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Strategic diagnosis of information processing structures and commercialization in new ventures

Vinit Parida[a,b], Nerine Mary George[a,*], Joakim Wincent[a,c]

[a] Entrepreneurship and Innovation, Luleå University of Technology, Luleå, Sweden
[b] Department of Management, University of Vaasa, Finland
[c] Hanken School of Economics, Helsinki, Finland

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ABSTRACT

Both the strategic management and entrepreneurship literatures provide limited guidance on strategic diagnosis in the commercialization stage when the information processing structures of ventures are gestating. This study focuses on how founders engage in strategic diagnosis in lower development stages of venture information processing structures. A procedure using archival sales data from 90 entrepreneurs who founded their firms in 2012, serves to assess sales achievement in the first three years of the venture. Using logistic regression with robust standard errors for the analysis, this study shows that more developed information processing structures increase the likelihood of realizing sales. Labeling strategic challenges as controllable instead of uncontrollable or as lower positive-gain increases the likelihood of sales after founding.

1. Introduction

Commercialization, or realizing sales, is the key goal during the founding stage. During this stage where the "rubber meets the road," entrepreneurs scan the environment, assess trends, and adjust internal strategies to improve the fit of the venture with the environment (Chakravarthy, 1982; Sternad, 2011). Dutton and Duncan (1987a, p. 280) define strategic issue diagnosis as "the cognitive process of translating and focusing key environmental events into issues of strategic importance for key decision-makers within an organization." Prior studies focusing on entrepreneurial learning during the nascent phase (Lichtenstein, Carter, Dooley, & Gartner, 2007; Politis, 2005) highlight the relevance of information gathering and processing (Anderson & Nichols, 2007; Gioia & Chittipeddi, 1991; Henderson & Fredrickson, 1996; Kilduff, Angelmar, & Mehra, 2000) and diagnosing strategic issues such as strategy and information processing (Dutton & Ottensmeyer, 1987; Thomas & McDaniel, 1990). Although several studies identify a positive relationship between environmental information processing and firm performance (Dollinger, 1984; Dollinger & Golden, 1992), further research on the topic is still necessary; furthermore, no research exists on how to mitigate the effects of lower information processing in early stage ventures. Nonetheless, the literature exploring threat versus opportunity labeling is a well-worn road in strategic management (Dutton & Duncan, 1987a; Thomas & McDaniel, 1990), and labeling strategic challenges as threats or opportunities is salient for ventures with limited information-processing abilities, especially when managers have to decide the firm's strategic direction under incomplete and unknown information. Thus, a gap remains in the understanding of worse or better-developed information processing structures: how do founders manage the strategic diagnosis process to realize sales in the early founding stages of their ventures?

When a new firm lacks formal information-processing structures, strategic diagnosis devolves upon founders who operate under bounded rationality and must construe the information environment and label the identified strategic challenges as threats or opportunities. The constructs of decision comprehensiveness (Forbes, 2007) are applicable after establishing the venture and understanding the components of the information environment. During commercialization efforts, however, entrepreneurial interpretations (Barreto, 2012) drawing from incomplete and unknown information make strategic diagnosis particularly challenging. Such conditions render the information-processing perspectives outlined in the strategic management literature less applicable in the founding stage. Well-developed information-processing structures increase the odds of commercialization; however, of great interest is how founders label strategic challenges (threats vs. opportunities) that drive the strategic response at lower levels of formalized information-processing structures. This study's research question is as follows:

RQ: At low levels of information-processing structures in a venture,

* Corresponding author.
E-mail addresses: vinit.parida@ltu.se (V. Parida), Nerine.george@ltu.se (N.M. George), joakim.wincent@ltu.se, joakim.wincent@hanken.fi (J. Wincent).

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does labeling strategic challenges as opportunities (instead of threats) increase the odds of commercialization?

Labeling strategic challenges as positive-gain and controllable (i.e., opportunities) instead of negative-loss and uncontrollable (i.e., threats) (Chakravarthy, 1982; Dutton & Duncan, 1987a; Thomas & McDaniel, 1990) elicits different strategic behaviors in realizing the state of adaptation during the commercialization stage. Labeling identified strategic challenges as threats elicits defensive strategic behaviors, whereas founders tend to engage in more offensive strategic behaviors when labeling strategic challenges as opportunities. This study aims to confirm that, with underdeveloped information structures, labeling strategic challenges as opportunities allows entrepreneurs to realize a state of adaptation, that is, sales (Bhave, 1994; Brush, Edelman, & Manolova, 2008; Chaganti, DeCarolis, & Deeds, 1995; Katila & Shane, 2005). The state of adaptation in which a venture increasingly improves fit with the environment drives early sales.

To address the research question, this research employs a sample of ventures founded in 2012, with a sole founder, no employees, and no sales at founding. The archival sales data indicate whether the venture achieved sales in the first three years (2012–2014). To limit potential confounding of cognitive abilities and knowledge of other founding team members, the study only includes ventures with a sole founder. Ventures with employees at founding have more significant resources and therefore are possibly in a more advanced stage of commercialization. Drawing on single-founder firms, with no sales and no employees at founding, and assessing whether these firms realize sales in the first three years give a reliable assessment of the strategic diagnosis process by a founder during this precarious stage of the firm's lifecycle.

2. Theoretical framework and hypotheses

At firm founding, the first fundamental challenge an entrepreneur faces is realizing sales (Delmar & Shane, 2006; Reynolds & Miller, 1992). Commercialization requires active boundary spanning across the firm with broader market and institutional stakeholders. This stage is the litmus test of a venture's opportunities. The time from firm founding to realizing the first sale represents a crucial phase during which a new entrepreneur with an opportunity and tangible and intangible resources adapts to improve the firm's fit with the environment through cooperation with stakeholders. This process is a venture's information environment. The environment in which the firm operates is a critical source of information to adapt the underlying opportunity to improve the venture's commercialization odds. During this pivotal stage, scanning and interpreting the information environment and diagnosing and formulating actions to improve commercialization odds is essential. To achieve such actions, founders must engage in information processing.

Although a significant body of work on information processing has focused on managers and top management teams (Simons, Pelled, & Smith, 1999; Smith, Gannon, Grimm, & Mitchell, 1988; Thomas & McDaniel, 1990), the development of the underlying structures of information processing is lower, and the founders are responsible for strategic diagnosis. Although Busenitz and Barney (1997) find that entrepreneurs rely on heuristics, use limited information, and follow a less rational decision process, others show that entrepreneurs gather more information and pay more attention to risk-related cues (Kaish & Gilad, 1991), recognize patterns, and make quick decisions (Bird, 1988; Forbes, 2005; Robert Baum & Wally, 2003; Talaulicar, Grundei, & Werder, 2005). Principally, the commercialization phase poses unique information-processing challenges, during which founders must build the information-processing structure and also engage in boundary spanning as the fledgling information-processing structures develop. Moving from information-processing challenges in established firms, this study presents an assessment of the effects of the information-processing structure at this early stage of venture development. Perhaps more importantly, in examining firms with a limited information-processing structure, construals of positive-gain orientation and control increase the likelihood of realizing sales (Dutton & Jackson, 1987; Thomas & McDaniel, 1990).

2.1. Information processing in establishing new ventures

Information processing is critical for new ventures, yet entrepreneurs seldom have the routines or structures to process information systematically. Scanning, perceiving, collating, analyzing, and absorbing information are central to ventures attempting to commercialize (Cooper, Folta, & Woo, 1995). Four constraints bound early information-processing efforts. First, due to liabilities of newness, entrepreneurs establishing new ventures have a limited schema to identify and scan for relevant information, organize such information into meaningful patterns of environmental knowledge, assess the value of such environmental patterns to the venture, and absorb and transform such information for commercialization (Amason, Shrader, & Tompson, 2006; McDowell, Harris, & Geho, 2016; Reger & Palmer, 1996). Second, stakeholders form an important conduit of information seeking and processing. Ventures must develop common symbols and language through repeated interactions. However, during the early stages of a venture, the development of symbols, languages, and conduits of information exchange is lower (Brush, Greene, & Hart, 2001; Zott & Huy, 2007). Third, entrepreneurs in ventures attempting to commercialize new ideas face not only environmental uncertainty but also the challenging process of information due to the multiple components of environmental information. Information processing acts as an important boundary of function and lack thereof could lead to venture failure (Dollinger, 1984). New ventures have access to a limited quantity and quality of ever changing information (Pearce, Chapman, & David, 1982). Fourth, in established firms, information gathering is a multilevel and multifaceted task among managers and employees. In contrast, information processing in new ventures devolves upon a small team of founders operating under bounded rationality. The traits and orientation of founders lead to variations in the quantity, variety, and relevance of information processing (Hansen & Allen, 1992; Schafer, 1990).

Perceived environmental uncertainty and challenges in scanning behaviors in ventures has long been of interest to entrepreneurship researchers (Boynton, Gales, & Blackburn, 1993; Schafer, 1990; Ungson, Braunstein, & Hall, 1981). Extant work has identified a positive relationship between environmental information processing and firm performance (Dollinger, 1984; Dollinger & Golden, 1992); indeed, the information-processing challenges, priorities, and processes in new ventures are distinct from those in large, established firms.

Information processing for early stage ventures emanates from sensemaking structures proposed in Daft and Weick (1984), where entrepreneurs must scan the environment to identify trends and events that could directly or indirectly affect commercialization efforts. Entrepreneurs interpret available data using existing schemas and bundles of resources available within the firm (Miller & Lin, 2015). However, constrained internal routines and the knowledge structures available to assess trends and events hamper this interpretation. Because of the lesser definition of strategic issues in new ventures, the sensemaking necessary to assess opportunities and threats is an ongoing challenge, rendering strategic responses less efficacious. Learning, the stage that follows scanning and interpretation, is akin to probing (Lang, Calantone, & Gudmundson, 1997), during which ventures learn through feedback. The uncertainty of the environment in which the venture attempts to leverage its opportunity exacerbates the challenges for ventures in realizing their first sales. Such challenges manifest as “effect uncertainty” due to the venture's limited ability to assess the effects of trends, and as “response uncertainty,” which faces the problem of limited resources and depends on the entrepreneur's ability to develop strategic responses (Cooper, 1993; Ireland, Hitt, & Sirmon, 2003). Against this background, the first hypothesis is the following: