

Running head: *Introduction*

**THE ROLE OF THE ENTREPRENEUR IN TECHNOLOGY  
ENTREPRENEURSHIP**

**CHRISTINE M. BECKMAN<sup>1\*</sup>, KATHLEEN EISENHARDT<sup>2</sup>, SURESH KOTHA<sup>3</sup>, ALAN MEYER<sup>4</sup>, and NANDINI RAJAGOPALAN<sup>5</sup>**

<sup>1</sup>The Paul Merage School of Business, University of California, Irvine, Irvine, California, U.S.A.

<sup>2</sup>Management Science and Engineering, Stanford University, Palo Alto, California, U.S.A.

<sup>3</sup>Foster School of Business, University of Washington, Seattle, Seattle, Washington, U.S.A.

<sup>4</sup>Lundquist College of Business, University of Oregon, Eugene, Oregon, U.S.A.

<sup>5</sup>Marshall School of Business, University of Southern California, Los Angeles, California, U.S.A.

Keywords: technology entrepreneurship; entrepreneur; academic entrepreneurship; founder experience

\*Correspondence to: Christine Beckman, The Paul Merage School of Business, University of California, Irvine, Irvine, CA 92697-3125, U.S.A. E-mail: cbeckman@uci.edu

## INTRODUCTION

In this second volume of the special issue on technology entrepreneurship, we highlight the entrepreneur. These articles collectively offer a coherent statement of the essential role of the entrepreneurs at the heart of technology ventures. Technology entrepreneurship focuses on new ventures where developments in science or engineering constitute a core element of the entrepreneurial opportunity. The talent, experience, and actions of entrepreneurs are particularly influential when complex technological advancements play a critical role in the venture. But the mechanisms by which entrepreneurs shape ventures are often contingent on factors such as the industry sector, talent, institutional characteristics of the national economy, and experiences of the entrepreneurs themselves. Understanding these mechanisms of influence is the central focus of this special issue.

All five articles explore how entrepreneurs influence a variety of venture outcomes. The first two focus on the talent of entrepreneurs. For example, Eesley and Roberts (2012, this issue) differentiate between entrepreneurial talent and founding experience and examine their relative effects on venture performance. They find that talent is particularly critical when technologies are less familiar and industries are in disruption. Fuller and Rothaermel (2012, this issue) explore the influence of ‘star’ faculty turned entrepreneurs on the likelihood of an initial public offering. Star faculty, they empirically show, are especially valuable for venture success when the firms are started in VC-poor regions of the U.S. and when the faculty entrepreneurs are at less elite universities.

The next two articles focus on the experience of entrepreneurs. For example, Furr, Cavarretta, and Garg (2012, this issue) measure the domain experience of venture executives and examine the relationship of that experience with the scale of innovation changes made by the venture. Li *et al.* (2012, this issue) report that ventures led by returnees to China are

lower performing than those led by their less well educated but locally knowledgeable counterparts. These negative effects are, however, significantly mitigated when the ventures are controlled by state owners and are more mature. The fifth, and final, article centers on entrepreneurs' actions. Specifically, Vissa and Bhagavatula (2012, this issue) find that the distinctive networking behaviors of individual entrepreneurs shape the resulting portfolio of venture exchange partners.

The authors of all five articles have also embarked upon unique and impressive data collection efforts, with sample sizes ranging from about 50 to more than 13,000. The data include entrepreneurs based in the U.S., China, and India and ventures in a single industry (i.e., solar photovoltaic manufacturing), an industry sector (i.e., information technology), and across sectors. For example, Eesley and Roberts (2012, this issue) rely on a large-scale, alumni survey of about 2,000 entrepreneurs from MIT, and they supplement this survey with extensive secondary data. Fuller and Rothaermel (2012, this issue) construct a unique and broad-based sample of technology ventures based on patents filed by university faculty. As such, they go beyond the usual approach of focusing on a few elite universities and a single technology such as biotechnology. Furr *et al.* (2012, this issue) capture the career histories of venture executives in their study of the entire population of U.S. solar photovoltaic manufacturing ventures from 1992 to the late 2000s. These longitudinal data enable the authors to track how the careers of executives influence the innovativeness of their ventures. Li *et al.* (2012, this issue) move outside the U.S. to construct a thoughtful sample of Chinese ventures. These ventures share occupancy in a major research park, but operate in a spectrum of technology sectors and are founded by diverse entrepreneurs, some of whom are returnees to China and some are not. Finally, Vissa and Bhagavatula (2012, this issue)

collect network, interview, and survey data from 50 information technology entrepreneurs in India to study the networking behaviors of these executives.

## **INTRODUCTION TO ARTICLES IN VOLUME 2 OF THE SPECIAL ISSUE**

We compare the five articles of this second volume in terms of their research questions, empirical approaches, context, theoretical base, and major findings in Table 1. Next, we summarize each of the five articles in the order they appear.

### *Insert Table 1 about here*

Eesley and Roberts (2012, this issue) unpack entrepreneurial talent versus experience. Specifically, they question the well-known finding that serial entrepreneurs are particularly successful by showing that much of this success is due to innate talent, not just their venture experience. This occurs because of selection effects—i.e., talented entrepreneurs are more likely to found successive firms whereas less talented ones (as measured by their success) are likely to select themselves out of entrepreneurship. Using comprehensive career data from more than 2,000 entrepreneurs who are MIT graduates, they also clarify that talent and experience are synergistic and that talent is especially vital when the technology is novel and the industry is in disruption. For technology entrepreneurship researchers, their findings suggest talent is an underexplored yet key predictor of venture performance.

Fuller and Rothaermel (2012, this issue) examine the link between entrepreneurs and success among university ventures. They construct an impressively broad sample of 238 technology ventures based on patents from U.S. university research. Controlling for selection effects by faculty entrepreneurs, they find that ‘star’ (i.e., unusually highly cited) faculty entrepreneurs are particularly valuable to their ventures. Compared with other faculty entrepreneurs, these stars are likely to launch ventures with a higher likelihood of going public. Moreover, these effects are contingent on the university affiliation and region of the

country. That is, star faculty entrepreneurs are particularly important for the success of their ventures when the faculty member is associated with a less elite (i.e., not Top 10) university and in a region with limited access to VC funding.

Furr *et al.* (2012, this issue) focus on the experience that executives bring to ventures. They do so by linking the domain expertise of the CEO and top management team with the scale of innovation changes in which a venture engages (e.g., minor, moderate, and major changes in core technology) among the population of solar photovoltaic ventures founded in the U.S. from 1992 to 2007. They distinguish between insiders and outsiders and find that outsiders tend to make more substantial changes in technology while insiders tend to stay the course with incremental changes. In this challenging and fluid industry where technological changes are rampant and diverse, Furr *et al.* (2012, this issue) conclude that outside experience of the CEO and other team members creates the cognitive flexibility necessary to recognize and adapt to novel technological opportunities.

Li *et al.* (2012, this issue) explore the Chinese context and compare the performance of returnee Chinese entrepreneurs with that of their counterparts who have remained in China. They reveal that ventures led by returnees face significant disadvantages with regard to venture performance in a large sample of technology ventures from a major research park in Beijing. They find that new ventures led by returnees (individuals who have worked or studied outside of China and then returned) have lower performance than ventures led by locals. The disadvantages for returnee-led ventures, however, are mitigated as the venture ages and when levels of state ownership control are high.

Finally, Vissa and Bhagavatula (2012, this issue) study the impact of an entrepreneur's networking on firm-level partnerships among a sample of Indian ventures in the IT sector. They find that entrepreneurs who create multiplex, embedded individual ties

often fail to delete those ties. In contrast, entrepreneurs whose network interactions are governed by temporal considerations rather than exchange needs have greater network deletion. Importantly, Vissa and Bhagavatula (2012, this issue) link the network actions that result in personal network churn (both the addition and deletion of an entrepreneur's alters) with growth in the venture's portfolio of exchange partners.

Taken together, these articles focus on entrepreneurs and the mechanisms by which they shape critical outcomes of their ventures. As such, they go beyond simply finding that 'entrepreneurs matter' to indicating when and how they do so. By studying different industries, types of entrepreneurship, and diverse countries, the articles provide a much richer understanding of entrepreneurs and their implications for the performance of their firms. We hope that these articles, combined with those in the first volume, provide numerous opportunities for intellectual engagement and continued development of research on technology entrepreneurship. Technology-based ventures where scientific and engineering discoveries are central to the entrepreneurial promise offer unique challenges for entrepreneurs and rich opportunities for researchers. The result of this combination is reflected in the set of engaging and cohesive articles that form this special issue. We hope you enjoy them and build on them to join the ongoing research conversations within this important domain.

## REFERENCES

- Eesley CE, Roberts EB. 2012. Are you experienced or are you talented? When does innate talent versus experience explain entrepreneurial performance? *Strategic Entrepreneurship Journal*, September Special Issue 7: this issue.
- Fuller AW, Rothaermel FT. 2012. When stars shine: the effects of faculty founders on new technology ventures. *Strategic Entrepreneurship Journal*, September Special Issue 7: this issue.
- Furr NR, Caverretta F, Garg S. 2012. Who changes course? The role of domain knowledge and novel framing in making technology changes. *Strategic Entrepreneurship Journal*, September Special Issue 7: this issue.
- Li H, Zhang Y, Li Y, Zhou L, Zhang W. 2012. Returnees versus locals: who performs better in China's technology entrepreneurship? *Strategic Entrepreneurship Journal*, September Special Issue 7: this issue.
- Vissa B, Bhagavatula S. 2012. The causes and consequences of churn in entrepreneurs' personal networks. *Strategic Entrepreneurship Journal*, September Special Issue 7: this issue.

**Table 1. A brief summary of the five articles in this volume**

Authors	Research question	Empirical approach	Empirical context	Theoretical base	Key findings
<b>Eesley and Roberts (2012)</b>	When does talent (versus experience) matter for venture performance?	Quantitative analysis based on longitudinal survey of more than 2,000 MIT entrepreneurial alumni; secondary data from Compustat and Dun & Bradstreet	Entrepreneurs across diverse industries	Learning	Entrepreneurial talent is more important than founding experience for venture performance when the current venture is less familiar (e.g., technologically novel). In contrast, when the current venture is more familiar to the entrepreneur, experience is more important than talent.
<b>Fuller and Rothaermel (2012)</b>	What influence (and when) do faculty and star faculty entrepreneurs have on venture performance?	Quantitative analysis of 238 university-related technology ventures at 65 U.S. universities, based on faculty patent data	University-related ventures based on patents by science and engineering faculty in the U.S.	Economics of information asymmetry; status and network processes	Faculty entrepreneurs increase the likelihood of an initial public offering. Further, star faculty positively influence new venture performance above and beyond that of the average faculty founder. Star faculty especially mitigate the disadvantages of (1) distance from venture capitalists and (2) being affiliated with a less elite university.
<b>Furr, Cavarretta, and Garg (2012)</b>	How does insider (versus outsider) industry background influence the scale of technological change?	Quantitative analysis of a complete population of 68 ventures and their scale of technical changes, based on archival data	Solar photovoltaic manufacturing ventures in the U.S. from 1992 to 2007	Managerial cognition and technical innovation	Top management teams composed of executives with experience in dissimilar industries are more likely to undertake major changes in core technology than teams whose experience is within the focal industry.
<b>Li, Zhang, Li, Zhou, and Zhang (2012)</b>	What firm-level factors mitigate the disadvantages faced by ventures led by returnees to China?	Quantitative analysis of more than 13,000 technology ventures founded from 1995 to 2003	Technology ventures in the Zhanguancun Science Park in Beijing	Returnee influences on venture performance and firm-level contingencies (state ownership control and age)	Returnees, compared to their local counterparts, have a negative effect on venture performance. But, returnees can mitigate these effects by (1) state ownership control of the venture and (2) venture age. These contextual factors may help returnees overcome their disadvantages of limited local connections and knowledge.
<b>Vissa and Bhagavatula (2012)</b>	What are the causes and consequences of 'churn' in technology entrepreneurs' personal networks?	Quantitative analysis of individual network data collected at two points in time and firm-level partner data of 50 ventures collected by survey	Entrepreneurs in early stage, business-to-business ventures in the Indian IT sector	Network theory and entrepreneurial agency	Entrepreneurs with networking styles that emphasize gaining interpersonal knowledge and relationally embedded ties experience less network churn. In contrast, styles that rely on time-based interactions (and less need-based interactions) experienced greater churn. Greater network churn results in higher growth in the venture's exchange portfolio.

