



# Network-based research in Entrepreneurship A critical review

Ha Hoang , Boštjan Antončič

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**Keywords:** Social networks; Entrepreneurship; Literature review

Cited by 1,952

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# 1.1.1 Ha Hoang



Professor, Management Department, **ESSEC Business School**

### 【Professional Experience】

Associate Professor, **INSEAD**, 2000-2007

Assistant Professor, **Weatherhead School** of Management, Case Western Reserve University, 1996-2000

### 【Education】

- Ph.D. in **OB** & International Relations, Walter A. Haas School of Business, University of California, Berkeley
- B.A. **Psychology** with Honors, University of Chicago
- B.A. in **Economics**, University of Chicago

### 【Research Areas】

Strategic alliances, Organizational learning, Organizational exploration, Entrepreneurial identity, Market entry, Competitive Cooperative Dynamics Healthcare sector

<b>Citation indices</b>	All	Since 2012
Citations	5884	2990
h-index	10	9
i10-index	12	9

# 1.1.1 Ha Hoang

Year	Title	Journal/Citation
1999	Inter-organizational endorsements and the performance of entrepreneurial ventures	Administrative science quarterly 44 / 2319
2003	Network-based research in entrepreneurship: A critical review	Journal of business venturing 18 / 1952
2005	The effect of general and partner-specific alliance experience on joint R&D project performance.	Academy of Management Journal 48 / 682
2010	Becoming a founder: How founder role identity affects entrepreneurial transitions and persistence in founding	Journal of Business Venturing 25 / 149
2010	Leveraging internal and external experience: exploration, exploitation, and R&D project performance	Strategic Management Journal 31 / 263
2015	Entrepreneurial identity	Wiley Encyclopedia of Management / 6
2015	Network-based research in entrepreneurship: A decade in review	Foundations and Trends® in Entrepreneurship 11 / 11

# 1.1.2 Boštjan Antončič



Born on 1967 (49)

Professor, Faculty of **Economics**, University of **Ljubljana**  
Academic Unit for Entrepreneurship (Regular Member)

### 【Education】

- Ph.D. (**Management**, Case Western Reserve University, **2000**)
- M.Sc. (Entrepreneurship, Faculty of **Economics**, University of Ljubljana, 1995)
- B.Sc. (**Economics** – Foreign Economic Relations, Faculty of Economics, University of Ljubljana, 1992)

### 【Research Areas】

- Entrepreneurial Networks, International Entrepreneurship, Entrepreneurial Personality, Enterprise Strategy and Growth
- 14 books (11 entrepreneurship)
- world champion in the sailing class Soling in 2008

Citation indices	All	Since 2012
Citations	6360	3831
h-index	26	21
i10-index	30	28

# 1.1.2 Boštjan Antončič

Year	Title	Journal/Citation
2000	Intrapreneurship modeling in transition economies: A comparison of Slovenia and the United States	Journal of Developmental Entrepreneurship 5 / 99
2001	An integrative conceptual model	Journal of Euromarketing 9 / 71
2001	Organizational processes in <b>intrapreneurship</b> : a conceptual integration	Journal of Enterprising Culture 9 / 70
2001	<b>Intrapreneurship</b> : Construct refinement and cross-cultural validation	JBV16 / 1057
2003	Clarifying the <b>intrapreneurship</b> concept	JSBED / 680
2003	Risk taking in intrapreneurship: Translating the individual level risk aversion into the organizational risk taking	Journal of Enterprising Culture 11 / 66
<b>2003</b>	<b>Network-based research in entrepreneurship: A critical review</b>	<b>JBV 18 / 1952</b>
2003	Privatization, corporate entrepreneurship, and performance: Testing a normative model	Journal of developmental entrepreneurship 8 / 93
2004	The mediating role of corporate entrepreneurship in the organizational support-performance relationship: An empirical examination	Managing global transitions / 57
2004	Corporate entrepreneurship contingencies and organizational wealth creation	Journal of Management Development 23 / 323
2006	SME <b>internationalization</b> research: past, present, and future	JSBED 13 / 662
2007	Human capital and SME <b>internationalization</b> : A structural equation modeling study	Canadian Journal of Administrative Sciences/Revue / 181
2007	<b>Intrapreneurship</b> : a comparative structural equation modeling study	IMDS 107 / 149
2008	Critical entrepreneur knowledge dimensions for the SME performance	IMDS /143

- Approximately 15 years ago, research on networks emerged in the field, we decided to search entrepreneurship, sociology, and strategic management journals.
- Analysis **70 papers** on:
  - (1) Development and consequences of networks in the new venture creation process or
  - (2) Focused on small to medium-sized firms.
- **Integrative** : Defining the **3 elements** of networks ( content ,governance ,and structure)
- **Critical** : Discuss the theoretical and empirical work is based on a general review of these constructs.
  - (1) Networks → Entrepreneurial process & positive outcomes
  - (2) Entrepreneurial process & positive outcomes → Networks

## 2. Three elements

### Network Content

The resources **exchanged** between actors. Focus on both **tangible (capital) and intangible resources** (access to information and advice, emotional support, legitimacy signals). **Multiplexity** denotes the exchange of multiple resources.

### Network Governance

The mechanisms underpinning an exchange to coordinate and **manage the relationship**, particularly **trust**.

### Social Structure

The network structure created by **the crosscutting relationships between actors**, both **inter-personal and inter-organizational**. Measures include network size, centrality, density, strong/weak/bridging ties.



## 2.1 Network Content

- **Definition** The resources **exchanged** between actors. Focus on **both tangible (capital) and intangible resources** (access to information and advice, emotional support, legitimacy signals). **Multiplexity** denotes the exchange of multiple resources.
- **Related research**
  - A number of studies document that entrepreneurs **consistently use networks** to get ideas and gather information to recognize entrepreneurial opportunities
  - The relationships among firms in the network were **more multiplex** (involving friendship, information, and business exchange) than between comparable firms who did not actively participate in a network.
  - The private biotechnology firms with prominent strategic alliance partners were able to **go public faster** and at higher market valuation.

## 2.2 Network Governance

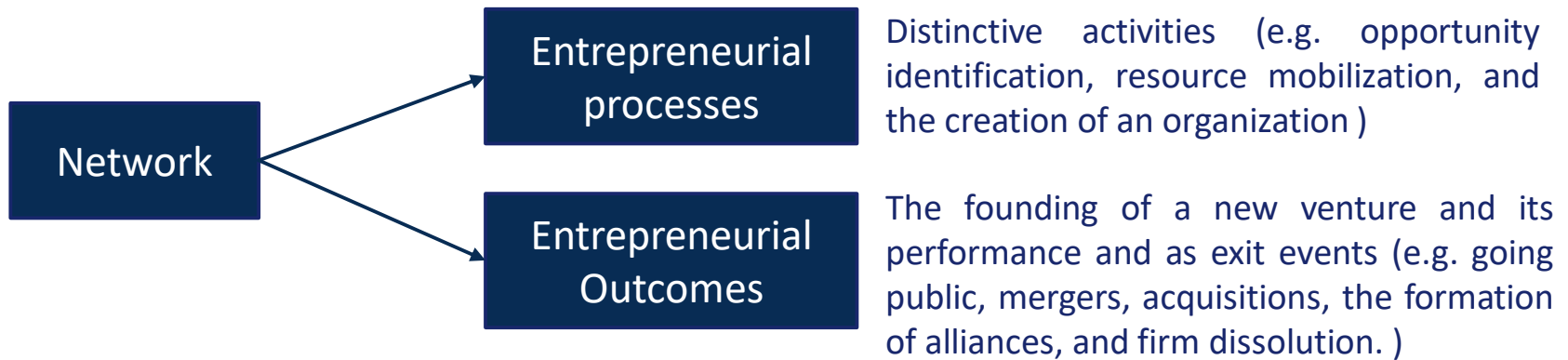
- **Definition** The mechanisms underpinning an exchange to **coordinate and manage the relationship, particularly trust**.
- **Related research**
  - The “**implicit and open-ended contracts**” that are supported by social mechanisms, such as power and influence and the threat of ostracism and loss of reputation **rather than legal enforcement**.
  - **Create “cost advantages”** (reduce transaction costs—for example, monitoring and renegotiating the exchange in reaction to environmental changes) particularly in highly complex tasks facing strong time constraints .
  - **Trusting behavior** is cited as a critical factor in **enhancing innovation** through inter-firm collaboration and an integral reason for inter-firm networks’ **longevity**.

## 2.3 Network Structure

- **Definition** The network structure created by **the crosscutting relationships** between actors, both interpersonal and interorganizational. Measures include **network size, centrality, density, strong/weak/bridging ties.**
- **Related research**
  - **Amount of resources:**
    - **Size :** The most intuitive network measure is the number of **direct** links between a focal actor and other actors. (quantity)
    - **Centrality :** The ability to access (or control) resources through **direct & indirect** links. (quality)
  - **Diversity of resources :**
    - **Weak tie :** It derived from **direct & indirect** linkages. Access to new information and ideas through ties that lie **outside** of their immediate cluster of contacts.
    - **Bridging holes :** The absence of ties between actors. Actors can profit from establishing ties that bridge these otherwise unconnected actors. Gathering data is more difficult than amount measures. Assess network **density and heterogeneity** among network contacts as proxies.
      - **Density:** measured by the extent to which an actor's contacts are interconnected. (More dense one's direct network of contacts, the less likely that new resources will enter and the more likely resources will simply recirculate within the group.)
      - **Heterogeneity:** Bridging ties are then assumed to be ties that link the groups.

## 3.1 Network as “Independent” variable

Result



Related researches :

- In the earliest stage, entrepreneurs benefit from **diverse information flows**. ( e.g. strong ties and weak ties )
- Growth benefits to **inter-organizational linkages** for entrepreneurial firms. ( e.g. strategic alliances ) However, some studies found null or equivocal results ( e.g. networks involved in business start-up had no effect on subsequent business performance. )
- Support for Burt’s **structural hole argument** (e.g. Alliance partner heterogeneity had a positive effect on firms’ financial performance and patenting).
- The **balanced network** consisting of both weak and strong ties, may ultimately be more valuable. (e.g. very weak or very strong extended networks had a negative effect on survival rates )

## 3.1.1 Strong vs. Weak ties

Result

- **Background:** Granovetter, M. S. (1973). The strength of weak ties. *American journal of sociology*, 78(6), 1360-1380. (Cited by 42,744)
  - **Support Weak ties :** Cumulating evidence that underscores the importance of weak ties has fueled the debate on the relative value of strong versus weak ties.
  - **Support Strong ties :** Bruderl & Preisendorfer (1998) found that Strong ties were more critical than weak ties. It had a positive impact on business survival and a much smaller impact on sales growth. Weak ties (measured as support from business partners and acquaintances) , were found to be a poor predictor of performance.
  - **Contingency Approach :**
    - **Venture Stage :** Strong ties may be more relevant during the founding stage and early growth stage of a new venture when such ties are likely to be most valuable as ready, low-cost links to critical resources.(young firms <3 years , but not older firms, benefited from strong ties in terms of greater profitability. )
    - **Outcome of focus :** The results were stronger for survival suggesting that the effects of Strong ties may not be comparable across measures of entrepreneurial **success**. Strong ties have an impact on firm survival (ventures founded by entrepreneurs from families with a history of entrepreneurship are less likely to fail. benefit from the proximity to entrepreneurial role models and emotional support )
- **Need to further examine the trade-offs that entrepreneurial firms face with different network configurations.**

## 3.2 Network as “dependent” variable

Result

Entrepreneurial  
processes

Network

Stage	Feature	Content
<b>First</b>	Instrumental Reasons	identifying the contacts that will provide critical resources to begin the venture (ties to family, friends, and existing business contacts) spend significant amounts of time developing new contacts and maintaining existing contacts, averaging over 5 hours a week.
<b>Second</b>	Non-instrumental Reasons	exchange relationships is more “quid pro quo” (對價關係) “trust” and concerns about maintaining ones’ reputation.
<b>Third</b>	Inter-organizational relationships	more and higher quality information exchange between partners. the continued interaction between actors becomes routinized. <b>individuals</b> that played a role in their formation is <b>no longer needed</b> for the relationships to be Sustained.

Larson and Starr model. That is, there was a tendency toward multiplexity, such that ties that began strictly as **business relationships** became **social relationships** by the end of the period.

## 3.2.1 Cross-Sectional research

Result

- Issues due to the Research design of **Cross-Sectional** research  
→ The necessity of observing and gathering network data over multiple points in time.
- **Managers vs.. Entrepreneurs :**
  - **Entrepreneurs :** must gather a greater variety of resources in constantly shifting orders of importance in order to be successful.
  - **Manager:** is likely to be engaged in activities that ensure the successful completion of a proscribed set of activities.
  - Self-employed people did not differ on key network characteristics from salaried managers.
  - Among female business school alumni, entrepreneurs had more bridging contacts than employed individuals but no distinction was made between managers and non-managers.

# 4.1 The network development processes

- Larson & Starr (1993) model may **understate the extent to which network contacts play a role** in shaping the very nature of the opportunity that is being pursued ( Entrepreneurs have reported that their network contacts were a key source of information, or provided the initial idea for the very opportunity being pursued .
- More focused research on the **differences across individuals** in the extent to which network resources are leveraged. E.g. Cooper (1991) found that **age** and **management** experience were positively correlated with the use of personal ties for information helpful to the start of a business venture. The **education** level of the entrepreneur had a positive effect on the use of professional advisors.
- **Other aspect** : business plan (positive). The closeness contacts (friends) increased the “quantity” of information but had no relation to perceptions of the “quality”



# 4.1 The network development processes

- Network processes are also occurring “within” the newly formed venture. (extracting benefits from the network might be determined by the accuracy of one’s perceptions of the network structure. Hence, exploring the moderating role of individuals’ network cognition in the organizing process would be another fruitful avenue for extending the model of network development.)
- Discourage the use of cross-sectional research designs to intimate network processes. Because the same actors are not observed through time, it is possible that selective attrition(選擇性樣本流失), which is unobserved and uncontrolled for, may be driving the results. Network process research will require longitudinal study designs in order to make stronger claims for the existence of developmental patterns.
- It’s noteworthy for the use of a control group and attention to the role of networks in entrepreneurial activity. Johannisson (1996) that includes an explicit comparison of entrepreneurs and non-entrepreneurs would fill a gap in this area.

## 4.2 Integrating on network effects and dynamics

### Discussion

- Less research : Network **dynamics integrate issues and methodologies** found in **process-** and **outcome-**oriented research.
- The notion of **timing** could be a key contingency that magnifies or attenuates the benefits of accessing certain types of resources ( e.g. engaging sooner in activities that yielded greater legitimacy would have a positive impact on early venture survival. )
- How network effects are shaped by the **broader environmental** conditions surrounding a venture. (e.g. The market context in which a new venture is immersed explains differences in the networking behavior of entrepreneurial firms over time.)
- The conception of a **firm's environment** has also been framed in network terms and examined for its impact on subsequent network formation and development processes. ( e.g. clusters of firms dense with shared common partners were stronger sources of new alliances than more sparsely interconnected groups. )

# 5. Conclusion

- Define core concepts networks ( content ,governance ,and structure) and theories and outlining key studies and empirical results over the 15-year span.
- Make a plea for more qualitative, inductive research.
- Researchers could go even further by undertaking **multimethod studies** that combine the strengths of different methods in a series of projects that build on one another. ( Field research, quantitative research )

# Supplement information

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Hoang, H., & Yi, A. (2015). **Network-based research in entrepreneurship: A decade in review**. *Foundations and Trends® in Entrepreneurship*, 11(1), 1-54.

- We discuss core relational (network content, governance) and structural constructs.
- We identify recent work that has introduced
- **Nodal** : capture attributes that inhere in the entrepreneur or venture to explain regularities in the patterns of network change.
- **Contextual constructs** : higher level characteristics of the environment that influence lower level processes.
- With more studies examining **how network ties are initiated, evolve or are culled**, our review of work published in the past decade finds that there is now a greater balance across these two streams.
- The process-oriented studies inform how entrepreneurial networks arise that may in turn lead to successful milestone achievement including financing and venture growth.
- We conclude by proposing future areas of research that include **exploring the malleability of networking competencies, reviving dormant ties, examining the role of team level network constructs in venture performance, and greater incorporation of contextual factors**.
- We also encourage research designs that employ **multiple methods** in order to better capture the wide range of constructs being incorporated into current theoretical models of networks.

# Supplement information

- Slotte-Kock, S., & Coviello, N. (2010). Entrepreneurship research on network processes: A review and ways forward. *Entrepreneurship Theory and Practice*, 34(1), 31-57. (cited by 314)

