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Do Disruptive Visions Pay Off? The Impact of Disruptive Entrepreneurial Visions on Venture Funding

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ABSTRACT Entrepreneurs often articulate a vision for their venture that purports to fundamentally change, disturb, or re-order the ways in which organizations, markets, and ecosystems operate. We call these visions *disruptive visions*. Neglected in both the disruption and the impression management literature, disruptive visions are widespread in business practice. We integrate real options and impression management theories to hypothesize that articulating a disruptive vision increases the likelihood of the venture receiving funding but reduces the amount of funding obtained. A novel dataset of Israeli start-ups shows that a standard deviation increase in disruptive vision communication increases the odds of receiving a first round of funding by 22 per cent, but reduces amounts of funds received by 24 per cent. A randomized online experiment corroborates these findings and further demonstrates that the expectation of extraordinary returns is the key mechanism driving investors' sensemaking.

Keywords: disruption, disruptive vision, entrepreneur, impression management, venture funding, vision communication

Disruption has become a hot topic in recent years both in research (Hopp et al., 2018) and in practice (Christensen et al., 2015) – from practitioners citing lists of successful disruptors (Howard, 2013), encouraging ventures to develop disruptive business models (e.g., Berry, 2012), appointing 'Chief Disruption Officers' (Carr, 2013), to naming an entire entrepreneur trade show (e.g., TechCrunch Disrupt). While there is disagreement over how to define and identify disruptive innovations in both academic literature (Christensen et al., 2015; Danneels, 2004; King and Baatartogtokh, 2015) and the business press (Lepore, 2014; The Economist, 2015), there is general consensus on the outcome of disruption being a fundamental change, disturbance, or re-ordering of the ways in which organizations, markets, and ecosystems operate. For disruption to occur,

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the entrepreneur's communications are crucial in persuading ecosystem members to embrace the new venture and its innovation (Ansari et al., 2016; Gurses and Ozcan, 2015). Communications by entrepreneurs can motivate potential customers to try new products, encourage suppliers and incumbents to collaborate, and, above all, convince investors to fund the venture. For example, investors often rely on the entrepreneur's communications to make sense of the new venture, especially in early-stage investments where the uncertainty surrounding a venture's viability is highest (e.g., Busenitz et al., 2005; Lounsbury and Glynn, 2001; Martens et al., 2007; Navis and Glynn, 2011).

As documented by prior research into disruption and impression management, entrepreneurs follow impression management strategies (e.g., Ansari et al., 2016; Gurses and Ozcan, 2015; Lounsbury and Glynn, 2001; Martens et al., 2007; Navis and Glynn, 2011; Wry et al., 2011; Zott and Huy, 2007) that showcase high-status affiliations (Burton et al., 2002), industry leadership (Martens et al., 2007), entrepreneurial track record, and the venture's resource base (Bernstein et al., 2017; Lounsbury and Glynn, 2001) in order to shape investors' sensemaking of the venture. However, these impression management strategies are backward-looking entrepreneurial communications, describing 'who the entrepreneurs are' and 'what the venture does'. Although Garud et al. (2014) have recently recognized the importance of future-oriented communications that promote 'what the venture will become' and 'what the entrepreneurs will achieve', there is little research on the extent to which forward-looking communications influence investor perceptions of a venture. Gaining insight into the entrepreneur's future-oriented communications is vital as it enables scholars in entrepreneurship, disruption and impression management fields to obtain a better understanding of the relationship between the entrepreneur's activities and disruption, which is essentially a future event that the entrepreneurs may aim to achieve.

As a form of future-oriented impression management in the disruption process, we introduce and define *disruptive visions* – the thematic content of vision communication that articulates intentions to disrupt organizations, markets, and ecosystems. Vision communication aims to impart stories and images of the future of a collective (e.g., technology, customers, or ecosystems) (Berson et al., 2001; Garud et al., 2014; House and Shamir, 1993; Van Knippenberg and Stam, 2014). Similar to the use of 'disruptive innovation' as a modifying label for innovations aiming to upend incumbent offerings (Christensen, 1997; Christensen et al., 2016), we use 'disruptive vision' as a label for an entrepreneur's vision to upend existing market structures. In that regard, our conceptualization of disruption and disruptive vision reflects how entrepreneurs and investors understand disruption in practice (e.g., Cosper, 2015; Rachleff, 2013; The Economist, 2015).

We examine how the communication of a disruptive vision drives the likelihood and the amount of an initial round of funding. We argue that the more that a venture's vision communication portrays an image of disruption, the higher the odds of receiving first-round funding, since the game-changing appeal of a potential disruption fosters expectation of extraordinary investor returns. However, a highly disruptive vision also conveys uncertainty regarding a venture's potential for success, deterring investors from making large speculative investments into the venture. We thus hypothesize that communicating a more disruptive vision *increases the likelihood* of first-round funding (i.e., Seed funding or

Series A) while it *shrinks the amount* of capital received. We tested these hypotheses in two complementary studies. In Study 1, we used a unique dataset of start-ups in Israel – a well-known cradle of entrepreneurship with more high-tech start-ups per capita than any other country (Senor and Singer, 2009). We found that increasing a venture's disruptive vision communication by one standard deviation improved the odds of receiving funding by 22 per cent. We also noted that one standard deviation increase in disruptive vision communication cut the amount of funds invested by 24 per cent – amounting to a $87,000 drop for a typical venture in the Seed round, and a $361,000 reduction in the series A funding round. In Study 2, we replicated these results in a randomized online experiment to ascertain whether investor expectation of extraordinary returns is the mechanism driving these results.

We offer several contributions to the literature on disruption, impression management, and entrepreneurial visions. First, in its classical formulation, the disruption process is explained as relative performance trajectories of competing technologies (Christensen, 1997). Recent research, however, has also unearthed the role of entrepreneurs' framing of innovations during the disruption process (e.g., Ansari et al., 2016; Gurses and Ozcan, 2015). We introduce and provide a deeper understanding of the role entrepreneurial visions play in acquiring resources critical to the disruption process. Second, we contribute to the burgeoning stream of literature on impression management, which notes that entrepreneurs frame communications to foster categorization and to establish their ventures' identities (e.g., Cornelissen and Werner, 2014; Martens et al., 2007; Navis and Glynn, 2011; van Werven et al., 2015; Zott and Huy, 2007). Until now, there has been limited examination of the relative impacts of future-oriented communications on outcomes at the venture level (Garud et al., 2014). We assess the efficacy of future-oriented communications for early-stage ventures and introduce a new category of impression management strategies: the communication of disruptive visions. Third, we integrate research on real options and impression management by positing how impression management affects investor evaluations of ventures as real options. We demonstrate opposing effects of impression management on the selection and endowment of investment options. Fourth, we challenge prior research on entrepreneurial visions espousing only a positive impact from strong vision communication (e.g., Baum and Locke, 2004; Baum et al., 1998; Elenkov et al., 2005). Our study is the first to show that specific thematic contents of entrepreneurial visions may damage an entrepreneur's ability to attract large investments. Equally important, we offer practical advice for entrepreneurial framing of disruptive visions and highlight the consequences of following it.

THEORETICAL FRAMEWORK

Impression Management and Investor Sensemaking

Prior research on disruption and impression management has argued that entrepreneurs' impression management efforts are key in the disruption process. Ansari et al. (2016) and Gurses and Ozcan (2015) have shown that framing value propositions as complementary to incumbents has been critical for achieving disruption in the digital video

recording and pay-TV industries. Impression management activities have also included communications about venture activities, innovations, capabilities, achievements, and affiliations that help regulators, competitors, suppliers, and investors to embrace the venture (Fisher et al., 2017; Hallen, 2008; Huang and Pearce, 2015; Martens et al., 2007; Parhankangas and Ehrlich, 2014; Zott and Huy, 2007). These communications attempt to establish identities that distinguish the venture from other market constituents in the eyes of investors (i.e., optimal distinctiveness, Glynn and Navis, 2013). Such well-established identities define who the entrepreneurs are and what the ventures do (Navis and Glynn, 2011). These presentations aim to showcase the venture as 'desirable, proper, or appropriate within some socially constructed system of norms, beliefs, and definitions' (Suchman, 1995, p. 574).

Entrepreneurs attempt to set themselves apart in at least three ways (Bernstein et al., 2017; Burton et al., 2002; Florin et al., 2003; Huang and Pearce, 2015; Lounsbury and Glynn, 2001; Martens et al., 2007; Maxwell et al., 2011; Zott and Huy, 2007). One, they may feature track records and past performances of the entrepreneur(s) and/or the team (e.g., entrepreneur or employee tenure, experience, or successful prior exits). Two, they may highlight market success as a venture (e.g., attaining industry leadership or first-mover status, winning awards and prizes, or achieving customer favour). Three, they may stress resource-based advantages (e.g., networks, affiliations, technologies, patents, or prototypes). Appendix Table AII lists examples of such communications within our dataset.

These impression management efforts are, by their very nature, backward-looking, with a focus on the entrepreneurs' and/or ventures' identities and past or current accomplishments (see Hallen, 2008). While the extant literature has recently recognized the importance of future-oriented communications (Garud et al., 2014), studies of disruption and impression management have omitted vision communication – that is, conveying stories and images of the future of the venture and its ecosystem (e.g., including technology, customers, and/or competitors) (Berson et al., 2001; Garud et al., 2014; House and Shamir, 1993; Van Knippenberg and Stam, 2014). Specifically, entrepreneurial visions are future-oriented impression management efforts and outline 'what the venture will become', and 'what it will attain'. This is a key omission since vision communication prompts distinctive cues of entrepreneurial identities (see Navis and Glynn, 2011; van Werven et al., 2015). Specifically, vision content (e.g., with a focus on disruption) affects investor perceptions of the intrinsic or substantive value of what the venture aims to achieve (Cornelissen and Werner, 2014), and influences what people think is desirable or possible for members of the ecosystem and for themselves to achieve (Stam et al., 2014; Wry et al., 2011). Entrepreneurial visions can, thereby, motivate audiences to act in support of the venture's pursuits (Baum et al., 1998; Stam et al., 2014). Since stakeholders within a venture's ecosystem shape how the disruption process unfolds (Ansari et al., 2016; Gurses and Ozcan, 2015), some entrepreneurs choose to articulate disruptive visions to influence investors. In the following section, we introduce and conceptualize disruptive visions to develop a more complete picture of how the disruptiveness of entrepreneurial visions affects acquisition of funding.

Disruptive Vision

Disruptive innovation theory defines disruptive innovations as innovations with initially inferior performance attributes, with the potential to dethrone incumbent technologies, services and/or business models (Christensen, 1997; Christensen and Raynor, 2003). However, there is a heated ongoing debate of how to define disruptive innovations (e.g., whether they underperform initially, whether they improve over time, whether they are introduced by new entrants, whether they progress toward the mainstream solely through a niche market, etc.) (Christensen et al., 2015; Danneels, 2004; King and Baatartogtokh, 2015; Markides, 2006; Tellis, 2006). The core insight emanating from this debate is that disruptive innovations should be separated from their outcome: disruption (Sood and Tellis, 2011). Understood from a practitioner perspective (The Economist, 2015), old market linkages in a disrupted market or ecosystem become uprooted in favour of new ones. Therefore, a disrupted market or ecosystem hosts new firms, new market leaders, new products, and new ways of doing business. This view also aligns closely with the description of disruption by Christensen et al. (2015, p. 46) as being 'able to successfully challenge established incumbent businesses'. Similarly, Ansari et al. (2016, p. 4) place disruption in ecosystem domains where incumbent business models are disturbed by the adoption of an innovation in that ecosystem. Thus, while the extant research still lacks consensus on the antecedents, drivers, or definition of disruptive innovation, there is more convergence on the generally observed outcomes of disruption.

Disruption is contingent upon the persuasion of various stakeholders in the ecosystem, which can be achieved through the entrepreneur's communications (Ansari et al., 2016). Hence, a disruptive vision communicates an image of disruption. A disruptive vision details deficiencies in the current market, and promises a paradigm shift that will mark 'a [considerable] difference or break from the previous business models and products in an industry or market' (Cornelissen, 2013, p. 708). This impending change is framed as an opportunity for improvement and advantage (Mullins and Komisar, 2010). Since fundamental changes tend to arise from innovations (Ireland et al., 2003), disruptive visions cast their images of a disrupted market as completely new approaches to business stemming from innovation. Therefore, a disruptive vision spotlights an innovation that promotes new functionality, formerly unseen in the market, and that purports to achieve conventional market objectives in a very different way. See Appendix for examples within our dataset.

HYPOTHESIS DEVELOPMENT

Disruptive Visions and Investment Acquisition

To explain how a disruptive vision affects investor sensemaking, we turn to the literature on impression management and real options theory. Both are often used to explain investment decisions under uncertainty (Huang and Knight, 2017; Trigeorgis and Reuer, 2017). Impression management refers to the entrepreneur's communication of symbolic cues and narratives to investors that, in turn, influence how investors make sense of the

venture. Sensemaking is the process by which investors rationalize what the venture is doing and give meaning to its assessment as an investment opportunity (see Navis and Glynn, 2011; Weick et al., 2005). The central premise underlying real options theory is that an investor has the ability or freedom to act (e.g., exercise, defer, expand, or abandon) at any point in time on the options they hold (Klingebiel and Adner, 2015). An early-stage investment can be viewed as a real option since investors have the ability to fund a position later when new details about a venture's prospects arise. The value of a real option is determined by investors' perception of the balance between the venture's potential upside and any associated risks (Hoffmann and Post, 2017). We argue that this perception, and thus real option valuation, can be influenced by an entrepreneur's impression management efforts, on top of traditional data on venture or entrepreneur status, experience, and prior achievements available to investors.

Disruption, if achieved, has the power to create new industry leaders and shift overall market demand from existing products, services, or business models to new ones. A successful disruption may create an industry shake-out, with the candidate venture controlling the dominant design (Argyres et al., 2015), thereby yielding extraordinary returns for the responsible venture and its investors. Thus, ventures can create the expectation of extraordinary returns by communicating a vision of disruption. Such ventures may be alluring options among wider holdings of early-stage investments, since returns in such portfolios tend to follow the power law whereby the best-return investment exceeds the combined returns of all remaining investment options (Maples, 2016). Therefore, a single huge success can ensure the viability of the investor's entire portfolio (Ruhnka and Young, 1991).

Conversely, images of disruption may also be associated with greater potential exposure to uncertainty. Nonetheless, investors are often prepared to accept risk of the unknown if the focal venture has a chance of becoming a great success (Huang and Pearce, 2015). Here, a large gain not only ensures portfolio viability, but also improves public image among fellow investors (Dimov et al., 2007; Gompers, 1996). Moreover, risk tolerance is bolstered when the option permits the exercising or abandoning of an investment at a later stage, when the speculative risks become clearer.

A highly disruptive vision also instills a fear of missing out on the next big change in the market. Investors may act on the anticipated regret of forgone extraordinary returns. This is especially the case when the investors face the prospect of a competitor capitalizing on the ensuing upheaval in the marketplace and the extraordinary returns associated with such a change (Hooshangi and Loewenstein, 2018). Hence, a fear of missing out a potentially significant investment opportunity may drive investors to select the venture as an investment option.

Furthermore, since a venture's vision of disruption implies the potential loss of valuable competencies in current market structures and dynamics (Henderson, 2006), as well as potential obsolescence in an investor's current portfolio, market linkages between ecosystem participants may not persist. This drives investors to select an option that hedges against the potential loss of market access and increases the flexibility to exercise diversified strategic alternatives at a later stage. Consequently, early-stage investors may be

prompted by disruptive vision communication to see the venture as an option for future extraordinary returns. Therefore, we argue that:

Hypothesis 1: The more disruptive a venture's vision communication, the higher the likelihood of attracting financial investments.

Disruptive Visions and Amount of Investment Acquired

We hypothesize a negative effect of disruptive vision on the amount of funding provided by investors. We return to real options theory and impression management literature to elaborate the negative effect of disruptive vision. Because options (e.g., the right to increase or abandon an investment) can be exercised at later stages of market development when the level of uncertainty regarding the new venture has reduced, there is less incentive for investors to provide large amounts of capital during initial stages (Klingebiel and Adner, 2015).

While investments in all young ventures are risky and uncertain, the perception of this risk and uncertainty is largely shaped by how the entrepreneurs communicate their visions and form impressions in the minds of potential investors (Huang and Pearce, 2015; Lounsbury and Glynn, 2001). These perceptions affect the amount of funding acquired from investors. Articulation of a highly disruptive vision increases uncertainty about the outcome. The more disruptive the vision, the more likely is the investors' perception that a venture may need to diverge from specific plans (Garud et al., 2014). Additionally, research has shown that excessive promotions of innovation and novelty force investors to weigh the challenges in commercializing the innovation more carefully (Dimov and Murray, 2008; Parhankangas and Ehrlich, 2014) and may point investors toward the possibility that unknown fatal flaws in the business idea exist (Maxwell et al., 2011).

A disruptive vision thus discourages high-volume stakes in a venture. This is because investors tend to be risk-averse toward low probabilities of success that hinder overall portfolio returns (Tversky and Kahneman, 1992). Instead, investors take smaller positions (i.e., investments) in a venture that communicates a more disruptive vision than in a less disruptive one, and await market news before exercising further options. We argue that the communication of a disruptive vision has a direct negative effect on the amount of financial funding in a first investment round. Therefore, we hypothesize that:

Hypothesis 2: Communicating a more disruptive vision lowers the amount of venture funding.

Expectation of Extraordinary Returns and its Mediating Effects

When ventures successfully 'disrupt' the status quo of existing products, firms, or markets, they may create an industry shake-out with the candidate venture becoming the dominant player. Ventures that communicate a disruptive vision often promise huge opportunities for investors. However, disruption is difficult to achieve and the necessary steps and timing are largely unknown. The distant and volatile nature of disruption

entails high risks that are unknowable. The tension between the great potential opportunity and the endemic riskiness fosters an investor mindset that a venture's business idea is 'something so ridiculous that it could actually work' (Huang and Pearce, 2015, p. 641), possibly generating returns on investment (ROI) of tenfold or better (Sahlman, 1990) through an Initial Public Offering (IPO) or exit sale to another entity (Prowse, 1998). Overall, this game-changing appeal of a disruptive vision lures investors with the expectation of a significant investment outcome among a portfolio of early-stage investments.

The expectation of extraordinary returns logically increases the likelihood of funding. Investors naturally pursue unconventionally high investment returns (Huang and Pearce, 2015). Yet, early-stage investments are also associated with higher likelihood of subsequent losses. As an offset, early-stage investors expect exceptionally high rates of return (Ruhnka and Young, 1991) that help ensure the viability of their portfolios (Maples, 2016).

Moreover, seizing investment opportunities that yield large ROIs increases the visibility and standing of investors among fellow capitalists (Dimov et al., 2007). For example, early investors in ventures that disrupt markets and ecosystems are often celebrated in entrepreneurial circles (e.g., Peter Thiel for Facebook; Jeremy Liew's Lightspeed Venture Partners for Snapchat; Chris Fralic's first round capital for Uber). Such gains in visibility are important as they may attract larger capital flows to the investor's fund later (Gompers, 1996). In addition, leaving such an opportunity unexploited adds to the anticipated regret of missing out on the potential monetary and social gains.

In contrast, the lack of a disruptive vision may cool expectation of extraordinary returns, hampering the venture's profile as a valuable investment option among others. Thus, the stronger the expectation of extraordinary returns created by a disruptive vision, the more likely it is that investors will take an option in the venture.

Hypothesis 3: The positive relationship between the disruptiveness of a venture's vision communication and the likelihood of attracting financial investments is mediated by the investor's expectation of extraordinary returns.

Arguably, investors who perceive a venture as likely to offer extraordinary returns might also increase their stakes in that venture. For example, if investors believe it to be highly likely that the venture will increase its valuation tenfold within five years, they may be more inclined to capitalize on the opportunity, seeking a higher stake in the venture and thus endowing the venture with more financial capital. In such a case, there should be a positive relationship between the expectation of extraordinary returns and the amount funded. Because highly disruptive visions positively affect the expectation of extraordinary return, we argue that disruptive visions also exert a positive, indirect impact on the amount of funding from investors (i.e., similar to our arguments for Hypothesis 3) through the expectation of extraordinary returns.

Despite this positive, indirect effect of a disruptive vision through the expectation of extraordinary returns, we still expect a negative, direct effect of the disruptive vision on funding amounts (see arguments for Hypothesis 2). This is called inconsistent mediation (for details, see Aguinis et al., 2017; MacKinnon et al., 2007; for recent empirical

examples, see Gardner et al., 2011; Jayasinghe, 2016). With inconsistent mediation, the direct effect of the independent variable has an opposing sign to the mediated effect. Incurring the opposite mediating effect from the expectation of extraordinary returns helps expose the direct negative effect of the disruptive vision on the amounts of funding acquired.

Hypothesis 4: Expectation of extraordinary returns mediates the relationship between the disruptiveness of a venture's vision communication and the amount of venture funding.

OVERVIEW OF STUDIES

The aim of our paper is to investigate the efficacy of disruptive visions for acquiring a first round of funding. We tested our hypotheses using two complementary studies. Our first study uses an archive of Israeli start-ups. With this study, we empirically tested the main effects of disruptive visions on investment decisions (i.e., Hypotheses 1 and 2). This field study also provided ecological validity for our findings. Study 2 was comprised of a randomized online experiment that both replicated findings from the first study and identified the mechanism underlying the positive effects of disruptive visions on investment decisions (i.e., Hypotheses 3 and 4). This experimental study generalized our findings beyond the Israeli venture context, and the randomized control nature of the experiment pinpointed the causality driving our results.

STUDY 1: THE DISRUPTIVE VISIONS OF ISRAELI START-UPS METHOD

Sample

We test our hypotheses using a comprehensive database of Israeli start-ups. Israel is often dubbed a 'Start-up Nation' for its strong entrepreneurship scene, having the most high-tech start-ups per capita (Senor and Singer, 2009) and a vibrant venture capital scene (Avnimelech and Teubal, 2006). Israeli start-ups are young, internationally oriented, knowledge-intensive organizations that mainly produce innovative, proprietary self-developed technologies (Engel and del-Palacio, 2011). We obtained data from Start-Up Nation Central – a private non-profit organization that has exhaustively collected and accurately stored data on all Israeli start-ups since 2013 (www.startupnationcentral.org). The data featured on Start-Up Nation Finder (Start-Up Nation Central's 'Innovation Discovery Platform', https://finder.startupnationcentral.org) provide detailed information on venture activities, products, locations, founders, management teams, funding, and investors.

This dataset is uniquely qualified for testing our hypotheses for two reasons. First, it offers rich and reliable information on venture, entrepreneur, and funding outcomes. Second, the data allow us to correct for selection bias since they include firms that

obtained funds and those that did not. Prior research has mainly considered ventures that have already obtained funding (e.g., Gompers, 1995; Kanze and Iyengar, 2017; Ter Wal et al., 2016), creating a methodological sample-selection problem. With our data, we can regress the models on both the likelihood of funding and the amount of funding to properly correct for selection bias.

We sampled ventures founded between 2013 (when Start-Up Nation Central began) and 2016, including only their first round of funding (Seed or A round). Our cross-sectional sample totals 2139 ventures. We randomly chose 1000 start-up firms from this sample. After removing missing values for the variables selected in our models, the final dataset contained 918 start-ups.

Measures

Dependent Variables. We coded ventures that had first-round funding as *investment received* (1 if yes, 0 otherwise). The *amount of funding received* was measured as the amount of funding in US dollars that a venture received in its first funding round. Generally, the first funding round referred to a Seed round, but in some cases, ventures skipped the Seed round and went straight to the A series – a recent trend known as bootstrapping (Newlands, 2015). We applied the natural log of this variable because of skewness (Skewness = 4.17, Kurtosis = 21.92, Shapiro–Wilk test $W = 0.56$, $p < 0.001$).

Independent Variables. We followed the standard practice of coding vision statements (e.g., Baum et al., 1998; Baum and Locke, 2004; Berson et al., 2001) to measure disruptive vision. Vision statements were displayed on the Start-Up Nation Finder for investors. Since the Start-Up Nation Finder platform is used by investors to seek and select promising start-ups, these statements are important in entrepreneurs' communication with investors. Two graduate assistants coded the vision statements. After initial instruction meetings and resolution of disagreements on a trial set of vision statements, the two coders were directed to proceed in isolation and refrain from any further discussion.

A disruptive vision conveys a drastic change in the way organizations or ecosystems operate, showcasing a significant break from existing products, services, and business models (Cornelissen, 2013). Since fundamental changes tend to emerge from innovations (Ireland et al., 2003), disruptive visions evoke images of a disrupted market and a new approach to business stemming from innovation. Therefore, we operationalized *disruptive vision* using the following four items indicating (1 if yes, 0 otherwise) whether the vision statement (i) 'promotes drastic [or fundamental] change in the future: it makes a claim of pursuing dramatic change at a market or larger level, with implicit consequences for multiple stakeholders' (Kappa = 0.61); (ii) 'features a future that contrasts with the status quo: it delineates deficiencies in the current market situation and promises a substantial improvement' (Kappa = 0.66); (iii) 'includes ideas, plans or other evidence of achieving the conventional market objective in a completely different manner' (Kappa = 0.46); and (iv) 'promotes the venture's innovation or activities as enabling a completely new function' (Kappa = 0.21). Because of the low Kappa value of the last item, we removed it from our

measure for empirical purposes.[1] On the three-item measure, both coders presented sufficient agreement across items per vision statement (mean Rwg = 0.83). Next, the average for the two coders was calculated for each item. The resulting averages were then summed to calculate a disruptive vision score per statement. The coders displayed good agreement and reliability in the calculated disruptive vision measure (mean ICC2 = 0.82).

Control Variables. We drew from prior literature to identify four sets of control variables in our models related to the characteristics of the venture and its communications, the founders, the product and market, and the funding round.

The first set of controls included traits of a venture's communication style and reach. We controlled for a venture's *social media exposure*, since this may increase the visibility of the venture and enhance investor awareness (Fischer and Reuber, 2011). Start-Up Nation Finder displays direct links to various social media platforms (i.e., Facebook, LinkedIn, Google+, and Twitter). We operationalized social media exposure by measuring the number of social media platforms for which the venture had a link in the Start-Up Nation Finder database.

We also controlled for the extent to which a venture's vision statement includes the *promotion of achievements*. Investors may conduct their own due diligence about a venture's and its entrepreneur's achievements, having alternative sources to assess claims. However, prior research on impression management agrees that investors also rely on cues conveyed by entrepreneurs. In particular, the emphasis on achievements may be an important determinant of the credibility and legitimacy of a venture's claims in the eyes of investors. The coders rated each company statement regarding three items indicating (1 if yes, 0 otherwise) whether it (i) 'features evidence of past performance/experience of entrepreneurs and employees' (Kappa = 0.69); (ii) 'presents evidence of past and current successes of the venture in the market, including customers, locations, market leadership, and awards and prizes' (Kappa = 0.63); and (iii) 'features claims of accrued resources, such as the latest/proprietary technology, partnerships/networks/affiliations, and patents/prototypes' (Kappa = 0.61). Both coders had high agreement across items per vision statement (mean Rwg = 0.88). Next, the average for the two coders was computed for each item, and resulting averages were then summed to calculate a score per venture. The coders showed good agreement and reliability in the summed promotion of achievements measure (mean ICC2 = 0.84).

Vision communication is often associated with *imagery* (Emrich et al., 2001). Messages high in imagery induce more vivid portraits of what is communicated (Carton et al., 2014). We controlled for imagery to isolate the effect of disruptive visions beyond imagery. We used the Toronto Word Pool, which rates words on degrees of imagery using a 1-to-7 scale (Friendly et al., 1982). Imagery scores were then averaged for the words in a venture's vision statement.

The second set of controls pertained to features of the venture itself. Venture capitalists and angel investors who focus on early-stage investments are more likely to favour younger ventures (Huang and Pearce, 2015; Ter Wal et al., 2016). Therefore, we controlled for *venture age* by subtracting the year of founding from 2016. Furthermore, if start-ups stated in the vision statement that they were a part of another firm, we coded

them as *Subsidiary* ventures. We included this as a control since these ventures may require and receive different levels of external funding due to affiliation with a larger established firm (D'Mello et al., 2008). We also coded whether ventures were members of (corporate) accelerators, co-working environments, or entrepreneurship programs, as these relationships assist ventures in developing their activities, markets, strategy, and resources. These programs may also offer networking, educational, mentorship, and pitch-making opportunities (Cohen, 2013). We mark ventures as a *Member of a program* using a dummy variable in our models (member = 1, non-member = 0).

Additionally, Start-Up Nation Finder displays categorizing tags on a venture's page. By clicking a tag, ventures with similar characteristics can be found. By including the *Number of tags* in our models, we controlled the exposure to investors through Start-Up Nation Finder. This skewed variable was log-transformed (Skewness = 1.03, Kurtosis = 3.73, $W = 0.95$, $p < 0.001$). Finally, ventures in our dataset were assigned to one sector: software, healthcare, security and safety technologies, or other. We included sector dummies because funding requirements and timing vary across sectors.

The third set of controls pertains to founder, and product and market characteristics. We controlled for serial entrepreneurship. Serial entrepreneurs can call upon amassed experience and networks that enable access to valuable resources (Cassar, 2014). We coded *Serial entrepreneur* as 1 if a (co-)founder appeared as a (co-)founder of another start-up in our full database (i.e., including all ventures in the Start-Up Nation Finder database that were founded before 2017). We controlled for *geographic scope* since the number of target markets can affect sales and growth potential as well as capital needs in serving different markets (Gupta and Sapienza, 1992). Start-Up Nation Finder lists each start-up's geographical target markets. Geographic areas included North and South America, Europe, Asia, Africa, the Middle East, and Oceania. Geographic scope was proxied by tallying the regions where a venture was active. Furthermore, products in research and development phases are riskier investments than those already launched (Audretsch et al., 2012). We controlled for the stage of development by including a dummy variable, *Released product*, marked as '1' when a venture's products were released commercially, or as '0' otherwise.

Finally, we included two control variables for a venture's first-round funding. In our analysis, we included only ventures initiating Series A or Seed funding. Generally, funding levels increase with the funding series, and start-ups can leapfrog through bootstrapping – i.e., building and growing a venture with personal finances or using initial operating cash flow (Newlands, 2015). We included a dummy variable in our models for *A-Round* funding to indicate ventures that bypassed the Seed round and went straight to A-series in their first round. Lastly, we controlled for investor prior experience as this may influence investment decisions (Huang and Pearce, 2015). We operationalized *investor experience* by averaging the total number of funding rounds the investors took part in before the focal funding round. We calculated this variable using the full database, including all funding rounds in the Start-Up Nation Finder database that occurred prior to 2017.

Analytical Approach

The fact that funding decisions by investors are not random may introduce bias into our coefficient estimates for the amount of funds acquired. To mitigate sample-selection bias

induced by a non-random selection of observations for received funds, we applied the Heckman correction using 'full-information maximum-likelihood' estimation (FIML). The FIML estimator offers more efficiency than the two-step estimator (Greene, 2012) since all parameters of the selection and outcome equations are estimated simultaneously using the likelihood function (Certo et al., 2016).

Prior research advises an exclusion restriction such that there is at least one variable with a non-zero coefficient in a selection equation estimating acquired funds that is excluded from the outcome equation estimating funding amount (Certo et al., 2016). We used *number of tags* and *social media exposure* as exclusionary variables since they proxy the probability that an investor landed at the venture's page on Start-Up Nation Finder via click-through (internal and external, respectively). Both elements primarily influence the awareness of a venture and, thus, its likelihood of funding, but not the amount of funding. After all, the number of tags or social media links is quite uninformative about venture risk or upside potential. In the results section to follow, we discuss diagnostics regarding our selection correction approach.

We used Probit regression to estimate the selection equation for a venture's propensity to receive a first investment round. To test Hypothesis 1 concerning the likelihood of obtaining a first funding round, we conduct and report on a logistic regression instead of the Probit selection equation.[2] The model specification of our logistic regression was identical to that of the Probit selection equation.

RESULTS

We first report the descriptive statistics and bi-variate correlations as model-free evidence. Tables Ia and Ib present descriptive statistics for all variables in Study 1. We observe that ventures were almost two years old on average, operated mostly in one geographic area, and that 43 per cent of ventures operated in the software sector.

Table Ia. Study 1 descriptive statistics for continuous variables

	Minimum	*Median*	*Arithmetic Mean*	*Geometric Mean*	*Maximum*	*Standard Deviation*
Amount of funding received (in '000$)	10.00	1000.00	2199.39	905.23	25 000.00	3521.71
Disruptive vision	0.00	0.50	0.61	1.45	3.00	0.78
Promotion of achievements	0.00	0.50	0.52	1.42	3.00	0.62
Imagery	0.00	0.04	0.05	1.04	0.21	0.03
Social media exposure	0.00	2.00	1.79	2.43	4.00	1.35
Venture age	0.00	2.00	1.94	2.79	3.00	0.86
Number of tags	1.00	7.00	7.60	7.96	31.00	3.32
Geographic scope	1.00	1.00	1.25	2.19	6.00	0.63
Investor experience	1.00	4.00	9.30	6.28	85.00	13.02

Table Ib. Study 1 descriptive statistics for dummy variables

	0	*1*	*Percentage*
Investment received	782	136	14.81
Subsidiary	849	69	7.52
Member of program	768	150	16.34
Sector Software	522	396	43.14
Sector Healthcare	807	111	12.09
Sector Security and Safety	837	81	8.82
Serial entrepreneur	486	432	47.06
Product released	565	353	38.45
A-round	112	24	17.65

Furthermore, we note that 38 per cent of ventures had released products, 47 per cent were founded by at least one serial entrepreneur, nearly 18 per cent had an A-series as first-round funding, and that 7.5 per cent of ventures were subsidiaries. Importantly, only 14.8 per cent of ventures received an investment, and those that did, acquired an average of $905,227 (geometric mean).

Table II presents the Pearson correlations. We observe that venture age has a significant positive association with having received an investment, but a negative association with the amount of funding received. Older ventures also are more likely to release products and to be active in social media. Importantly for the exclusion restrictions, ventures with more links to social platforms and more tags on their Start-Up Nation Finder page were positively correlated with receiving an investment, but not with the amount of investment received. We also observe that the promotion of achievements was positively and significantly correlated with both receiving funding and acquiring higher amounts. Regarding our main variable of interest: we observe a positive significant association of a disruptive vision with receiving an investment; and while not significant, but in line with our inconsistent mediation hypothesis, we note a negative association of a disruptive vision with the amount of funding.

Sample-Selection Correction Diagnostics

Sample selection impacted our data since the independent variable predicted significantly in the selection equation, and rho emerged as significant in our full model (*rho* = −0.81, *S.E.* = 0.13, $p < 0.001$, Model 4 in Table III) (Certo et al., 2016). Moreover, our independent variable did not correlate with error terms of the selection equation ($r < 0.01$, $p = 0.94$) or the outcome equation ($r < 0.01$, $p = 0.99$), and thus proved to be exogenous. Therefore, we deemed the results of our outcome equation to be unbiased (Certo et al., 2016). Also, the correlation between our independent variable and the inverse Mills ratio was lower than 0.30 in absolute terms ($r = -0.24$, $p < 0.001$), indicating sufficient strength for our exclusion restrictions (Certo et al., 2016). Last, a likelihood ratio test ($\chi^2 = 52.52$, *df.* = 2, $p < 0.001$) between the over-identified model (i.e., using

Table II. Pearson correlations of Study 1

	Name	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Investment received									
2	Amount of funding received (log)	−0.04								
3	Disruptive vision	0.06^{+}	−0.11							
4	Promotion of achievements	0.14***	0.19**	0.07*						
5	Imagery	0.01	−0.18*	0.25***	0.12***					
6	Social media exposure	0.24***	0.03	0.02	−0.01	0.05				
7	Venture age	0.08*	−0.18*	0.07	0.04	0.08*	0.22***			
8	Subsidiary	0.00	−0.01	0.00	0.03	0.02	0.04	−0.01		
9	Member of program	0.11**	−0.04	0.03	0.04	−0.03	0.02	0.02	−0.07*	
10	Number of tags (log)	0.15***	0.01	−0.01	0.12***	0.20***	0.20***	0.08*	0.06^{+}	−0.02
11	Sector Software	−0.06^{+}	−0.06	0.02	−0.06^{+}	0.02	0.12***	−0.04	0.07*	0.00
12	Sector Healthcare	0.00	0.14^{+}	0.06^{+}	0.12***	−0.05	−0.25***	−0.02	−0.04	0.00
13	Sector Security and Safety	0.14***	0.23**	−0.01	0.14***	−0.07*	−0.05	−0.09**	−0.03	0.00
14	Serial entrepreneur	0.09**	0.05	0.01	−0.01	−0.04	0.13***	−0.08*	−0.05	0.10**
15	Geographic scope	0.02	−0.05	−0.01	0.07*	0.07*	0.07*	0.02	0.08*	−0.02
16	Released product	0.13***	−0.01	−0.07*	0.05	0.07*	0.32***	0.22***	0.16***	−0.03
17	A−round		0.45***	−0.04	0.16^{+}	−0.07	0.18*	−0.01	−0.13	−0.01
18	Investor experience		0.26***	0.10	0.15*	0.02	−0.02	−0.19**	−0.09	0.08

(*Continued*)

Table II. *Continued*

	Name	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Investment received								
2	Amount of funding received (log)								
3	Disruptive vision								
4	Promotion of achievements								
5	Imagery								
6	Social media exposure								
7	Venture age								
8	Subsidiary								
9	Member of program								
10	Number of tags (log)								
11	Sector Software	−0.22***							
12	Sector Healthcare	0.04	−0.32***						
13	Sector Security and Safety	0.08*	−0.27***	−0.12***					
14	Serial entrepreneur	0.05	0.01	−0.12***	0.05				
15	Geographic scope	0.17***	0.04	−0.04	0.04	0.02			
16	Released product	0.15***	0.08*	−0.16***	0.01	−0.03	0.10**		
17	A-round	0.15†	−0.07	0.07	0.13	−0.08	0.08	0.08	
18	Investor experience	−0.10	0.17*	−0.09	0.05	0.17*	−0.02	0.05	0.11

†$p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table III. Study 1 results

Dependent variable		*Investment received (1 = Yes)*		*Amount of funding received ('000$)*	
		Model 1 *Estimate* *(S.E.)*	*Model 2* *Estimate* *(S.E.)*	*Model 3* *Estimate* *(S.E.)*	*Model 4* *Estimate* *(S.E.)*
	Intercept	−4.16*** (0.72)	−4.30*** (0.73)	15.38*** (0.79)	15.27*** (0.85)
Independent variable	Disruptive vision	–	0.20* (0.10)	–	−0.27** (0.11)
Control variables	Promotion of achievements	0.27** (0.09)	0.26** (0.10)	−0.02 (0.13)	0.00 (0.13)
	Imagery	0.02 (0.10)	−0.03 (0.11)	−0.20† (0.11)	−0.13 (0.11)
	Social media exposure	0.69*** (0.12)	0.68*** (0.12)	–	–
	Venture age	0.13 (0.11)	0.11 (0.11)	−0.24† (0.14)	−0.22 (0.14)
	Subsidiary	0.02 (0.38)	0.00 (0.38)	0.87† (0.46)	0.90* (0.45)
	Member of program	0.63** (0.24)	0.62** (0.24)	−0.45 (0.32)	−0.47 (0.32)
	Number of tags (log)	0.70* (0.30)	0.76* (0.31)	–	–
	Sector dummies	*Yes*	*Yes*	*Yes*	*Yes*
	Serial entrepreneur	0.36† (0.21)	0.36† (0.21)	0.10 (0.28)	0.13 (0.28)
	Geographic scope	−0.05 (0.10)	−0.05 (0.10)	−0.25† (0.14)	−0.26† (0.13)
	Released product	0.30 (0.22)	0.34 (0.22)	−0.61* (0.27)	−0.64* (0.28)
	A−round	–	–	1.42*** (0.31)	1.43*** (0.31)
	Investor experience	–	–	0.24* (0.11)	0.27* (0.11)
Full model diagnostics	AIC	685.42	683.60		
	Sigma	–	–	1.70*** (0.25)	1.64*** (0.26)
	rho	–	–	−0.82*** (0.11)	−0.81*** (0.13)
	Log likelihood[a] (df.)	−328.71*** (14)	−326.80*** (15)	−547.90*** (30)	−544.26*** (32)
	Likelihood ratio test against competing models (df.)	–	3.83† (1)	–	7.28* (2)
	Observations	918	918	136	136

[1a]Significance refers to the results of a likelihood ratio test of model fit against the null model.
[2]† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standardized coefficients are reported. Standard errors are in parentheses (S.E.).

our full model specification; log likelihood = −544.26) and the just-identified model (i.e., model without exclusion restrictions; log likelihood = −570.52) showed that applying our exclusion restrictions significantly improved the overall fit of the model. These results validated the adequacy of our analytical approach and the selection of exclusion restrictions.

Testing

Table III shows results of the logistic regression estimating the likelihood of venture funding. Model 1 included only control variables. As expected, ventures with more social media exposure ($\beta = 0.69$, *S.E.* = 0.12, $p < 0.001$), a larger number of tags ($\beta = 0.70$, *S.E.* = 0.30, $p = 0.02$), and that promoted more achievements ($\beta = 0.27$, *S.E.* = 0.09, $p = 0.004$) were more likely to be funded. Furthermore, the model showed that ventures that are members of an accelerator program ($\beta = 0.63$, *S.E.* = 0.24, $p = 0.009$), that were founded by serial entrepreneurs ($\beta = 0.36$, *S.E.* = 0.21, $p = 0.08$, significant at the $\alpha < 0.1$ level), and that served the healthcare ($\beta = 0.69$, *S.E.* = 0.36, $p = 0.06$) and security and safety ($\beta = 1.30$, *S.E.* = 0.33, $p < 0.001$) sectors were more likely to obtain funding than those in the 'other' category. A Wald test showed the overall effect of the sector variable to be significant ($\chi^2 = 19.39$, *df.* = 3, $p < 0.001$), while the difference between the healthcare and security and safety sectors was not significant ($\chi^2 = 2.3$, *df.* = 1, $p = 0.13$).

Model 2 included the main effects of our independent variable and the control variables on the odds of receiving a first investment round. The results of Model 2 supported Hypothesis 1, stating that a disruptive vision positively predicts the likelihood of receiving funds ($\beta = 0.20$, *S.E.* = 0.10, $p = 0.048$). We found that one standard deviation increase in disruptive vision increases the odds of acquiring funding by 22 per cent.

Table III also displays results of our outcome regression equations where we estimated the level of funding received by ventures in the first round. Model 3 included control variables. Intuitively, we note that ventures with Series A funding ($\beta = 1.42$, *S.E.* = 0.31, $p < 0.001$), those from the software sector ($\beta = 0.70$, *S.E.* = 0.29, $p = 0.016$), and those with subsidiary ties ($\beta = 0.87$, *S.E.* = 0.46, $p = 0.06$, significant at the $\alpha < 0.1$ level) received significantly more capital. In addition, experienced investors were inclined to provide higher amounts of funding ($\beta = 0.24$, *S.E.* = 0.11, $p = 0.026$). Conversely, older ventures ($\beta = -0.24$, *S.E.* = 0.14, $p = 0.078$), ventures with a larger geographic scope ($\beta = -0.25$, *S.E.* = 0.14, $p = 0.069$, significant at the $\alpha < 0.1$ level), and those with released products ($\beta = -0.61$, *S.E.* = 0.27, $p = 0.027$) received lower amounts of funding.

The results in Model 4 depict the main effects of disruptive visions. Model 4 confirmed Hypothesis 2 stating that disruptive vision has a negative effect on the amount of funding ($\beta = -0.27$, *S.E.* = 0.11, $p = 0.017$). Quantitatively, one standard deviation increase in disruptive vision reduced the amount of funding by 24 per cent. We used the estimations of our full model to calculate the average dollar impact of one standard deviation increase in disruptive vision communication.[3] For a typical venture with a Seed type first round, a one standard deviation increase in disruptive vision communication led to an $87,000 decrease in funding received. For a typical venture with an A series first round, a one standard deviation increase in disruptive vision communication led to a $361,000 decrease in funding received.

Robustness Checks

As seen in Table Ib, the distribution of the dependent variable 'investment received' is skewed with only 14.8 per cent of ventures receiving investment. In our logistic regression models, this may have caused separation[4] (Heinze and Schemper, 2002) or inconsistent parameter estimates (Donkers et al., 2003). We saw no trace of separation in our models. To assess the consistency of parameter estimates, we ran additional analyses using randomly drawn, balanced samples (see the Appendix A for details). Consistent with our main analyses, we observed a significant and positive effect of disruptive visions over 10,000 bootstraps (Odds ratio = 1.33, *95% CI* = [1.10, 1.69], $p = 0.005$).

The fourth item of the disruptive vision measurement yielded a low Cohen's Kappa of 0.21. Therefore, we excluded the item from the measure of disruptive visions in our main analysis. Nevertheless, the item is relevant for theoretical reasons: Central to a new venture's disruptive vision is an innovation (i.e., any novel approach, technology, or business model) allowing it to pursue disruption. When including the focal item in our measure for disruptive vision, the results remained qualitatively similar for both the likelihood of receiving first-round funding (Model 2, Table III: $\beta_{excluding\ item} = 0.20$, *S.E.* $= 0.10$, $p = 0.048$; $\beta_{including\ item} = 0.24$, *S.E.* $= 0.10$, $p = 0.019$) and the amount of funding (Model 4, Table III: $\beta_{excluding\ item} = -0.27$, *S.E.* $= 0.11$, $p = 0.017$; $\beta_{including\ item} = -0.34$, *S.E.* $= 0.11$, $p = 0.003$).

DISCUSSION

Study 1 found that a disruptive vision increased the likelihood of first-round funding while decreasing the amount of funding. Study 1 offered these insights from a unique and relevant empirical field setting that advises both business practitioners and researchers to consider disruptive vision communication when making investment decisions. However, the cross-sectional nature of our archival data limits claims of causality. Also, generalizing the findings requires replication in other contexts, and the lack of data on investor sensemaking did not allow us to investigate the mechanisms driving the results. To address these issues, we conducted a randomized online experiment described next.

STUDY 2: ONLINE EXPERIMENT ON DISRUPTIVE VISIONS METHOD

Participants

Two hundred and fifty-three people were enlisted on the Prolific.ac website, a platform for surveys and experimental projects. The survey took 12 minutes on average, for which we offered compensation in accordance with Prolific.ac rules. To ensure participant quality, we prescreened according to the following specifications: first, participants had investment experience with exchange-traded commodities or funds, government bonds, stocks, unit trusts, angel (syndicate) investing, private equity funds, venture capital funds, options, or crowdfunding. This ensured a representative sample of respondent investors. Second, task acceptance rates had to exceed 90 per cent. Third, the level of education had

to be undergraduate or higher. Fourth, participants had to be at least 25 years old (i.e., no students) with residence in the European Union (including the UK), US, or Australia.

In both the introduction page and in the survey, we included attention checks to filter out participants who answered carelessly. Our final sample comprised 203 participants with 50 per cent female, averaging 40.5 years old (*S.D.* = 11.19), with 27 per cent having invested in entrepreneurial ventures.

Design

We designed a 2 (low and high disruptive vision) × 2 (low and high promotion of achievements) randomized between-subjects experiment. For each condition, we created a vision statement using the same fictitious venture. The vision statement was based on a venture from our Israeli database, adapted, and edited to match our purposes (See Appendix B).

We anonymized the names of the venture and its founders. To improve the overall credibility of the experiment, we added fictitious company information to the vision statements similar to profiles presented on Start-Up Nation Finder. This information, as well as the formatting and layout of the entire vision statement, was identical across all four conditions. Fictitious profiles featured: founding date, funding stage, geographical target markets, product stage, number of employees, business model, customers, and estimated valuation.

Procedure

The participants first read an introduction page explaining the purpose: to investigate early-stage investment decisions. We also informed them that we would ask them to answer a survey about their investment decisions regarding the venture to be presented. Each participant was randomly assigned a condition and read only the venture vision statement central to that condition. After manipulation checks, participants were asked if and how much they would invest and answered questions to inform our mediator and control variables. The survey ended with a page thanking the participants, informing them of the fictitious nature of the information presented about the venture, and referring them to the Prolific.ac website for compensation.

Dependent Variables

Our two main dependent variables were whether a respondent funded the venture (*investment received*) and the *amount of funding* they offered. To mirror the Study 1 analysis, we used the log-transformed values of funding amount in our models. For the investment decision questions, we introduced the following vignette:

> 'Imagine that you are an investor working for an investment company (e.g., a venture capitalist firm). You have to decide how to invest the $500,000 funds you are managing. You are expected to earn a minimum of 15% return per year on the fund over the next 5 years.
>
> ProSearch is one of several investment opportunities. ProSearch is looking for a $100,000 investment, offering 20% equity ownership (valuing the venture at $500,000).'

We next posed the following question to log a participant's investment decision:

> 'Would you… (1) leave the money in the bank, earning a steady 5% yearly interest rate, and wait for the next investment opportunity or (2) Invest (part of) the money in ProSearch?'

To measure the investment amount, we asked (on the next page):

> 'Regardless of your answer on the previous question, if you were to invest in ProSearch, how much would you invest in exchange for 20% equity ownership in ProSearch?'
>
> Participants answered this question on a slider ranging from $1 to $100,000.

Independent Variables

Our manipulation of *disruptive vision* is detailed in the Appendix B. We incorporated it as a dummy variable in our analyses.[5] For this variable, zero (0) meant survey participants were exposed to low disruptive vision conditions, and one (1) indicated participation in high disruptive vision conditions.

We measured expectation of *extraordinary returns* using four items adapted from Huang and Pearce (2015). We asked using a five-point Likert scale (1: Very unlikely, 5: Very likely): "What do you think is the likelihood ProSearch will achieve one of the following successes?" The outcomes included: 'Being acquired by another firm at a high price', 'Having a successful Initial Public Offering (IPO)', 'Yielding tenfold returns to investors', and 'Becoming a market leader' (Cronbach's Alpha = 0.79).

Control Variables

Distinct from Study 1, our data for Study 2 posed no variation in venture characteristics. Control variables in Study 2 thus pertained only to elements of the manipulation and to investors. Via experimental design, we controlled for *promotion of achievements*. Similar to our disruptive vision variable, we treated the promotion of achievements as a dummy variable in our analyses. Additionally, we controlled for participants having *investment experience* in nascent ventures. Experience with early-stage ventures may shift a participant's perception of the attractiveness of the investment opportunity. Since risk preference shapes how willing one is to invest in risky efforts, such as young ventures, we included *risk preference* as a control variable. Following Koudstaal et al. (2015), we asked the participants to rate on a five-point Likert scale 'How much do you describe yourself as willing to take risks?' We also included participant *age* and *gender* as controls. Lastly, to avoid sample-selection bias (that was remedied statistically in Study 1), we included investors declining first-round investment into our regressions on amount. This possibility emerged since we asked respondents to select an amount even when refusing to invest at all. To control for potential variance in the amounts chosen among 'yes' and 'no' investors, we included the *investment made* variable in our regressions on the amount of funding chosen.

Table IV displays the Pearson correlations among the variables in Study 2.

Table IV. Pearson correlations of Study 2

		1	*2*	*3*	*4*	*5*	*6*	*7*
1	Investment received (1 = Yes)							
2	Amount of funding	0.45***						
3	Disruptive vision (dummy)	0.14†	−0.08					
4	Expectation of extraordinary return	0.48***	0.41***	0.13†				
5	Promotion of achievements (dummy)	0.18**	0.16*	−0.01	0.21**			
6	Investment experience (1 = Yes)	−0.02	0.00	−0.08	0.15*	0.03		
7	Risk preference	0.13†	0.03	−0.07	0.14*	−0.01	0.16*	
8	Age	−0.15*	0.00	0.06	−0.07	0.01	0.02	−0.14*
9	Gender (Male =1)	−0.03	−0.09	−0.01	−0.20**	0.00	0.05	0.22**

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Analysis

We applied logistic regression to estimate likelihood of funding. Ordinary least squares (OLS) regression was used to estimate the effect of disruptive vision on the expectation of extraordinary return and on the amount of funding awarded by participants. To assess mediation, we conducted causal mediation analysis using the 'mediation' package in the statistical software R (R Core Team, 2017; Tingley et al., 2014).

Our analysis involved inconsistent mediation, expressed when the sign of the independent variable's effect on the dependent variable negates due to opposing underlying effects (MacKinnon et al., 2007). A common example of this model is the relationship between intelligence and production mistakes as mediated by boredom. In McFatter's (1979) hypothetical example of an assembly-line, intelligent workers easily got bored and made more production mistakes even though smart people tend to be better at preventing production mistakes. As a contradiction, the overall relationship between intelligence and production mistakes measured zero. However, adding boredom as a mediator unveiled the otherwise hidden opposing impact of intelligence versus boredom on production mistakes.

RESULTS

Manipulation Checks

To gauge the effectiveness of our manipulation, we queried the sample on several manipulation checks. To assess the disruptive vision manipulation, we asked participants

to answer on a five-point Likert scale (strongly disagree / strongly agree) how much they agreed with these statements: 'ProSearch says it aims to disrupt the product search and discovery industry', and 'ProSearch has a vision about the future of product search and discovery'. One-way ANOVA showed large differences between conditions for the 'disrupt' ($F(3, 199) = 43.10$, $p < 0.001$) and 'vision' ($F(3, 199) = 2.67$, $p = 0.049$) queries. For the 'disrupt' question, post-hoc contrast analysis indicated significant mean differences between all conditions involving 'high disruptive vision' and those invoking 'low disruptive vision' (mean diff. = 3.60, *S.E.* = 0.32, $p < 0.001$; Bonferroni adjusted). For the 'vision' question, a post-hoc contrast analysis of the two conditions involving 'high disruptive vision' showed participants viewing the 'high disruptive vision' conditions as more visionary than those of the 'low disruptive vision' (mean diff. = 0.49, *S.E.* = 0.18, $p = 0.01$; Bonferroni adjusted).

To assess the effectiveness of our 'promotion of achievements' manipulation, we asked participants to answer on a five-point Likert scale (strongly disagree / strongly agree) how much they agreed with the statement: 'ProSearch and its founders communicate their accomplishments'. One-way ANOVA showed significant differences between conditions on this question ($F(3, 199) = 35.31$, $p < 0.001$). Post-hoc contrast analysis indicated significant mean differences between all conditions involving "high promotion of achievements" versus "low promotion of achievements" (mean diff. = 2.51, *S.E.* = 0.25, $p < 0.001$; Bonferroni adjusted).

Testing

Table V provides the results of our analyses. Model 4 replicated our findings from Study 1 and offered evidence favouring Hypothesis 1. Again, we find that ventures conveying a more disruptive vision are more likely to acquire first-round investment ($\beta = 0.74$, *S.E.* = 0.33, $p = 0.023$). In our experiment, using a highly disruptive vision (vs. no disruptive vision) increased the odds of receiving funds by 110 per cent. Hypothesis 3 posited that an expectation of extraordinary returns mediates the relationship between the venture's use of a disruptive vision and an investor's investment decision. Model 2 indicated that communicating a highly disruptive vision prompted the expectation of extraordinary returns ($\beta = 0.31$, *S.E.* = 0.13, $p = 0.02$). Model 5 next showed that an expectation of extraordinary returns significantly increased the likelihood of an investor opting to fund the venture ($\beta = 1.48$, *S.E.* = 0.27, $p < 0.001$). In our experiment, one standard deviation increase in the expectation of extraordinary returns boosted odds of acquiring an investment 4.41 times. Subsequently, we conducted mediation analysis and detected evidence for the mediating effect of expectation of extraordinary returns ($\beta = 0.08$, *95% CI* = [0.02, 0.15], $p = 0.016$, 10 000 bootstraps[6]), thus supporting Hypothesis 3.

Models 6 to 8 in Table V show our test of Hypothesis 2 (i.e., communication of a more disruptive vision negatively affects the amount of funding). Model 7 offered initial support for Hypothesis 2, showing significant negative effect of a disruptive vision on the amount of funding ($\beta = -0.25$, *S.E.* = 0.11, $p = 0.021$). Model 8 clearly showed that the effect of a disruptive vision sharpens when controlling for expectation of extraordinary returns, implying that inconsistent mediation is present.

Table V. Study 2 regression results

	Expectation of extraordinary returns (OLS)		*Investment received (logistic regression)*			*Amount of funding (log–linear regression)*		
	Model 1 *Estimate* *(S.E.)*	*Model 2* *Estimate* *(S.E.)*	*Model 3* *Estimate* *(S.E.)*	*Model 4* *Estimate* *(S.E.)*	*Model 5* *Estimate* *(S.E.)*	*Model 6* *Estimate* *(S.E.)*	*Model 7* *Estimate* *(S.E.)*	*Model 8* *Estimate* *(S.E.)*
Intercept	−0.04	−0.23	0.64*	0.22	0.61	3.04***	3.16***	3.33***
	(0.12)	(0.14)	(0.28)	(0.34)	(0.39)	(0.12)	(0.13)	(0.14)
Disruptive vision		0.31*		0.74*	0.53		−0.25*	−0.29**
		(0.13)		(0.33)	(0.37)		(0.11)	(0.11)
Expectation of Extraordinary returns					1.48***			0.22***
					(0.27)			(0.06)
Promotion of achievements	0.42**	0.42**	0.87**	0.91**	0.54	0.13	0.12	0.06
	(0.13)	(0.13)	(0.32)	(0.33)	(0.37)	(0.11)	(0.11)	(0.10)
Investment experience	0.30†	0.32*	−0.24	−0.20	−0.73†	0.01	−0.01	−0.09
	(0.15)	(0.15)	(0.36)	(0.36)	(0.43)	(0.12)	(0.12)	(0.12)
Risk preference	0.17*	0.18**	0.31†	0.34*	0.21	0.00	−0.01	−0.04
	(0.07)	(0.07)	(0.17)	(0.17)	(0.20)	(0.06)	(0.06)	(0.05)
Age	−0.06	−0.07	−0.31*	−0.34*	−0.31†	0.05	0.06	0.06
	(0.07)	(0.07)	(0.16)	(0.16)	(0.18)	(0.05)	(0.05)	(0.05)
Gender	−0.49***	−0.5***	−0.29	−0.32	0.38	−0.13	−0.12	−0.02
	(0.13)	(0.13)	(0.33)	(0.33)	(0.40)	(0.11)	(0.11)	(0.11)
Investment made						0.81***	0.85***	0.65***
						(0.12)	(0.12)	(0.13)
R- squared	0.14	0.17				0.22	0.24	0.29
F-statistic (df1/df2) & Log likelihood[a] (df.)	6.64*** (5/197)	6.57*** (6/196)	−117.94** (6)	−115.30** (7)	−92.34*** (8)	9.26*** (6/196)	8.9*** (7/195)	9.86*** (8/194)
Test[b] against competing models (df.)		5.49* (1)		5.28* (1)	45.92*** (1)		5.45* (1)	12.81*** (1)
AIC			247.89	244.60	200.68			

[a]F-statistic was reported for the OLS regressions on expectation of extraordinary returns and amount of funding. Log likelihood was reported for the logistic regressions on investment received. Significance of the values refers to the results of a test of model fit against the trivial model.
[b]For the OLS regression, the Wald test was used (F-test statistic), and the logistic regression applied a likelihood ratio test (χ^2 test statistic).
†$p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standardized coefficients are reported for continuous variables: expectation of extraordinary returns, risk preference, and age. Standard errors are in parentheses (S.E.).

We tested the inconsistent mediating effect of extraordinary returns and found evidence for both Hypothesis 2 and Hypothesis 4 in Model 8. Specifically, expectation of extraordinary returns positively mediated the relationship between the disruptive vision and the amount of funding ($\beta = 0.07$, $CI = [0.2, 0.17]$, $p = 0.015$, 10,000 bootstraps), while a disruptive vision had a significant negative direct effect on the amount of funding ($\beta = -0.29$, *95% CI* $= [-0.49, -0.07]$, $p = 0.006$, 10,000 bootstraps). Specifically, touting a highly disruptive vision lowered the amount of funding by 25 per cent when controlling for its positive indirect effect on the amount of funding through an expectation of extraordinary returns.

Robustness Analysis

In Study 2, we asked participants to state the amount of money they would invest in the venture, regardless of whether they decided not to invest initially. Thereby, our analysis of the amount of funding in Study 2 includes potential investors that decided not to invest initially. By doing so, our experiment avoids sample-selection bias by design, rather than statistically correcting for it afterwards. We conducted a subset-analysis for our regression models on amount, excluding people who initially decided not to invest in the venture. Results remained consistent with our main analysis: In comparison to Model 8 in Table V, we again observed a significant effect of disruptive vision on the amount of funds allocated by investors ($\beta_{disruptive\ vision} = -0.24$, *S.E.* $= 0.10$, $p = 0.022$; $\beta_{\text{extraordinary return}} = 0.24$, *S.E.* $= 0.06$, $p < 0.001$).

DISCUSSION

Results of Study 2 indicated that a more disruptive vision boosted the likelihood of receiving investment since it creates an expectation of extraordinary return in the investors. Yet, when controlling for this effect on the amounts of funding awarded, we observed that communicating a disruptive vision negatively impacted the amount of funding. Study 2 complemented Study 1 in two very important ways. First, Study 2 replicated findings for Hypotheses 1 and 2 in a randomized controlled setting to uphold the generalizability and the causality of results beyond the cross-sectional nature of an Israeli context. Second, it allowed the discovery of expectation of extraordinary returns as a key mechanism shaping our results from testing Hypotheses 3 and 4.

GENERAL DISCUSSION

Entrepreneurs increasingly talk about 'disruption,' framing their products, technologies and ventures as 'disruptive' to secure financial capital from investors. We set out to investigate what a disruptive vision entails and how it helps or hampers entrepreneurs' efforts to obtain financial investments. Through two complementary studies, we consistently found that highly disruptive visions increased the likelihood of first-round venture funding while also limiting the amount of funding obtained. This finding has important theoretical implications for research on disruptive innovations, real options theory, impression management, and vision communication.

Theoretical Implications

First, our findings demonstrate the importance of disruptive vision as a new form of thematic vision content used by entrepreneurs to promote their innovations. This new form of vision content enriches research on disruptive innovation and the disruption process, which has thus far focused on the process of disruption where underperforming performance attributes gradually satisfy customer needs (Christensen, 1997; Christensen and Raynor, 2003). However, prior research has also documented that not all potentially disruptive innovations 'disrupt' (Sood and Tellis, 2011). This variation signals the existence of factors that have been overlooked in examining what drives the disruption process (King and Baatartogtokh, 2015; Tellis, 2006). We argue that one of these omitted factors is an entrepreneur's vision communication. Recent research has suggested that the process of disruption is best understood from the viewpoint of 'disruptors' and how they frame their ventures (Ansari et al., 2016). Our results show that disruptive visions are more likely to convince investors to get on board – albeit with a smaller amount than for less disruptive narratives. We thereby contribute to recent research on disruptive innovations regarding the ways in which firms can manage their ecosystems through communication and framing (e.g., Ansari et al., 2016; Gurses and Ozcan, 2015).

Second, we explore how a particular way of framing an entrepreneurial venture can affect investors' sensemaking of the venture as an investment opportunity. In that light, we contribute to burgeoning research on entrepreneurs' efforts in managing the impressions of stakeholders (e.g., Fisher et al., 2017; Martens et al., 2007; Navis and Glynn, 2011; van Werven et al., 2015; Zott and Huy, 2007). Impression management research has recognized the importance of future-oriented communications (Garud et al., 2014), but has not yet studied the impact of such communications on venture-level outcomes. To address this oversight, we highlight the importance of investigating vision communication as part of impression management efforts.

Vision communication is a category of impression management (see Zott and Huy, 2007, p. 72). In contrast to other forms of impression management, visions showcase the future – that is, what the venture/entrepreneur will do and become. As such, the aim of entrepreneurial vision communication is to affect audiences' perceptions of the intrinsic or substantive value of what the venture aims to achieve. While prior research has empirically investigated how ventures legitimize identity claims, it has focused predominantly on backward-looking communication. However, 'track record touting' alone does not explain how entrepreneurs build trust toward their ventures' proposed activities. With our investigation of entrepreneurial visions, we address this caveat and help scholars to understand how future-oriented communications and their contents shape investor sensemaking. In particular, we not only debut and affirm the gravity of disruptive visions (i.e., increasing the probability of acquiring funding from investors), but also uncover a potential downside to such communications (i.e., attracting lower amounts of funding from investors).

In addition, our findings enhance the understanding of entrepreneurs' impression management approaches in their quest for acquiring investments. Past research has elaborated on various aspects of entrepreneurial communications that affect investment acquisition through the establishment of optimal distinctiveness. For example, researchers

have noted that elements such as aggressiveness, assertiveness, competitiveness, and blasting are powerful tools entrepreneurs may use to distinguish themselves in the eyes of investors (Parhankangas and Ehrlich, 2014). Similarly entrepreneurs may use the communication of accomplishments and accrued resources to legitimize their identity claims (e.g., Bernstein et al., 2017; Burton et al., 2002; Hallen, 2008; Martens et al., 2007; Navis and Glynn, 2011; Zott and Huy, 2007). Many of these impression management tactics and symbolic aspects yield synergistic effects that strengthen a distinct, collective perception about ventures and entrepreneurs (e.g., a high growth venture, Baum et al., 1998; an aspiring market leader, Martens et al., 2007; a collaborator or competitor, Ansari et al., 2016). Articulation of integrative themes may serve special purposes for entrepreneurs. For example, research by Hallen (2008) has suggested that communication of prior accomplishments helps young ventures to form notable ties with key ecosystem members. By conceptualizing disruptive visions, we promote valuable understanding of integrative themes in entrepreneurial communications; this opens the door for future research to further investigate how particular content in an entrepreneurial communication may influence audience sensemaking and venture outcomes.

Third, we provide new insights regarding both real options and impression management theories to explain investment decisions under uncertainty. On the one hand, the main underlying rationale in impression management theory is that the ambiguity and uncertainty surrounding entrepreneurial activities make it hard for investors to assess the quality of a venture's value proposition. This is why investors rely on cues communicated through entrepreneur's impression management efforts. Still, it is important to note that impression management research alone does not fully explain our findings. Indeed, this stream of research would predict a positive effect of disruptive vision on amounts of funding, since the use of disruptive visions has become increasingly popular (Christensen et al., 2015), and entrepreneurs derive legitimacy for their touted identities from innovation, novelty, and publicized change (Navis and Glynn, 2011). On the other hand, real options theory builds its arguments on the intricate balance between upside potential and risk that motivates real options logic in investors. However, this stream of research cannot explain how communicating a disruptive vision would affect investor real option decision making when it has thus far overlooked the role of impression management (see Trigeorgis and Reuer, 2017). We combine both streams of research to explain how disruptive visions affect investment decisions. Here, our work shows that impression management efforts, such as disruptive visions, may have variant effects on how investors select ventures as real options and how they allocate funds to them. In so doing, we not only draw from these research streams, but also significantly advance them and motivate researchers in both fields to integrate the two in understanding investor decision making.

Fourth, our results challenge prior research that has highlighted unilateral positive returns from strong vision communication (Baum and Locke, 2004; Baum et al., 1998; Van Knippenberg and Stam, 2014). We engage the calls for research into vision content (for a recent review, see Van Knippenberg and Stam, 2014) and propose the framing of vision content with a focus on disruption. Specifically, prior vision research has centered strongly on *how* visions are communicated (style) rather than on *what* is communicated (content). For example, scholars have focused on the effectiveness of repetition, rhythm,

balance, contrasts, lists, puzzles, alliteration, imagery, analogies and metaphors, classification, generalization, and authority (Carton et al., 2014; Conger, 1991; Den Hartog and Verburg, 1998; Hill and Levenhagen, 1995; van Werven et al., 2015). Yet, these investigations omit the influence of vision content. Our emphasis on vision content allows a more in-depth understanding of the vision content–vision pursuit relationship (Stam et al., 2014), reminding scholars that the framing of visions is an essential part of an entrepreneur's communications, but may have downsides that should be duly investigated.

Managerial Implications

Our findings have strong implications for entrepreneurs. Entrepreneurs must be made aware that the content of their vision communication affects investors' perceptions of their venture. The vision statement plays a critical role in communicating the goal and purpose of the organization and must be crafted with care. In particular, despite the popularity of disruptive visions in practice, our study suggests that entrepreneurs should use them judiciously. While communicating a highly disruptive vision increases the likelihood of receiving an investment, it subsequently reduces the amount of funds endowed in that investment. Furthermore, our operationalization of disruptive vision provides entrepreneurs with a template for the key characteristics of a specific form of vision content, allowing them to craft vision statements in ways that exploit or avoid communicating a disruptive vision. Expanding beyond prior vision communication research, our study specifically enables entrepreneurs to purposefully evaluate the content of their vision statements based on a pre-defined set of items, granting them greater control over their impression management efforts.

Limitations and Directions for Future Research

Investors' funding decisions are more complex than we explain in our study, since the investment process is inherently multistage and involves communications at each stage (Eckhardt et al., 2006; Gompers et al., 2016). While we show that entrepreneurial visions matter at the first stage in the investor selection process, future research should assess the consequences of entrepreneurial vision communication at later stages in the funding process, such as when moving toward an IPO.

Since visions of entrepreneurs regarding their ventures are not static, neither are disruptive visions. Entrepreneurs may revise their visions over time as they acquire new information or experience. Rapid achievements may trigger the creation of grander visions, and failures could serve as reality checks that, instead, moderate visions. Recent research has advised that ventures presenting disruptive frames may go on to alter their communications to be more respectful of competitive pressures (Ansari et al., 2016; Gurses and Ozcan, 2015). Since refinements are rare in the early stages of venture funding (e.g., the first funding rounds), we do not expect this factor to affect our results. Future research can examine changes in vision content over time.

Finally, we acknowledge that firms can also promote themselves as disruptors or as having achieved disruption. Thus, disruption can also form an integral part of how ventures craft their identities in their communications about the past. However, our current

operationalization of promotion of achievements did not consider this, since it is unlikely that younger ventures can legitimately claim much history of successful disruption. Future research can investigate whether older, more established ventures may also frame their identities around disruption and if this helps them in acquiring funds during later rounds.

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NOTES

[1] We tested and ascertained the robustness of our findings when this item is included. See the Robustness Checks section of Study 1 in the Results section.

[2] Although logistic regression and Probit regressions provide similar results and conclusions, the interpretation of their coefficients is not identical because of the difference in link functions (Greene, 2012). In a Probit model, the value of a coefficient is understood as the increase in z-value on a cumulative distribution function. This can be used to determine marginal probabilities, which are contingent on the chosen values of other variables entered into the Probit model.

[3] We used our model estimations to predict values for typical ventures. We only varied disruptive vision and round type, taking the average value for all other continuous variables and the most frequent value for dummy variables. We let the disruptive vision variable vary from its lowest to its highest possible value, in one standard deviation increments. To calculate the average dollar impact, we took the average of the differences between subsequent predicted values. Since our dependent variable was log-transformed, we corrected the predicted values for the logarithmic scale in accordance with Duan (1983)

[4] In the fitting process of a logistic model, separation (or monotone likelihood) can occur if the likelihood converges while at least one parameter estimate diverges to infinity. We applied the 'detect separation' function from the 'brglm2' package in the statistical software R (Kosmidis et al., in press; R Core Team, 2017).

[5] Since our experimental manipulations used a 2×2 disruptive vision–promotion of achievements design, we included the interaction term in our models as a robustness check. By doing so, we aimed to rule out the 'high disruptive vision–high promotion of achievements' condition as driving the observed effects. In none of our models did we find strong evidence of an interaction effect (lowest p-value = 0.09; interaction added to Model 8, Table A1).

[6] We used non-parametric bootstrapping with bias-corrected and accelerated (BCa) confidence intervals (DiCiccio and Efron, 1996).

APPENDIX A. BALANCED SAMPLE BOOTSTRAP ANALYSIS

To assess the robustness of our parameter estimates in Study 1, where data showed imbalance in the dependent variable of our logistic regression, we ran a balanced sample non-parametric bootstrap analysis (as suggested by Donkers et al., 2003). For each bootstrap iteration, we randomly drew (with replacement) a subsample of ventures in which no investment was made, equal in size to the subsample of ventures that did obtain investment. Since we observed 116 ventures receiving first-round investment, we randomly drew 116 ventures that did not. Each bootstrap thus features a sample size of N = 232.

Since each logistic regression was estimated on its own log scale, we may compare only standardized effects, even when model specifications remain identical for subsequent analyses. Therefore, we used the odds ratio for each bootstrap coefficient to compute mean bootstrapped effects for each variable. Additionally, we report bias-corrected and accelerated confidence intervals below (DiCiccio and Efron, 1996), as well as *p*-values that correspond to the proportion of coefficients opposing the reported effects (Tingley et al., 2014). To clarify, a *p*-value of 0.01 signifies a 1 per cent chance that (given our bootstrapped analysis) the odds ratio is actually 1.

Table A1. Balanced sample bootstrap results

	Odds Ratio	*Lower CI*	*Upper CI*	*p-value*
Intercept	0.09	0.03	0.56	>0.001
Disruptive vision	1.33	1.10	1.69	0.005
Promotion of achievements	1.35	1.07	1.78	0.016
Imagery	1.00	0.84	1.22	0.914
Social media exposure	2.05	1.61	2.71	>0.001
Venture age	1.14	0.91	1.42	0.285
Subsidiary	1.46	0.76	5.22	0.564
Member of program	1.96	1.21	4.11	0.023
Number of tags (log)	2.48	1.37	5.12	0.010
Sector dummies	*Included*			
Serial entrepreneur	1.47	0.99	2.34	0.098
Geographic scope	0.98	0.80	1.37	0.751
Released products	1.34	0.86	2.22	0.267

We used 10,000 bootstraps with bias-corrected and accelerated (BCa) confidence intervals.

APPENDIX B. ONLINE EXPERIMENT VISION STATEMENT MANIPULATIONS

Experimental Condition 1: High disruptive vision – high promotion of achievements

ProSearch

A Search Engine for E-commerce

ProSearch is revolutionizing Product Search & Discovery: we provide a groundbreaking data infrastructure for matching products to user intent with an unprecedented degree of accuracy, nuance, and coverage.

Our product

Most e-commerce companies are still relying on keyword matching and behavioral data to power their search. Our technology is a natural language processing and artificial intelligence layer that helps retailers really understand what their customers want and present them with the best search results. We only take a small percentage of each sale made with our system.

Our vision

ProSearch will change the way in which people search and discover new products. We have envisioned a disruptive product search technology tailored to the highly competitive e-commerce industry. With our new cutting-edge approach to cleaning and structuring data, we enable a search experience that revolutionizes the capabilities of major search and e-commerce companies in understanding their users' needs and providing qualified, relevant results. This inevitably boosts relevancy and conversion rates, leading to greater profitability. We will disrupt the world of e-commerce and become the global leader in product search and discovery!

Where we are today
By partnering with leading scientific institutions in the field of data science, we have created a patented unique approach that significantly outperforms existing product search technologies, including those of major retailers and search engines. We make products and product-related information easily accessible and extremely useful to users, ultimately removing barriers in, and redefining ways of dealing with product selection and purchase decisions. We have recently attracted large corporate customers from the United States, thereby expanding our operational scope. ProSearch was finalist in the 2016 International Trade Fair for Ideas, Inventions, and New Products, and took home a cash prize of $500.

The team
ProSearch employs a visionary team of data scientists and engineers —ex-Google, IBM, BCG, Harvard, Stanford, Princeton, and Duke, with over 30 US patents in search-related fields between them. The company is led by Jeff Martin (CEO and co-founder) and Darryl Walker (CTO and co-founder), two ex-Google PhDs with accomplished track records in start-ups and multinationals in the fields of search and e-commerce. They envision a future where consumers find products effortlessly and instantly.

Additional information
Founded: *02/2017*
Funding stage: *Seed*
Geographical markets: *USA, Europe, Middle East, Asia.*
Product stage: *Released*
Employees: *10*
Business model: *Business to business*
Customers: *9*

Estimated valuation (based on similar companies): *$500,000*

Experimental Condition 2: High disruptive vision – low promotion of achievements

ProSearch
A Search Engine for E-commerce
ProSearch is revolutionizing Product Search & Discovery: we provide a groundbreaking data infrastructure for matching products to user intent with an unprecedented degree of accuracy, nuance, and coverage.

Our product
Most e-commerce companies are still relying on keyword matching and behavioral data to power their search. Our technology is a natural language processing and artificial intelligence layer that helps retailers really understand what their customers want and present them with the best search results. We only take a small percentage of each sale made with our system.

Our vision
ProSearch will change the way in which people search and discovery new products. We have envisioned a disruptive product search technology tailored to the highly competitive e-commerce industry. With our new approach to cleaning and structuring data, we enable a search experience that revolutionizes the capabilities of major search and e-commerce companies in understanding their users' needs and providing qualified, relevant results. This inevitably boosts relevancy and conversion rates, leading to greater profitability. We will disrupt the world of e-commerce and become the global leader in product search and discovery!

Where we are today
We have created a unique approach that significantly outperforms existing search technologies, including those of major retailers and search engines. We make products and product-related information easily accessible and extremely useful to users, ultimately removing barriers in, and redefining ways of dealing with

product selection and purchase decisions. ProSearch presented their idea at the 2017 International Trade Fair for Ideas, Inventions, and New Products.

The team
ProSearch employs a visionary team of data scientists and engineers. The company is led by Jeff Martin (CEO and co-founder) and Darryl Walker (CTO and co-founder). They envision a future where consumers find products effortlessly and instantly.

Additional information
Founded: *02/2017*
Funding stage: *Seed*
Geographical markets: *USA, Europe, Middle-East, Asia.*
Product stage: *Released*
Employees: *10*
Business model: *Business to business*
Customers: *9*

Estimated valuation (based on similar companies): *$500,000*

Experimental Condition 3: Low disruptive vision – high promotion of achievements

ProSearch
A Search Engine for E-commerce
ProSearch has developed a Product Search & Discovery solution: we provide a data infrastructure for matching products to user intent with a high degree of accuracy, nuance, and coverage.

Our product
Our technology is a natural language processing and artificial intelligence layer that helps retailers understand what their customers want and present them with the best search results. We only take a small percentage of each sale made with our system.

Our goal
ProSearch delivers a superior search and discovery technology for products. Our product search solution is tailored to the highly competitive e-commerce industry. With our cutting-edge approach to cleaning and structuring data, we enable a search experience that helps major search and e-commerce companies to understand their users' needs and provide qualified, relevant results. This increases relevancy and conversion rates, leading to greater profitability.

Where we are today
By partnering with leading scientific institutions in the field of data science, we have created a patented approach that outperforms existing product search technologies. Tests show that 90 per cent of users recommended our solution over existing solutions. We make products and product-related information easily accessible and useful to users, facilitating product selection and purchase decisions. We recently attracted large corporate customers from the United States, expanding our operational scope. ProSearch was also finalist in the 2017 International Trade Fair for Ideas, Inventions, and New Products, and took home a cash prize of $500.

The team
ProSearch employs an elite team of data scientists and engineers—ex-Google, IBM, BCG, Harvard, Stanford, Princeton, and Duke, with over 30 US patents in search-related fields between them. The company is led by Jeff Martin (CEO and co-founder) and Darryl Walker (CTO and co-founder), two ex-Google PhDs with accomplished track records in start-ups and multinationals in the fields of search and e-commerce.

Additional information
Founded: *02/2017*
Funding stage: *Seed*
Geographical markets: *USA, Europe, Middle-East, Asia.*
Product stage: *Released*
Employees: *10*
Business model: *Business to business*
B2B customers: *9*

Estimated valuation (based on similar companies): *$500,000*

Experimental Condition 4: Low disruptive vision – low promotion of achievements
ProSearch
A Search Engine for E-commerce
ProSearch has developed a Product Search & Discovery solution: we provide a data infrastructure for matching products to user intent with accuracy, nuance, and coverage.

Our product
Our technology is a natural language processing and artificial intelligence layer that helps retailers understand what their customers want and present them with the best search results. We only take a small percentage of each sale made with our system.

Our goal
ProSearch delivers a superior search and discovery technology for products. Our product search solution is tailored to the highly competitive e-commerce industry. With our approach to cleaning and structuring data, we enable a search experience that helps major search and e-commerce companies to understand their users' needs and provide qualified, relevant results. This increases relevancy and conversion rates, leading to greater profitability.

Where we are today
We have created an approach that outperforms existing product search technologies. We make products and product-related information easily accessible and useful to users, facilitating product selection and purchase decisions. ProSearch presented their idea at the 2017 International Trade Fair for Ideas, Inventions, and New Products.

The team
ProSearch employs a team of data scientists and engineers. The company is led by Jeff Martin (CEO and co-founder) and Darryl Walker (CTO and co-founder).

Additional information
Founded: *02/2017*
Funding stage: *Seed*
Geographical markets: *USA, Europe, Middle-East, Asia.*
Product stage: *Released*
Employees: *10*
Business model: *Business to business*
B2B customers: *9*

Estimated valuation (based on similar companies): *$500,000*

Table AII. Examples of disruptive vision and promotion of achievements

Venture and vision statement	*Disruptive Vision*[a]				*Promotion of achievements*[b]		
	Fundamental change	*Contrasts status quo*	*Different manner*	*New function*[c]	*People*	*Venture*	*Resources*
Twiggle: "Twiggle is setting the standard for a new paradigm of Product Search & Discovery: providing a robust data infrastructure for matching products to user intent with an unprecedented degree of accuracy, nuance, and coverage. We understood that, with our approach to cleaning and structuring data, we could enable a search experience that would revolutionize the capabilities of major search and e-commerce companies to understand their users' needs. Today, our unique approach to classifying, recommending, and displaying products significantly outperforms existing search technologies, including those of major retailers and search engines. Using our expertise in search and data science, we make products and product-related information easily accessible and incredibly useful to users, which ultimately removes barriers in dealing with product selection and purchase decisions. Team Twiggle is made up of an elite team of data scientists and engineers – ex-Google, IBM, BCG, Harvard, Stanford, Princeton, and Duke, from top intelligence units of the Israeli Army, with over 30 US patents in search-related fields between them. The company is led by Amir Konigsberg (CEO & Co-founder) and Adi Avidor (CTO & Co-founder), two ex-Google PhDs with an accomplished track record in start-ups and multinationals in the fields of search and e-commerce."	Yes	Yes	Yes	No	Yes	Yes	Yes
Collage Medical Imaging: "The company's patented technology integrates very high resolution, short range, Optical Coherence Tomography technology with Spatial Localization Technology in a patent pending unique combination that enables, for the first time, reliable virtual tissue reconstruction of human organs at the microscopic level. The company's breakthrough system makes possible real time diagnosis, and provides unparalleled detailed microscopic mapping of the cancerous tissue within body organs. The end result is a micron level resolution virtual tissue reconstruction of the entire organ which is far superior to the resolution obtainable by known modalities such as MRI, CT, and Ultrasound. The company's mission is to provide a technology having the potential of complimenting and ultimately replacing traditional cancer diagnostics. Collage Medical Imaging was founded in 2014 as an Incubit Ventures company."	Yes	Yes	Yes	Yes	No	Yes	Yes

Table AII. Continued

Venture and vision statement	*Disruptive Vision*[a]				*Promotion of achievements*[b]		
	Fundamental change	*Contrasts status quo*	*Different manner*	*New function*[c]	*People*	*Venture*	*Resources*
JAGO: "JAGO's PlayDate platform empowers parents to schedule, manage, and track their kids' social lives in a single intuitive app. Our vision is to transform the way parents manage their kids' social lives, changing the paradigm from on-the-fly arrangements to seamless scheduling and management. We anticipate a time where family event planning will be as organized and controlled as a workplace calendar. The system's ability to manage the digital relationships between children, their friends, parents, additional caregivers, and parents of friends is the essence of the application. Our technological vision is to capture, manage, and enhance those relationships."	Yes	Yes	Yes	Yes	No	No	No
Fone.do: "Fone.do is developing a revolutionary simple to use, low cost intelligent business phone system you can set up yourself in a few minutes. We do things differently. Fone.do is a complete phone system for small business. You can use it from your web browser, mobile, and desk phones. One number that receives calls everywhere, anytime. We are proud that the Fone.do team is made up of creative people from diverse backgrounds. Together we are changing the way small businesses communicate."	Yes	No	Yes	No	Yes	No	No
AppInsight: "AppInsight generates security vulnerability reports for any app, along with detailed remediation guidelines, automatically and without any integration to the development process. We continuously scan your apps for the latest known vulnerabilities and proactively alert you when new threats to your app are detected, prioritized according to severity level. AppInsight ranks the security posture of your apps, compared to millions of apps that have already been analyzed. By doing so, we have built a huge database of mobile apps. Our group of top notch security experts from the IDF elite intelligence corps leverages their extensive experience and best practices to help you rectify every detected vulnerability and threat. Our vision is to create the industry standard for mobile application security."	No	No	No	Yes	Yes	No	Yes
Singular: "Singular is a SaaS platform that unifies the fragmented digital marketing space. Singular has built a much differentiated technology that enables marketers to seamlessly integrate all of their different marketing systems into a singular platform, without requiring an SDK integration or dedicated engineering resources. Their unique solution and technology has enabled them to grow incredibly fast in the past two years, and today they are working with some of the largest and most sophisticated digital marketers in the world: Twitter, Facebook, Match.com, Tinder, Supercell, Glassdoor, Glu, Kabam, Wallapop, Poshmark, GrabTaxi, and many others."	No	No	Yes	No	No	Yes	Yes

Table AII. Continued

Venture and vision statement	*Disruptive Vision*[a]				*Promotion of achievements*[b]		
	Fundamental change	*Contrasts status quo*	*Different manner*	*New function*[c]	*People*	*Venture*	*Resources*
BigaBid: "BigaBid is a data driven, data science focused solution designed for performance marketing in the mobile advertising industry. Through real time optimization and user profiling, BigaBid leverages unrefined user data and aggregates it into actionable audience profiles based on key behavior, location, and content trends. The data above is obtained by us through both our ongoing media acquisition activities, as well as through studying the advertiser's historical data. We zoom in on the most relevant, highly actionable users and build profiles based on them. These profiles, when coupled with multiple layers of mobile-specific data, and with the scale and reach of programmatic media buying, allow us to hit your KPIs on every single ad campaign, eliminate wastage and improve our predictive abilities toward your next campaign with us."	No	No	No	No	No	No	No
CoolaData: "CoolaData is a cloud-based solution which covers all big data infrastructure components for data tracking, warehousing, ETL, data enrichment – all the way to the visualization layer. It's an open data service that is not limited to proprietary tools. Connect to your data, to all your data points – It unifies data from a multitude of external and internal sources, inspects it as one unit, and visualizes the most comprehensive business insights from a richer analytical framework. CoolaData helps to analyze, visualize, predict, and act on big data, without dedicated resources. With CoolaData you boost your BI agility and time-to-insight becomes immediate."	No	No	No	No	No	No	No

[a]The disruptive vision items are (left to right): "The vision statement…" "promotes drastic change in the future: it makes a claim of pursuing dramatic change at a market or larger level, with implicit consequences for multiple stakeholders," "features a future that contrasts with the status quo: it delineates deficiencies in the current market situation and promises a substantial improvement," "includes ideas, plans or other evidence of achieving the conventional market objective in a completely different manner" and "promotes the venture's innovation or activities as enabling a completely new function."
[b]People includes the item "features evidence of past performance/experience of entrepreneurs and employees."
Venture comprises the item "presents evidence of past and current successes of venture in the market, including customers, locations, market leadership, and awards and prizes"
Resources matches the item "features claims of accrued resources, such as latest/proprietary technology, partnerships/networks/affiliations, and patents/prototypes."
[c]The 'new function' item was not included in the empirical measure of disruptive vision due to low Cohen's Kappa reliability.

REFERENCES

Aguinis, H., Edwards, J. R. and Bradley, K. J. (2017). 'Improving our understanding of moderation and mediation in strategic management research'. *Organizational Research Methods*, **20**, 665–85.

Ansari, S. S., Garud, R. and Kumaraswamy, A. (2016). 'The disruptor's dilemma: TiVo and the US television ecosystem'. *Strategic Management Journal*, **37**, 1829–53.

Argyres, N., Bigelow, L. and Nickerson, J. A. (2015). 'Dominant designs, innovation shocks, and the follower's dilemma'. *Strategic Management Journal*, **36**, 216–34.

Audretsch, D. B., Bönte, W. and Mahagaonkar, P. (2012). 'Financial signaling by innovative nascent ventures: The relevance of patents and prototypes'. *Research Policy*, **41**, 1407–21.

Avnimelech, G. and Teubal, M. (2006). 'Creating venture capital industries that co-evolve with high tech: Insights from an extended industry life cycle perspective of the Israeli experience'. *Research Policy*, **35**, 1477–98.

Baum, J. R. and Locke, E. A. (2004). 'The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth'. *Journal of Applied Psychology*, **89**, 587–98.

Baum, J. R., Locke, E. A. and Kirkpatrick, S. A. (1998). 'A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms'. *Journal of Applied Psychology*, **83**, 43–54.

Bernstein, S., Korteweg, A. and Laws, K. (2017). 'Attracting Early-Stage investors: Evidence from a randomized field experiment'. *The Journal of Finance*, **72**, 509–38.

Berry, T. (2012). 'The business model for disruption'. *Entrepreneur.* Available at: https://www.entrepreneur.com/article/223264 (accessed 6 June 2018).

Berson, Y., Shamir, B., Avolio, B. J. and Popper, M. (2001). 'The relationship between vision strength, leadership style, and context'. *Leadership Quarterly*, **12**, 53–73.

Burton, M. D., Sorensen, J. B. and Beckman, C. M. (2002). 'Coming from good stock: Career histories and new venture formation'. *Research in the Sociology of Organizations*, **19**, 229–62.

Busenitz, L. W., Fiet, J. O. and Moesel, D. D. (2005). 'Signaling in venture Capitalist—New venture team funding decisions: Does it indicate Long-Term venture outcomes?'. *Entrepreneurship Theory and Practice*, **29**, 1–12.

Carr, A. (2013). 'Welcoming the Chief Disruption Officer: A new face at the boardroom table'. *Business Computing World.* Available at: https://www.businesscomputingworld.co.uk/welcoming-the-chief-disruption-officer-a-new-face-at-the-boardroom-table (accessed 6 June 2018).

Carton, A. M., Murphy, C. and Clark, J. R. (2014). 'A (blurry) vision of the future: How leader rhetoric about ultimate goals influences performance'. *Academy of Management Journal*, **57**, 1544–70.

Cassar, G. (2014). 'Industry and startup experience on entrepreneur forecast performance in new firms'. *Journal of Business Venturing*, **29**, 137–51.

Certo, S. T., Busenbark, J. R., Woo, H. and Semadeni, M. (2016). 'Sample selection bias and Heckman models in strategic management research'. *Strategic Management Journal*, **37**, 2639–57.

Christensen, C. M. (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Boston, MA: Harvard Business School Press.

Christensen, C. M. and Raynor, M. E. (2003). *The Innovators Solution: Creating and Sustaining Successful Growth*. Boston, MA: Harvard Business Press.

Christensen, C. M., Raynor, M. E. and McDonald, M. (2015). 'What is disruptive innovation?'. *Harvard Business Review*, 44–53.

Christensen, C. M., McDonald, R., Altman, E. J. and Palmer, J. (2016). 'Disruptive innovation: Intellectual history and future paths'. Working Paper Series 17–057, 1–52. Harvard Business School.

Cohen, S. (2013). 'What do accelerators do? Insights from incubators and angels'. *Innovations*, **8**, 19–25.

Conger, J. A. (1991). 'Inspiring others: The language of leadership'. *Academy of Management Perspectives*, **5**, 31–45.

Cornelissen, J. P. (2013). 'Portrait of an entrepreneur: Vincent van Gogh, Steve Jobs, and the entrepreneurial imagination'. *Academy of Management Review*, **38**, 700–9.

Cornelissen, J. P. and Werner, M. D. (2014). 'Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature'. *Academy of Management Annals*, **8**, 181–235.

Cosper, A. (2015). 'Disruption is more than the buzzword it's become'. *Entrepreneur.* Available at: https://www.entrepreneur.com/article/245794 (accessed 6 June 2018).

D'Mello, R., Krishnaswami, S. and Larkin, P. J. (2008). 'Determinants of corporate cash holdings: Evidence from spin-offs'. *Journal of Banking & Finance,* **32**, 1209–20.
Danneels, E. (2004). 'Disruptive technology reconsidered: A critique and research agenda'. *Journal of Product Innovation Management,* **21**, 246–58.
Den Hartog, D. N. and Verburg, R. M. (1998). 'Charisma and rhetoric: Communicative techniques of international business leaders'. *Leadership Quarterly,* **8**, 355–91.
DiCiccio, T. J. and Efron, B. (1996). 'Bootstrap confidence intervals'. *Statistical Science,* **11**, 189–212.
Dimov, D. and Murray, G. (2008). 'Determinants of the incidence and scale of seed capital investments by venture capital firms'. *Small Business Economics,* **30**, 127–52.
Dimov, D., Shepherd, D. A. and Sutcliffe, K. M. (2007). 'Requisite expertise, firm reputation, and status in venture capital investment allocation decisions'. *Journal of Business Venturing,* **22**, 481–502.
Donkers, B., Franses, P. H. and Verhoef, P. C. (2003). 'Selective sampling for binary choice models'. *Journal of Marketing Research,* **40**, 492–97.
Duan, N. (1983). 'Smearing estimate: A nonparametric retransformation method'. *Journal of the American Statistical Association,* **78**, 605–10.
Eckhardt, J. T., Shane, S. and Delmar, F. (2006). 'Multistage selection and the financing of new ventures'. *Management Science,* **52**, 220–32.
Elenkov, D. S., Judge, W. and Wright, P. (2005). 'Strategic leadership and executive innovation influence: An international multi-cluster comparative study'. *Strategic Management Journal,* **26**, 665–82.
Emrich, C. G., Brower, H. H., Feldman, J. M. and Garland, H. (2001). 'Images in words: Presidential rhetoric, charisma, and greatness'. *Administrative Science Quarterly,* **46**, 527–57.
Engel, J. S. and del-Palacio, I. (2011). 'Global clusters of innovation: The case of Israel and silicon valley'. *California Management Review,* **53**, 27–49.
Fischer, E. and Reuber, A. R. (2011). 'Social interaction via new social media: (How) can interactions on twitter affect effectual thinking and behavior?'. *Journal of Business Venturing,* **26**, 1–18.
Fisher, G., Kuratko, D. F., Bloodgood, J. M. and Hornsby, J. S. (2017). 'Legitimate to whom? The challenge of audience diversity and new venture legitimacy'. *Journal of Business Venturing,* **32**, 52–71.
Florin, J., Lubatkin, M. and Schulze, W. (2003). 'A social capital model of high-growth ventures'. *Academy of Management Journal,* **46**, 374–84.
Friendly, M., Franklin, P. E., Hoffman, D. and Rubin, D. C. (1982). 'The Toronto word pool: Norms for imagery, concreteness, orthographic variables, and grammatical usage for 1,080 words'. *Behavior Research Methods & Instrumentation,* **14**, 375–99.
Gardner, T. M., Wright, P. M. and Moynihan, L. M. (2011). 'The impact of motivation, empowerment, and skill-enhancing practices on aggregate voluntary turnover: The mediating effect of collective affective commitment'. *Personnel Psychology,* **64**, 315–50.
Garud, R., Schildt, H. A. and Lant, T. K. (2014). 'Entrepreneurial storytelling, future expectations, and the paradox of legitimacy'. *Organization Science,* **25**, 1479–92.
Glynn, M. A. and Navis, C. (2013). 'Categories, identities, and cultural classification: Moving beyond a model of categorical constraint'. *Journal of Management Studies,* **50**, 1124–37.
Gompers, P. (1996). 'Grandstanding in the venture capital industry'. *Journal of Financial Economics,* **42**, 133–56.
Gompers, P. (1995). 'Optimal investment, monitoring, and the staging of venture capital'. *Journal of Finance,* **50**, 1461–89.
Gompers, P., Gornall, W., Kaplan, S. N. and Strebulaev, I. A. (2016). 'How do venture capitalists make decisions?'. Working Paper no: 22587, the National Bureau of Economic Research, Cambridge, MA.
Greene, W. H. (2012). *Econometric Analysis*. New Jersey: Prentice Hall.
Gupta, A. K. and Sapienza, H. J. (1992). 'Determinants of venture capital firms' preferences regarding the industry diversity and geographic scope of their investments'. *Journal of Business Venturing,* **7**, 347–62.
Gurses, K. and Ozcan, P. (2015). 'Entrepreneurship in regulated markets: Framing contests and collective action to introduce pay TV in the US'. *Academy of Management Journal,* **58**, 1709–39.
Hallen, B. L. (2008). 'The causes and consequences of the initial network positions of new organizations: From whom do entrepreneurs receive investments?'. *Administrative Science Quarterly,* **53**, 685–718.
Heinze, G. and Schemper, M. (2002). 'A solution to the problem of separation in logistic regression'. *Statistics in Medicine,* **21**, 2409–19.
Henderson, R. (2006). 'The innovator's dilemma as a problem of organizational competence'. *Journal of Product Innovation Management,* **23**, 5–11.

Hill, R. C. and Levenhagen, M. (1995). 'Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities'. *Journal of Management*, **21**, 1057–74.
Hoffmann, A. O. and Post, T. (2017). 'How return and risk experiences shape investor beliefs and preferences'. *Accounting & Finance*, **57**, 759–88.
Hooshangi, S. and Loewenstein, G. (2018). 'The impact of idea generation and potential appropriation on entrepreneurship: An experimental study'. *Management Science*, **64**, 64–82.
Hopp, C., Antons, D., Kaminski, J. and Oliver Salge, T. (2018). 'Disruptive innovation: Conceptual foundations, empirical evidence, and research opportunities in the digital age'. *Journal of Product Innovation Management*, **35**, 446–57.
House, R. J. and Shamir, B. (1993). 'Toward the integration of transformational, charismatic, and visionary theories'. In Chemers, M. M. and Ayman, R. (Eds), *Leadership theory and research: Perspectives and directions*. San Diego, CA: Academic Press, 81–107.
Howard, C. (2013). 'Disruption Vs. Innovation: What's the Difference?'. *Forbes*. Available at: https://www.forbes.com/sites/carolinehoward/2013/03/27/you-say-innovator-i-say-disruptor-whats-the-difference (accessed 6 June 2018).
Huang, L. and Knight, A. P. (2017). 'Resources and relationships in entrepreneurship: An exchange theory of the development and effects of the entrepreneur-investor relationship'. *Academy of Management Review*, **42**, 80–102.
Huang, L. and Pearce, J. L. (2015). 'Managing the unknowable the effectiveness of early-stage investor gut feel in entrepreneurial investment decisions'. *Administrative Science Quarterly*, **60**, 634–70.
Ireland, R. D., Hitt, M. A. and Sirmon, D. G. (2003). 'A model of strategic entrepreneurship: The construct and its dimensions'. *Journal of Management*, **29**, 963–89.
Jayasinghe, M. (2016). 'The operational and signaling benefits of voluntary labor code adoption: Reconceptualizing the scope of human resource management in emerging economies'. *Academy of Management Journal*, **59**, 658–77.
Kanze, D. and Iyengar, S. S. (2017). 'Startups that Seek to "Disrupt" Get More Funding than those that Seek to "Build"'. *Harvard Business Review*. Available at: https://hbr.org/2017/11/startups-that-seek-to-disrupt-get-more-funding-than-those-that-seek-to-build (accessed 6 June 2018).
King, A. A. and Baatartogtokh, B. (2015). 'How useful is the theory of disruptive innovation?'. *MIT Sloan Management Review*, **57**, 77–90.
Klingebiel, R. and Adner, R. (2015). 'Real options logic revisited: The performance effects of alternative resource allocation regimes'. *Academy of Management Journal*, **58**, 221–41.
Kosmidis, I., Pagui, E. C. K. and Sartori, N. (in press). 'Bias reduction in generalized linear models'. *Statistical Methods in Medical Research*, in press.
Koudstaal, M., Sloof, R. and Van Praag, M. (2015). 'Risk, uncertainty, and entrepreneurship: Evidence from a lab-in-the-field experiment'. *Management Science*, **62**, 2897–915.
Lepore, J. (2014). *The Disruption Machine: What the Gospel of Innovation Gets Wrong*. The New Yorker, 23 June, https://www.newyorker.com.
Lounsbury, M. and Glynn, M. A. (2001). 'Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources'. *Strategic Management Journal*, **22**, 545–64.
MacKinnon, D. P., Fairchild, A. J. and Fritz, M. S. (2007). 'Mediation analysis'. *Annual Review of Psychology*, **58**, 593–614.
Maples Jr., M. (2016). 'Dare to do legendary things'. *eCorner*. Available at: https://ecorner-legacy.stanford.edu/videos/3740/Dare-to-Do-Legendary-Things-Entire-Talk (accessed 6 June 2018).
Markides, C. (2006). 'Disruptive innovation: In need of better theory'. *Journal of Product Innovation Management*, **23**, 19–25.
Martens, M. L., Jennings, J. E. and Jennings, P. D. (2007). 'Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition'. *Academy of Management Journal*, **50**, 1107–32.
Maxwell, A. L., Jeffrey, S. A. and Lévesque, M. (2011). 'Business angel early stage decision making'. *Journal of Business Venturing*, **26**, 212–25.
McFatter, R. M. (1979). 'The use of structural equation models in interpreting regression equations including suppressor and enhancer variables'. *Applied Psychological Measurement*, **3**, 123–35.
Mullins, J. W. and Komisar, R. (2010). 'A business plan? Or a journey to plan B?'. *MIT Sloan Management Review*, **51**, 1.
Navis, C. and Glynn, M. A. (2011). 'Legitimate distinctiveness and the entrepreneurial identity: Influence on investor judgments of new venture plausibility'. *Academy of Management Review*, **36**, 479–99.

Newlands, M. (2015). 'The difference in raising a seed round and an 'A' round'. *Forbes*. Available at: https://www.forbes.com/sites/mnewlands/2015/07/21/the-difference-in-raising-a-seed-round-and-an-a-round (accessed 6 June 2018).
Parhankangas, A. and Ehrlich, M. (2014). 'How entrepreneurs seduce business angels: An impression management approach'. *Journal of Business Venturing*, **29**, 543–64.
Prowse, S. (1998). 'Angel investors and the market for angel investments'. *Journal of Banking & Finance*, **22**, 785–92.
R Core Team. (2017). *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.
Rachleff, A. (2013). 'What "disrupt" really means'. *TechCrunch*. Available at: https://techcrunch.com/2013/02/16/the-truth-about-disruption (accessed 6 June 2018).
Ruhnka, J. C. and Young, J. E. (1991). 'Some hypotheses about risk in venture capital investing'. *Journal of Business Venturing*, **6**, 115–33.
Sahlman, W. A. (1990). 'The structure and governance of venture-capital organizations'. *Journal of Financial Economics*, **27**, 473–521.
Senor, D. and Singer, S. (2009). *Start-Up Nation: The Story of Israel's Economic Miracle*. New York: Twelve.
Sood, A. and Tellis, G. J. (2011). 'Demystifying disruption: A new model for understanding and predicting disruptive technologies'. *Marketing Science*, **30**, 339–54.
Stam, D., Lord, R. G., van Knippenberg, D. and Wisse, B. (2014). 'An image of who we might become: Vision communication, possible selves, and vision pursuit'. *Organization Science*, **25**, 1172–94.
Suchman, M. C. (1995). 'Managing legitimacy: Strategic and institutional approaches'. *Academy of Management Review*, **20**, 571–610.
Tellis, G. J. (2006). 'Disruptive technology or visionary leadership?'. *Journal of Product Innovation Management*, **23**, 34–8.
Ter Wal, A. L., Alexy, O., Block, J. and Sandner, P. G. (2016). 'The best of both worlds: The benefits of open-specialized and closed-diverse syndication networks for new ventures' success'. *Administrative Science Quarterly*, **61**, 393–432.
The Economist. (2015). 'Disrupting mr. disrupter'. *The Economist*, 26 November.
Tingley, D., Yamamoto, T., Hirose, K., Keele, L. and Imai, K. (2014). 'Mediation: R package for causal mediation analysis'. *Journal of Statistical Software*, **59**, 1–38.
Trigeorgis, L. and Reuer, J. J. (2017). 'Real options theory in strategic management'. *Strategic Management Journal*, **38**, 42–63.
Tversky, A. and Kahneman, D. (1992). 'Advances in prospect theory: Cumulative representation of uncertainty'. *Journal of Risk and Uncertainty*, **5**, 297–323.
Van Knippenberg, D. and Stam, D. (2014). 'Visionary leadership'. In Day, D. V. (Ed.), *The Oxford handbook of leadership and organizations*. New York: Oxford University Press, 241–59.
van Werven, R., Bouwmeester, O. and Cornelissen, J. P. (2015). 'The power of arguments: How entrepreneurs convince stakeholders of the legitimate distinctiveness of their ventures'. *Journal of Business Venturing*, **30**, 616–31.
Weick, K. E., Sutcliffe, K. M. and Obstfeld, D. (2005). 'Organizing and the process of sensemaking'. *Organization Science*, **16**, 409–21.
Wry, T., Lounsbury, M. and Glynn, M. A. (2011). 'Legitimating nascent collective identities: Coordinating cultural entrepreneurship'. *Organization Science*, **22**, 449–63.
Zott, C. and Huy, Q. N. (2007). 'How entrepreneurs use symbolic management to acquire resources'. *Administrative Science Quarterly*, **52**, 70–105.