departing from the assumption that opportunities are created rather than discovered. We are aware that this fragmented view on the opportunity literature has received some criticism and we support recent attempts to synthesize the various theory streams, most notably by Davidsson (2015). However, to shed light on the appropriateness of our assumption, we deem it necessary that scholars examine this assumption empirically, for example by investigating if new venture teams describe their experience of the opportunity identification process as a process of discovery or creation. One could then enquire about the perceived effectiveness of design practices and discern if the effectiveness of design practices might be linked to either mode of opportunity identification. In practice, we might find entrepreneurs who apply design practices for opportunity discovery. It requires empirical research to discern if applying design practices to the task of opportunity discovery indeed is less effective, or if it even might have a negative effect through accruing the opportunity cost of foregone benefits of applying alternative and potentially more effective practices to discover opportunities.

In the greater context of studying design’s contribution to entrepreneurship, we suggest exploring the topic on a team or project level and study the agents who might apply design practices for the benefit of entrepreneurship. To do so, we suggest studying case studies of designer co-founded new venture teams as a research subject. Studying
designer co-founded new venture teams might give revealing insights into the professional use of design practices to create entrepreneurial outcomes. For example, it would be interesting to study more in-depth under which circumstances founders with and without a professional design background use specific design practices and how the application of these design practices results in entrepreneurship outcomes.

Conclusion
Our intention in this article was to take the first step in the pursuit of advancing knowledge on the contribution of design to entrepreneurship by proposing new relationships between concepts originating in the design and entrepreneurship literature. We did so by theorizing on the application and impact of design practices to the opportunity creation process of new venture teams. We have made two major contributions that might lead to better understanding how designerly ways of working can inform entrepreneurship scholarship. Firstly, we have integrated literature on design and entrepreneurship, and by doing so, we have uncovered some similarities and shared assumptions in the two literature streams. We have found that the opportunity creation perspective lends itself well to study design concepts in an entrepreneurship context. Acting in the face of uncertainty, ambiguity, and isotropy and employing an abductive reasoning mode for problem-solving are shared properties of creating entrepreneurial opportunities and solving complex design problems. Secondly, we have proposed six design practices that can be applied to the opportunity creation process. We have accordingly formulated six propositions how enacting design practices might influence entrepreneurs’ ability to generate ideas, change held beliefs and take action. All of these are necessary antecedents of opportunity creation, and we suggest that applying design practices might aid new venture teams in creating entrepreneurial opportunities.

From a practical point of view, our research offers insights for design professionals who consider to ‘take the plunge’ and venture out on their own or as part of a team. Firstly, our theorizing can aid both, design and entrepreneurship practitioners, to better understand the similarities between the context of professional designers and the context of entrepreneurs. And secondly, our propositions give design practitioners an indication on how their professional practices may inform the opportunity creation process and consequently, how their ways of working may be useful when starting a new venture.

References


About the Authors

**Nico Florian Klenner** is a Ph.D. Candidate at RMIT University (Melbourne, Australia). His research interest lies at the intersection of entrepreneurship and design, and he explores how designers attitudes, practices and abilities can be applied in an entrepreneurship context.

**Gerda Gemser** is Full Professor of Business and Design at RMIT University (Melbourne, Australia). She examines how organizations in the creative industries create and appropriate value in innovation and design and has published on this topic extensively.

**Ingo Karpen** is Associate Professor at RMIT University (Melbourne, Australia). Ingo’s research focuses on understanding, measuring and managing business success factors from a design and strategic marketing perspective. He is teaching Design Thinking for Business in RMIT’S MBA executive program.
This page is intentionally left blank.