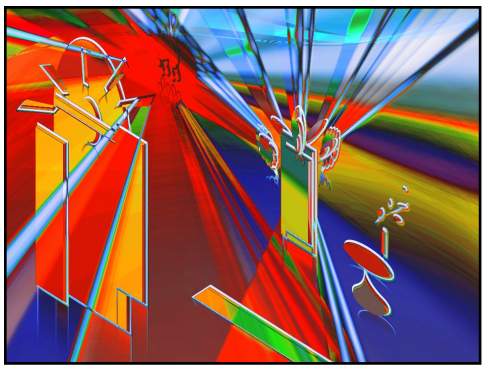
Technology Innovation Management Review

February 2012



Technology Entrepreneurship

Welcome to the February 2012 issue of the *Technology Innovation Management Review*. The editorial theme of this issue is Technology Entrepreneurship. We invite your comments on the articles in this issue as well as suggestions for future article topics and issue themes.

Carleton UNIVERSITY

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Overview

The *Technology Innovation Management Review* (TIM Review) provides insights about the issues and emerging trends relevant to launching and growing technology businesses. The TIM Review focuses on the theories, strategies, and tools that help early-stage technology companies succeed.

Our readers are looking for practical ideas they can apply within their own organizations. The TIM Review brings together diverse viewpoints – from academics, entrepreneurs, companies of all sizes, the public sector, the third sector, and others – to bridge the gap between theory and practice. In particular, we focus on the topics of managing innovation, technology entrepreneurship, economic development, and open source business.

Upcoming Issues

- *March:* Technology Entrepreneurship II
  Guest Editor: Tony Bailetti
- *April:* Technology Entrepreneurship III
  Guest Editor: Tony Bailetti
- *May:* Global Business Creation
  Guest Editors: Marko Seppä and Stoyan Tanev
- *June:* Social Innovation
  Guest Editor: Stephen Huddart

We welcome input from readers into upcoming themes. Please visit timreview.ca to suggest themes and nominate authors and guest editors.

Contribute

Contribute to the TIM Review in the following ways:

- Read and comment on past articles and blog posts.
- Review the upcoming themes and tell us what topics you would like to see covered.
- Consider writing an article for a future issue; see the author guidelines and editorial process for details.
- Recommend colleagues as authors or guest editors.
- Give feedback on the website or any other aspect of this publication.
- Sponsor or advertise in the TIM Review.
- Tell a friend or colleague about the TIM Review.

Please contact the Editor if you have any questions or comments: timreview.ca/contact

Editorial: Technology Entrepreneurship

Chris McPhee, Editor-in-Chief
Tony Bailetti, Guest Editor

From the Editor-in-Chief

It is my pleasure to introduce **Tony Bailetti**, Director of Carleton University's Technology Innovation Management program, as the guest editor for three issues on the theme of Technology Entrepreneurship: February, March, and April.

In May, we will examine the theme of Global Business Creation with **Marko Seppä**, founder of Global Faculty Partners for Problems Worth Solving LP, and **Stoyan Tanev**, Associate Professor at the University of Southern Denmark.

In June, we will be joined by **Stephen Huddart**, President and CEO of the J.W. McConnell Family Foundation, as guest editor for the theme of Social Innovation.

As always, we welcome your feedback, suggestions for future themes, and contributions of articles. We hope you enjoy this issue of the TIM Review and will share your comments on articles online. Please also feel free to contact us (timreview.ca/contact) directly with feedback or article submissions.

Chris McPhee
Editor-in-Chief

From the Guest Editor

Welcome to the February issue of the TIM Review. It is my pleasure to be the guest editor for this issue and the next two issues of the journal.

Increasingly, the prosperity of individuals, organizations, regions, and nations relies on entrepreneurship and technology, which are two important engines for economic growth in the new global economy. The purpose of the February, March, and April issues of the TIM Review is to examine various aspects of technology entrepreneurship, contribute to theory, and provide important insights into the various issues facing managers today. The topics covered by the contributors are interdisciplinary, fill gaps in existing research, and advance our understanding of the issues relevant to the domain of technology entrepreneurship. Hopefully, these articles will encourage others to contribute to this important field.

Carleton University's faculty members and graduate students have authored the articles in these three issues. What is common to all these authors is their passion and commitment for using technology to create and capture value for firms, attracting knowledge jobs for the region, and positively contributing to society. All authors also actively contribute to Carleton's Technology Innovation Management program (carleton.ca/tim). Most have an engineering or science background and experience developing products and services in industry.

Technology entrepreneurship is a relatively unexplored field that offers many opportunities for scholarly inquiry and innovative industrial initiatives. The February issue includes five articles and one Q&A, which: i) contribute definitions of technology entrepreneurship and social entrepreneurship; ii) establish a link between entrepreneurship theory and the theory of the firm; iii) identify concrete mechanisms that can be used to effectively manage technology firms; iv) use two entrepreneurship types to examine the drive for Chinese technology firms to go global; and v) define customer value and identify the processes required to deliver it.

Editorial: Technology Entrepreneurship

Chris McPhee and Tony Bailetti

In the first article of the February issue, I argue that a better definition of technology entrepreneurship is required to improve its performance, increase its relevance, and establish the field as a legitimate domain of inquiry in its own right. A revised, more detailed definition of technology entrepreneurship is proposed and its distinguishing aspects are discussed.

David Hudson, a doctoral student at Carleton University's Sprott School of Business, establishes a link between the theory of the firm and entrepreneurship theory in order to understand employee entrepreneurial behaviour. He demonstrates how new technology creates optimal conditions where the boundary of the firm changes as a result of employees' entrepreneurial effort.

John Schreuders, a senior software systems engineer at Mitel Networks, and **Alem Legesse**, the founder of Syncrodata, examine the innovate-versus-support dilemma that small technology firms face early in their life cycles. They identify five mechanisms top management teams of small technology firms can use to concurrently innovate and fulfill the demands of existing clients and products.

Samer (Sam) Abu-Saifan, the Head of Information Technology for the not-for profit organization Street Haven at the Crossroads, defines social entrepreneurship, examines the boundaries of socially-oriented entrepreneurial activities, and positions the social entrepreneur in the spectrum of entrepreneurship.

Daniel (Dongyang) Zhou, a software designer at Ciena Networks, compares two entrepreneurship types and then argues that in order for China to go global, it needs to shift its dependence on the Kirzner-entrepreneur model to the Schumpeter-entrepreneur model. He also examines guanxi and familism, two unique attributes of entrepreneurship expected to exert a significant impact on the ability of Chinese entrepreneurs to go global.

Aparna Shanker, a customer applications engineer with Alcatel-Lucent, examines the different perspectives on customer value and then identifies processes that can used by technology firms to deliver customer value.

I hope that you, your colleagues, and your organizations benefit from reading this issue of the TIM Review.

Tony Bailetti
Guest Editor

About the Authors

Chris McPhee is Editor-in-Chief of the *Technology Innovation Management Review* and is in the Technology Innovation Management program at Carleton University in Ottawa. Chris received his BScH and MSc degrees in Biology from Queen's University in Kingston, following which he worked in a variety of management, design, and content development roles on science education software projects in Canada and Scotland.

Tony Bailetti is an Associate Professor in the Sprott School of Business and the Department of Systems and Computer Engineering at Carleton University, Ottawa, Canada. Professor Bailetti is the Director of Carleton University's Technology Innovation Management program. His research, teaching, and community contributions support technology entrepreneurship, regional economic development, and international co-innovation.

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Technology Entrepreneurship: Overview, Definition, and Distinctive Aspects

Tony Bailetti

> *"Don't let the noise of other's opinions drown out your own inner voice. And most importantly, have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary."*
>
> Steve Jobs (1955–2011)
> Co-founder of Apple and Pixar

Technology entrepreneurship lies at the heart of many important debates, including those around launching and growing firms, regional economic development, selecting the appropriate stakeholders to take ideas to markets, and educating managers, engineers, and scientists. Unless a generally accepted definition of technology entrepreneurship is established, however, these debates lose their focus.

The purpose of this article is to identify the themes that dominate the technology entrepreneurship literature, provide a definition of technology entrepreneurship, and identify its distinguishing aspects relative to economics, entrepreneurship, and management.

The author argues that technology entrepreneurship is an investment in a project that assembles and deploys specialized individuals and heterogeneous assets to create and capture value for the firm. What distinguishes technology entrepreneurship from other entrepreneurship types (e.g., social entrepreneurship, small business management, and self-employment) is the collaborative experimentation and production of new products, assets, and their attributes, which are intricately related to advances in scientific and technological knowledge and the firm's asset ownership rights.

Introduction

Technology entrepreneurship is a vehicle that facilitates prosperity in individuals, firms, regions, and nations. The study of technology entrepreneurship therefore, serves an important function beyond satisfying intellectual curiosity.

Previous definitions from the literature do not explore and identify: the ultimate outcome of technology entrepreneurship; the target of the ultimate outcomes; the mechanism used to deliver the ultimate outcomes; or the nature of the interdependence between technology entrepreneurship and scientific and technological advances. Moreover, a new definition should explicitly link technology entrepreneurship to the theory of the firm, entrepreneurship theory, and management theory.

In this article, the journal articles on technology entrepreneurship published since 1970 are classified into eight themes, the journals where these articles were published are examined, and the various definitions of technology entrepreneurship found in the literature are identified. A revised definition of technology entrepreneurship is proposed and its distinguishing aspects discussed. The last section provides the conclusions.

Technology Entrepreneurship: Overview, Definition, and Distinctive Aspects

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Overview of Literature Search

The first symposium on technology entrepreneurship was held at Purdue University in October 1970 (tinyurl.com/6q8ssvd). This was the first time researchers gathered together to exchange findings and observations on this topic.

This section examines the rapid progress in the volume and breadth of research into technology entrepreneurship since that first symposium in 1970. Google Scholar (scholar.google.ca) was used to identify published journal articles containing "technology" and "entrepreneurship" or "technical" and "entrepreneurship" in the title between January 1, 1970 and December 31, 2011. The search identified 93 articles published in 62 journals, which were then classified and examined more closely, as described in the sections that follow.

Table 1 organizes the 93 journal articles on technology entrepreneurship into eight themes and five time periods: 1970–1979, 1980–1989, 1990–1999, 2000–2009, and 2010–2011. The duration of the first four periods is ten years, while that of the last period is only two years. Table 1 suggests that:

1. Over the first four time periods, the number of articles published in each period has generally more than doubled the number of articles published in the previous period.

2. The number of articles published in the last 12 years accounts for 66% of the number of articles published over the last four decades.

Table 1. Breakdown of the number of journal articles with "technology" and "entrepreneurship" or "technical" and "entrepreneurship" in the title, by theme, and period

		Number of Journal Articles						
	Themes	1970–1979	1980–1989	1990–1999	2000–2009	2010–2011	**Total 1970–2011**	**% of total 1970–2011**
1	External factors that influence formation of technology firms	0	2	7	23	10	**42**	**45%**
2	How, why and when technology entrepreneurship affects the socio-economic development of a region	0	3	3	7	1	**14**	**15%**
3	Approaches used by small technology firms to generate revenue and reduce costs	0	1	3	6	2	**12**	**13%**
4	Internal practices used to operate and transform small technology firms	1	0	5	4	0	**10**	**11%**
5	Interdependence between technology path and small technology firm formation and growth	0	2	3	1	0	**6**	**7%**
6	Overview of technology entrepreneurship	1	0	0	2	1	**4**	**4%**
7	Corporate entrepreneurship function in mid-sized and large firms	0	0	1	2	1	**4**	**4%**
8	Contributions to other fields	0	0	0	1	0	**1**	**1%**
	Number of articles	2	8	22	46	15	**93**	**100%**

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Themes

The information shown in Table 1 suggests that:

1. The technology entrepreneurship literature is dominated by a theme that focuses on identifying the antecedents of technology firm formation.

2. Another theme addresses the consequences of technology entrepreneurship. It focuses on how, why, and when technology entrepreneurship affects the socio-economic development of a region.

3. Two other themes address what occurs inside small firms engaged in technology entrepreneurship and another theme focuses on the interdependence between small-firm initiatives and the external infrastructure that contributes to science and technology advances.

4. The technology entrepreneurship literature has focused more on small technology firms than mid-sized and large firms.

5. Scholarly work on technology entrepreneurship has not contributed substantially to other fields such as economics, entrepreneurship, or management.

The dominant theme (Theme 1) accounts for 45% of the number of articles on technology entrepreneurship published during the past four decades. It focuses on external factors that influence the formation of technology firms. This theme describes the systems that support the foundation of new technology firms. The articles cover topics on: characteristics of technology entrepreneurs; external events that create technology opportunities for technology entrepreneurs; university and business incubators; firm spinoff and technology transfer mechanisms; government programs that support technology entrepreneurship; funding of new technology firms; entrepreneurship education; and commercialization capability.

Theme 2 focuses on how technology entrepreneurship affects regional development. The how, why, and when technology entrepreneurship affects the socio-economic development of a region is addressed in articles on the relationship between technology entrepreneurship and the regional economies of developed countries, developing countries, and countries in transition; technology transfer mechanisms that enable entrepreneurship in developing countries; technology as a driver of entrepreneurship in non-technology sectors; technology entrepreneurship and women's rights; and the effect of technology entrepreneurship on government policy.

Two additional themes (Themes 3 and 4) address what occurs inside small firms (i.e., those with less than 50 employees). These themes account for 24% of the 93 articles and examine approaches for revenue generation, cost reduction, operations, and business transformation.

Theme 5, which accounts for 7% of the articles reviewed, focuses on the interdependence between technology initiatives carried out by small firms and external advances in science and technology.

Corporate entrepreneurship functioning in mid-sized and large firms (Theme 7) is the only theme that does not focus on small technology firms or technology firm formation. It accounts for only 4% of the total number of articles on technology entrepreneurship.

The results suggest that scholarly work on technology entrepreneurship has not contributed significantly to other fields (Theme 8). Only one of the 93 articles focuses on a contribution made to another field despite the relationship between entrepreneurship and the wider environment (Busenitz et al., 2003; tinyurl.com/7ar6vqy). We can surmise that the reason for this is that the number of scholars contributing to the field of technology entrepreneurship is not large.

Figure 1 organizes seven of the eight themes shown in Table 1 into three clusters. The overview theme (Theme 6) is not shown in Figure 1. The first cluster includes the four themes anchored around technology venture formation. This cluster includes themes that focus on the antecedents (Theme 1) and consequences (Themes 2 and 8) of technology venture formation as well as its interdependence with change in technology (Theme 5).

The second cluster includes the two themes that focus on small technology firms (Themes 3 and 4) and the third cluster includes the theme that focuses on mid-sized and large firms (Theme 7).

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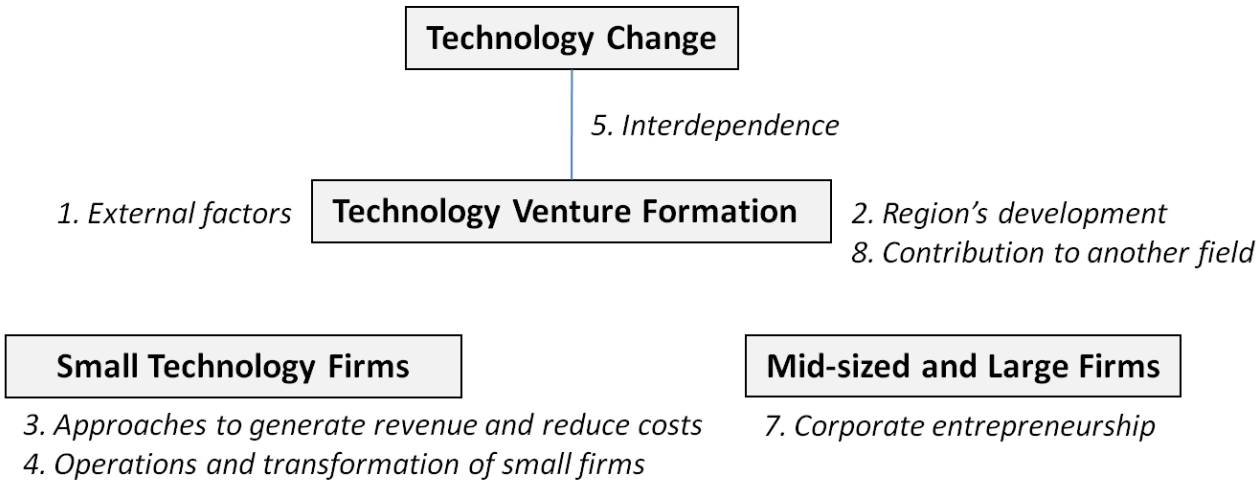

Figure 1. Seven themes of technology entrepreneurship organized into three clusters

Journals: Domains and Rankings

To assess the quality of the journals where the 93 articles were published, criteria to identify a list of "good" journals in technology innovation or entrepreneurship domains were first defined and then the journals that met the criteria were identified. To be part of the list of "good" journals, a journal had to be: i) rated A or B by Franke and Schreier (2008; tinyurl.com/7ma9ldq); ii) included in the Financial Times' Top 45 Journals list (Financial Times, 2010; tinyurl.com/7f86z8e); and iii) used by Linton in his comparison between technology innovation management journals and those journals that appear in the list of the Financial Times' Top 45 Journals. (2011; tinyurl.com/7u7bglg).

The remainder of this section summarizes our key findings in relation to journal domains and rankings.

1. The majority of technology entrepreneurship articles are published in journals not considered contributors to technology innovation or entrepreneurship
Of the 62 journals that published the 93 articles reviewed here, only 18 (29%) were considered to be journals that contribute to technology innovation management or entrepreneurship by Franke and Schreier (2008; tinyurl.com/7ma9ldq).

2. Two to seven journals in technology innovation and entrepreneurship met the criteria for "good" journals
Only two of the 62 journals that published technology entrepreneurship articles met the criteria for a "good" journal: Entrepreneurship Theory and Practice and Journal of Business Venturing.

To include more journals in the list of "good journals", we dropped the requirement that the journal be included in the Financial Times' Top 45 Journals list. When we relaxed the criteria for a "good" journal, seven journals were included in the list of "good" journals. These are: Research Policy (5), R&D Management (4), Journal of Business Venturing (3), International Journal of Technology Management (2), IEEE Transactions on Engineering Management (1), Entrepreneurship Theory and Practice (1), and Journal of Product Innovation Management (1). The numbers in brackets refer to the number of articles in our sample published by each journal.

3. Eighteen percent of the 93 articles in Table 1 were published in seven "good" journals
We found that 17 of the 93 articles in Table 1 (18%) were published in the seven journals that met the relaxed criteria for a good journal. Four of the 93 articles (4%) in Table 1 were published in the two journals that met our original criteria for a good journal.

These findings suggest that technology entrepreneurship is still a relatively new field of study. The number of scholars publishing articles about technology entrepreneurship in top journals remains quite small.

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Existing Definitions

Six definitions of technology entrepreneurship were found in the 93 articles reviewed:

1. Organization, management, and risk bearing of a technology based business (Nicholas and Armstrong; 2003; tinyurl.com/7tv9pdq)

2. Solutions in search of problems (Venkataraman and Sarasvathy, 2000; tinyurl.com/7ufaes4)

3. Establishment of a new technology venture (Jones-Evans, 1995; tinyurl.com/7vfgww7)

4. Ways in which entrepreneurs draw on resources and structures to exploit emerging technology opportunities (Liu et al., 2005; tinyurl.com/6mgecu8)

5. Joint efforts to interpret ambiguous data, joint understanding to sustain technology efforts, and persistent, coordinated endeavor to accomplish technological change (Jelinek, 1996; tinyurl.com/783jc4n)

6. An agency that is distributed across different kinds of actors, each of which becomes involved with a technology and, in the process, generates inputs that result in the transformation of an emerging technological path (Garud and Karnøe, 2003; tinyurl.com/6pdm8bn)

The definitions found in the literature suggest that technology entrepreneurship is about: i) operating small businesses owned by engineers or scientists; ii) finding problems or applications for a particular technology; iii) launching new ventures, introducing new applications, or exploiting opportunities that rely on scientific and technical knowledge; and iv) working with others to produce technology change.

Defining Technology Entrepreneurship

The field of technology entrepreneurship is in its infancy when compared to other fields such as economics, entrepreneurship, and management. However, we are at a point where we can leverage the insights contributed by previous work to create a clearer working definition of technology entrepreneurship.

This article proposes a general definition that identifies the distinctive characteristics of technology entrepreneurship and describes its links with the fields of economics, entrepreneurship, and management. The proposed formal definition of technology entrepreneurship should prove valuable in adding to our understanding of how entrepreneurship functions in a firm that invests in projects that are interdependent with advances in science and technology.

The following definition of technology entrepreneurship is proposed:

Technology entrepreneurship is an investment in a project that assembles and deploys specialized individuals and heterogeneous assets that are intricately related to advances in scientific and technological knowledge for the purpose of creating and capturing value for a firm.

The proposed definition of technology entrepreneurship is based on four elements:

1. Ultimate outcomes. Value creation and capture are identified as two outcomes of technology entrepreneurship because the sources that create value and the sources that capture value may not be the same over the long run.

2. Target of the ultimate outcomes. The firm is identified as the target organization for which value is created and captured.

3. Mechanism used to deliver the ultimate outcomes. Investment in a project is the mechanism mobilized to create and capture value. A project is a stock of resources (i.e., specialized individuals and heterogeneous assets) committed to deliver the two ultimate outcome types for a period of time.

4. Interdependence of this mechanism with scientific and technological advances. The individuals involved in a project influence and are influenced by advances in relevant scientific and technology knowledge. The project exploits or explores scientific and technology knowledge. External and internal individuals and organizations co-produce the project's outputs.

When compared to the definitions identified in the previous section, the definition proposed above:

1. Emphasizes that technology entrepreneurship is about creating and capturing value for the firm through projects that combine specialists and assets to produce and adopt technology

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2. Highlights the collaborative experimentation and production of new products, new assets, and their attributes, which are intricately linked to scientific and technology advances and the firm's asset ownership rights

3. Specifies that technology entrepreneurship may entail projects that search for problems or applications for a particular technology, launch new ventures, introduce new applications, and exploit opportunities that rely on scientific and technical knowledge provided that their ultimate outcome is to create and capture value for the firm

4. Clarifies that technology entrepreneurship is not about the general management practices used to operate small businesses owned by engineers or scientists or just about small businesses

Differentiating Aspects

There are at least five differentiating aspects of technology entrepreneurship in the definition proposed above.

1. How technology entrepreneurship differentiates from other entrepreneurship types
The interdependence between scientific and technological change, as well as the selection and development of new products, assets, and their attributes, differentiate technological entrepreneurship from other entrepreneurship types.

Technology entrepreneurship has more to do with collaborative production based on a shared vision of future changes in technology. The existing entrepreneurship literature, however, describes an entrepreneur as: i) "an alert individual discovering an existing opportunity" (Shane, 2003: tinyurl.com/7ck6h95; Shane and Venkataraman, 2000: tinyurl.com/7lgvwyw); ii) "an innovative individual who shakes the economy out of its previous equilibrium" (Schumpeter, 1939; tinyurl.com/7dtghyp); iii) "an experienced individual making judgments about an unknowable future" (Foss and Klein, 2005; tinyurl.com/7xd3xd8); iv) "an individual who believes she has lower information costs than others" (Casson and Wadeson, 2007; tinyurl.com/869g49o); vi) "an individual with certain personality traits" (Hood and Young, 1993; tinyurl.com/7nj82e3); and vi) "a charismatic leader" (Witt, 1998; tinyurl.com/7wwqtug).

A shared vision of change in technology influences why, when, and how a firm creates and captures value. Technology change can be represented in various ways. Therefore, it is important to develop a shared view of change in technology.

2. Eliminating the existing biases in the entrepreneurship literature
The proposed definition eliminates three biases of entrepreneurship research: i) concentration on new firm formation; ii) focus on individual entrepreneurs; and iii) over-attention to opportunity discovery (Foss, 2011; tinyurl.com/6wamh2j).

Technology entrepreneurship, as defined above, applies equally well to newly formed or established firms as well as small or large firms. Established and large firms can engage in technology entrepreneurship just as well as startups do.

Technology entrepreneurship is about collaborative production decisions, not about a single individual making or delegating decisions. The firm's top management team jointly decides to invest in a project and a team of specialized individuals who create and capture value for the firm. The specialized individuals and assets can be held by a single entrepreneur-manager or can be distributed.

Technology entrepreneurship involves specialized human resources, tapping into their skills and ability to collaboratively explore and exploit scientific and technological change to benefit the firm. Technology entrepreneurship is best understood therefore, as a joint-production phenomenon that draws from a team of specialized individuals from multiple domains, some or all of whom become embedded in the technology path they try to shape in real time (Garud and Karnøe, 2003; tinyurl.com/6pdm8bn). Technology entrepreneurship is not about a single individual or the inventions they introduce. It is about managing joint exploration and exploitation, where each individual has roles and responsibilities in collaboratively and cooperatively moving forward toward accomplishing shared goals (Lindenberg and Foss, 2011; tinyurl.com/6oh6yuo). Technology entrepreneurship is about investing in and executing the firms' projects, not just recognizing technology or market opportunities.

3. A more theoretically rigorous and practical definition
Considering technology entrepreneurship as an investment in a project rather than a subjective opportunity allows it to be assessed in more theoretically rigorous and practical terms. It transforms the subjective view of

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technology or market ideas to the objective reality of project definition, financing, and execution. The proposed definition links technology entrepreneurship to an amount of money (i.e., investment in the project). Ideas are mere parlour games until money is part of a project (Rothbard, 1985; tinyurl.com/75f2boc).

4. Linking technology entrepreneurship to the theory of sustainable competitive advantage

Technology entrepreneurship and the resource-based view of sustainable competitive advantage (tinyurl.com/753qbxo) are interdependent because they are both concerned with how to create and capture value. Both pay explicit attention to how resources that embody technology and scientific advances create and capture value. While technology entrepreneurship applies to any firm with projects that rely on advances of science and technology, the resource-based view applies to those few firms that are continuously successful.

The resource-based theory of sustainable competitive advantage is the dominant view in strategic management. It links firm performance to firm resources and includes concepts such as capabilities, dynamic capabilities, and core competences. Scholars working in this field seek to clarify how a firm can create and capture more value than its competitors on a sustained basis (Peteraf and Barney, 2003; tinyurl.com/8x8qfmt).

For value-creation activities to endure over the long term, the amount customers pay the firm must be: i) greater than the firm's cost of production and ii) a function of the difference between the satisfaction customers receive from consuming the firm's goods or services and the satisfaction customers would receive from consuming the closest alternative goods or services. For the firm to capture the value it creates, "use value" (i.e., utility of consuming a good) and "exchange value" (i.e., price paid for the good) should be similar. If use value is high and exchange value is low, other agents (e.g., intermediaries, competitors) are capturing the value created for customers (Lepak et al., 2007; tinyurl.com/6rmbk6g).

5. Linking technology entrepreneurship to the theory of the firm

The technology entrepreneurship domain and the theory of the firm are interdependent through the specialized individuals and heterogeneous assets committed to a project for the purpose of creating and retaining value for the firm.

The specialized individuals and heterogeneous assets in the project's stock of resources can be considered reference points in the theory of the firm. The theory of the firm aims to explain why firms exist, what determines their boundaries, what determines their structure, and what drives their different actions and performances.

The proposed definition emphasizes the importance of technology entrepreneurship in enabling specialized individuals to develop combinations of assets and their attributes in order to create and capture value for the firm. An "asset" refers to an economic resource that is owned or controlled by the firm and is used to create and capture value for the firm. An asset represents value ownership that the firm may convert into cash. An asset can be thought of as a bundle of attributes defined by their characteristics, functions, and potential uses. The term "heterogeneous assets" refers to a set of assets that lack uniformity in composition or character.

The firm's owners and employees have no way of knowing or predicting the relevant attributes of all the assets. Asset attributes need to be discovered. Technological entrepreneurship identifies, selects, and develops new attributes for the purpose of creating and capturing value for the firm.

Technology entrepreneurship requires a firm for two reasons. First, the firm must control the assets that specialized individuals use to experiment with new combinations of assets and their attributes. Second, the requisite joint investment and production decisions cannot be purchased on the market. The reasons that technology entrepreneurship needs a firm are similar to the reasons why an entrepreneur needs a firm described by Foss, Klein, and Bylund (2011; tinyurl.com/8xfhvlg).

Conclusion

Over the last four decades, technology entrepreneurship has become an increasingly important global phenomenon. It is perceived as necessary for growth, differentiation, and competitive advantage at the firm, regional, and national levels. Technology entrepreneurship appeals mainly to leaders and top management teams of small and large firms who use technology to create, deliver, and capture value for their stakeholders. Technology entrepreneurship also appeals to person-

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nel of regional economic development agencies that attract investments in productive technologies and talent to a particular geography.

The primary function of technology entrepreneurship is to assemble a combination of specialized individuals and heterogeneous assets in order to create and capture value for the firm through collaborative exploration and experimentation. The combination, some of the assets, or the assets' attributes may be unique and novel. The initial combination may change over time.

In this article, the literature on technology entrepreneurship was classified into eight themes. The literature search revealed that most of the articles on technology entrepreneurship appeared in journals not considered to be in the technology innovation/entrepreneurship domain.

The article offered a definition for technology entrepreneurship. A better definition of technology entrepreneurship can help improve its performance, increase its relevance, and establish it as a legitimate domain of inquiry in its own right. This definition needs to identify and incorporate the various distinctive aspects of technology entrepreneurship and its links to the existing domains of economics, entrepreneurship, and management. The definition, including the corresponding features and links, requires particular attention from scholars and practitioners.

The aspects of technology entrepreneurship to which we need to pay particular attention are identified. These aspects are: i) the interdependence between scientific and technological change and the selection and development of new combinations, assets, and asset attributes; ii) biases in the existing entrepreneurship literature; iii) conceptualization of technology entrepreneurship as an investment in a project, rather than opportunity recognition or venture formation; and iv) links among technology entrepreneurship, the theory of sustainable competitive advantage, and the theory of the firm.

About the Author

Tony Bailetti is an Associate Professor in the Sprott School of Business and the Department of Systems and Computer Engineering at Carleton University, Ottawa, Canada. Professor Bailetti is the Director of Carleton University's Technology Innovation Management program. His research, teaching, and community contributions support technology entrepreneurship, regional economic development, and international co-innovation.

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Entrepreneurial Effort in the Theory of the Firm

David Hudson

> *"The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift."*
>
> Albert Einstein
> Theoretical Physicist (1879-1955)

This article develops a link between the theory of the firm and entrepreneurship theory to enable the study of employee entrepreneurial behaviour. First, we describe how incomplete contracts permit employee entrepreneurial effort in the theory of the firm. Next, we argue that emancipation offers an explanation for entrepreneurial effort that is not motivated by financial gain. Finally, we show how new technology creates conditions where the boundary of the firm may change and where entrepreneurial effort by employees may occur.

Introduction

This article links the neoclassical economic theory of the firm to entrepreneurship theory to better understand the antecedents and consequences of entrepreneurial effort by employees. The new institutional economic literature provides theoretical explanations for why firms exist and why managers are necessary (e.g., Williams and Winter, 1993; tinyurl.com/7qgdwjr). However, beyond the need for entrepreneurs as disrupters of equilibrium (Perez, 2009: tinyurl.com/8yfkvs5; Schumpeter, 1950: tinyurl.com/7tzrbsk) or prime movers in capitalism (Kirzner, 1973; tinyurl.com/84x69wh), the economic theories that explain the existence of firms have evolved separately from those that explain entrepreneurial effort (Aldrich, 2005; tinyurl.com/7waf4y7). Linking these theories is important because firms need entrepreneurial effort from employees for growth (Penrose, 1995; tinyurl.com/73wlgfe). Management practice can support or reduce "the propensity to create or discover" in employees (Foss et al., 2007; tinyurl.com/77ytd6d). Moreover entrepreneurial effort is likely to arise at the boundary of the firm and challenge what the firm controls (Foss, 1996; tinyurl.com/7kfsluj).

In this article, we first review elements of the theory of the firm and the entrepreneurship theories that support this new institutional economic literature. We then identify a link between the theory of the firm and the entrepreneurship theory of emancipation that has not been explored to date. Finally, we discuss where this theoretical link might be observed in practice.

New Institutional Economics and the Theory of the Firm

The new institutional economic theory of the firm explains why firms exist and what they manage (Williamson and Winter, 1993; tinyurl.com/7qgdwjr). This theory developed as a reaction to neoclassical economics (Demsetz, 1988; tinyurl.com/75ppqyj). Neoclassical economics ignores how firms form, function, grow, or fail; assumes transactions are costless; and does not address the role of employees other than the founding entrepreneur (Penrose, 1995; tinyurl.com/73wlgfe).

Many authors contributed to the theory of the firm (e.g. Demsetz, 1988: tinyurl.com/75ppqyj; Foss and Klein, 2009: tinyurl.com/ygf37hd; Hart, 1988: tinyurl.com/88f799k; Williamson and Winter, 1993: tinyurl.com/7qgdwjr) but Ronald Coase is credited with originating the theory (Nee, 2005: tinyurl.com/7waf4y7; Williamson and Winter, 1993: tinyurl.com/7qgdwjr). Coase insisted that the term *firm* "correspond with the real world" to make economic theory applicable in practice (Coase, 1937; tinyurl.com/796acxx). A core concept in Coase's argument

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was that transactions, or any economic exchange of value, are costly (Nee, 2005). Transaction costs arise from effort and risk associated with learning, searching, and bargaining among options in an open market (Coase, 1937). Consequently, firms purchase resources or hire employees when it is more economical than renting resources from the market and vice versa (Demsetz, 1988; tinyurl.com/75ppqyj). For example, there are different transaction costs between purchasing a customer relationship management (CRM) system and subscribing to a hosted CRM service. Such economics define what firms keep internally versus what is sourced from the open market and therefore define the firm boundary in the theory of the firm.

Incomplete contracts explain the source of certain transaction costs in the theory of the firm (Hart, 1988; tinyurl.com/88f799k). Contracts are necessarily incomplete because a firm and its suppliers agree to contracts where not all eventualities are anticipated and where the two parties do not have perfect, or even the same, knowledge of what must transpire for the contract to be fulfilled (Aghion and Holden, 2011; tinyurl.com/85j3bge). Because individuals executing transactions on behalf of firms vary in their knowledge and risk tolerance, incomplete contracts further explain the boundary of the firm. It may be impossible to specify all the features for a CRM software purchase or to accurately anticipate the usage level for a CRM service subscription, for example.

Finally, the theory of the firm explains that management or governance of firms is "the formal and informal allocation of decision … rights and the mechanisms that enforce such rights" (Foss, 2012; tinyurl.com/76h2xzq). Governance in firms arises because incomplete contracts also allow for opportunism and moral hazard (Jensen and Meckling, 1976: tinyurl.com/6uw7flt; Williamson, 1993: tinyurl.com/7qgdwjr). In other words, because contracts are necessarily incomplete, managers are needed to mitigate opportunistic bad behavior, such as shirking or other self-interest, to ensure that agents deliver as expected and in unforeseen situations (Nee, 2005; tinyurl.com/7waf4y7). The theory of the firm explains when a firm owns resources instead of sourcing them on the open market and the role for managers in overseeing incomplete contracts. For example, firm managers would verify that CRM features are delivered as contracted or that sales employees use the CRM system once implemented.

Linking the Theory of the Firm and Entrepreneurial Effort as Emancipation

Entrepreneurs in new institutional economics identify high-growth opportunities, develop new products, and found firms (Aldrich, 2005; tinyurl.com/7waf4y7). While "ambition" and "judgment" (Penrose, 1995; tinyurl.com/73wlgfe) or "perception" and "hunches" (Kirzner, 1979; tinyurl.com/84sc36f) of individuals is recognized, the theory of the firm emphasizes that entrepreneurship is concerned with the founding of new firms (Gartner, 1988: tinyurl.com/79enarz; Thorton, 1999: tinyurl.com/7xwhazo) where the "notion of entrepreneurship is inseparable from the opportunity for profit" (Kirzner, 1973; tinyurl.com/84x69wh). The possibility of other employee entrepreneurial effort remains hidden within "the black box" neoclassical firm (Hart, 1988; tinyurl.com/88f799k)

Despite this emphasis, the theory of the firm does suggest a potentially broader understanding of entrepreneurial effort. First, employment is also an incomplete contract in that not all details of work activities under all contingencies can be fully documented (Nee, 2005; tinyurl.com/7waf4y7). Second, incomplete contracts create room for initiative by agents, including employees, to opportunistically do more than expected under their contract (Aghion and Tirole, 1997; tinyurl.com/85j3bge). Initiative includes experimentation with combinations of underused firm resources (Penrose, 1995; tinyurl.com/73wlgfe).

The discovery of novel combinations of resources through experimentation is the essence of entrepreneurship (Foss and Klein, 2009; tinyurl.com/ygf37hd). Therefore, while opportunism is inherent in incomplete contracts and associated with bad behaviour, opportunism may also amount to entrepreneurial effort (Foss et al., 2007; tinyurl.com/77ytd6d) and is likely to arise naturally unless prevented by firm governance (Penrose, 1995; tinyurl.com/73wlgfe). These authors also emphasize "profit-seeking" (Foss et al., 2007) and "the profit motive" for such effort (Penrose, 1995).

However, profit does not explain all entrepreneurial effort (Aldrich, 2005; tinyurl.com/7waf4y7). Entrepreneurial effort may be understood, more generally, as "the creation of newness" motivated by reasons besides profit (Rindova et al., 2009; tinyurl.com/86klqz9). Rindova, Barry, and Ketchen Jr (2009) argue that emancipation is the

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primary motivation for entrepreneurial effort where emancipation is the act of setting oneself free from another's control and changing one's environment in more than just economic terms. Emancipation has three core elements:

1. *Autonomy seeking* is action to remove perceived social, technological, institutional, or other constraints in the entrepreneurs' environment. For example, entrepreneurial effort can increase personal reputation and influence.

2. *Authoring* is action to orchestrate economic and social resources to formalize and grow the entrepreneur's social base. Authoring, for example, includes taking over training relationships so others use some implemented capability.

3. *Making declarations* are actions by individuals to assert their intent to create change to garner support. Examples include communication through blogs or giving presentations.

While parallels to the core elements of emancipation exist in the founding of new firms for economic gain (Aldrich, 2005; tinyurl.com/7waf4y7), emancipation explains "the entrepreneurial element" where individuals act in a manner that is not apparently or immediately economically advantageous to them (Kirzner, 1973; tinyurl.com/84x69wh). Returning to the CRM example, a non-sales employee may create an automatic record of all visits by clients to the firm website out of personal interest to understand the CRM database.

The theory of entrepreneurial effort where emancipation is the motivation can augment the new institutional economic theory of the firm. This view of entrepreneurship in firms is distinct from profit-motivated entrepreneurship in firms labelled "corporate venturing" or "intrapreneurship" where it is "managers and executives who take innovative action" (Aldrich, 2005; tinyurl.com/7waf4y7). Motivated by a desire to change their environment, employees of firms may exert effort that is permitted by their incomplete contracts using available resources, consistent with the theory of the firm.

For managers, distinguishing opportunistic bad behaviour while encouraging entrepreneurial effort is challenging. Entrepreneurs see their actions as rational (Adner and Levinthal, 2008; tinyurl.com/777el7d) but some entrepreneurial effort is not desirable to the firm and there may be a "combination of productive and destructive entrepreneurship" in a given effort (Foss et al., 2007; tinyurl.com/77ytd6d). Also, entrepreneurs may be unable to communicate their intent and may be misunderstood (Adner and Levinthal, 2008). Entrepreneurs may even work creatively using available resources but without a specific goal in mind (Sarasvathy, 2001; tinyurl.com/8837anh). In the CRM example, tracking client-visit data may not serve a clear purpose for the employee, and it may consume server capacity, be seen as intrusive, and become valuable only later.

Observing Entrepreneurial Effort by Employees at the Boundary of the Firm

Using the theory of the firm, it is possible to predict general conditions where such entrepreneurial effort might be observed. The boundary of the firm arises as an economic trade-off between what the firm controls directly and what the firm obtains from the open market and this boundary is affected by changes in the environment, including technology (Dosi et al., 2005: tinyurl.com/7waf4y7; Foss, 1996: tinyurl.com/7kfsluj; Nee, 2005: tinyurl.com/7waf4y7). New technology changes boundaries so "firms specialize and disintegrate", outsourcing what was once internal and vice versa (Foss, 2012; tinyurl.com/76h2xzq). Entrepreneurial effort in the neighbourhood of such change is likely and subject to "rich debate" concerning how it affects the firm (Foss, 2012). This debate includes the issue of how firms recognize entrepreneurial effort that may constructively challenge what the firm has historically managed internally versus externally.

The use of consumer technology as business information technology (IT) may provide conditions for emancipation-motivated employee entrepreneurial effort. Consumer technology is IT designed for consumer use such as smartphones, touch screen tablets, or social networking software that is increasingly also used as business IT (Stokes, 2008; tinyurl.com/yd6kxgs). This change in technology appears to affect the boundary of the firm in how corporate IT is defined.

Consumer technology used in firms offers capabilities that are perceived as valuable by employees for familiarity and convenience reasons but perceived as a threat by IT managers for control, security, or other reasons (Bernoff and Schadler, 2010; tinyurl.com/244l9qz). Conflict between employees and managers over consumer technology use may signal entrepreneurial effort. Leverage of underused firm resources and contribution of em-

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ployee resources would further signal entrepreneurial effort. For example, an employee of a firm may download an application of their own choosing to their firm-supplied smartphone to access the firm-supplied CRM database, but in doing so, the employee may be violating firm policies on IT security. If such effort included actions to rearrange work processes for greater employee control, orchestration of other resources to formalize use, and sharing of experience with a community, emancipation may be the motivation for the entrepreneurial effort.

Conclusion

Linking the theory of the firm and the entrepreneurship theory of emancipation provides a way to conceptualize employees as a source of entrepreneurial effort. Availability of resources and latitude to experiment allows employees to exert entrepreneurial effort. However, this effort may not be well understood or communicated by employees and may lead to conflict with management. Entrepreneurial effort by employees may arise in the vicinity of technology change that affects the boundary of the firm.

About the Author

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Organizational Ambidexterity: How Small Technology Firms Balance Innovation and Support

John Schreuders and Alem Legesse

> *"The pessimist complains about the wind. The optimist expects it to change. The leader adjusts the sails."*
>
> John Maxwell
> Author and Speaker

Many technology entrepreneurs start their companies by focusing on an innovation that creates a market offer to attract their first customers. When the entrepreneur's firm makes its first sale, the dynamics of the organization change and the entrepreneur faces a new challenge: how can the firm concurrently develop new products and support existing customers? This problem is of great concern to entrepreneurs who own small technology firms and is the subject of this article.

In this article, we first address the innovate-versus-support dilemma that small technology firms face early in their lifecycles. Next, we describe the paradigm of the ambidextrous organization. We conclude with a discussion of five mechanisms small firms can use to achieve balance in their quest to concurrently satisfy the need to innovate while fulfilling the demands of existing clients and products.

Introduction

Early in a technology firm's lifecycle, most of the firm's time and resources are dedicated to the design and development of its first product. This is known as the "honeymoon" stage for a startup. The entrepreneur can afford to be extremely flexible with goals and decisions. Once the firm begins to ship products and establishes a group of customers, it must devote a portion of its resources to the maintenance of those products through regular bug fixes and product updates (i.e., customer support). This shift in priorities places a firm in an interesting dilemma: existing customers must be kept satisfied while pressures to continue innovation must be addressed.

To survive and grow, the small technology firm needs to find a balance between satisfying existing customers and developing new products. If the entrepreneur fails to properly balance the need for new product development and the need to keep existing customers satisfied, then one of the following two outcomes may happen. First, the small technology firm may no longer be able to innovate at the pace required to stay ahead of the larger incumbents, resulting in the firm becoming irrelevant and ripe for replacement by an incumbent. Second, the small firm may develop a poor reputation, resulting in unhappy customers who go elsewhere.

The search for the appropriate balance is at the heart of a research paradigm known as organizational ambidexterity (Raisch et al., 2009; tinyurl.com/84jzpbn). An ambidextrous organization is one that is capable of simultaneously exploiting existing competencies (e.g., satisfying existing customers) and exploring new opportunities (e.g., developing new products). However, exploration and exploitation are quite different activities and require different abilities within the firm. In the case of exploration, "firms must regularly assess their vision, encourage innovation and must be willing to adjust or change strategies, products and markets and more" (Dover and Dierk, 2010; tinyurl.com/7pcll3j). Ex-

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ploitation requires a different approach; the firm must focus on carrying out activities such as customer service and bug fixes as efficiently as possible. Exploration employs more of a creative, dynamic approach necessary for innovating new products faster than the competition. This is much different than exploitation, which employs a transactional approach with a focus on ensuring customer satisfaction.

Ambidextrous organizations are expected to perform better than others (Raisch et al., 2009; tinyurl.com/84jzpbn), but the existing literature focuses on the mechanisms required to enable ambidexterity and addresses the importance of the relationship between ambidexterity and firm performance in mid- and large-scale organizations. The literature regarding ambidexterity within small technology firms is not well developed. Entrepreneurs who own small technology firms should be aware that the balance between exploration and exploitation is of crucial importance to the success of their firms (Rosing et al., 2011; tinyurl.com/72eyvmv). They must also be familiar with the mechanisms that can help a small technology company become more ambidextrous.

The remainder of this article describes five mechanisms that entrepreneurs can use to design and operate ambidextrous small technology firms:

1. Adopt an ambidextrous leadership style.

2. Outsource one of the two functions.

3. Attract and retain employees who can both explore and exploit.

4. Attract executives who can act as leaders, managers, and entrepreneurs.

5. Shift resources across projects regardless of whether their goals are to explore or exploit.

Adopt an ambidextrous leadership style

Leadership affects innovation and organizational development. Rosing, Frese, and Bausch (2011; tinyurl.com/72eyvmv) identify three leadership styles found within a technology company: transformational, transactional, and ambidextrous. These leadership styles are described below to illustrate their roles at different phases in the lifecycles of companies.

A transformational leader strives to make changes within the organization for the purpose of moulding it into something different. This is done to prepare the organization for challenges, such as handling new technologies or new incumbents. This style of leadership tends to result in unconventional thinking and solutions that go beyond existing knowledge. For the entrepreneur starting a technology business, this leadership style generally works best. Typically, an entrepreneur starts with an idea, then transforms it into an opportunity, and then it becomes a small operating business. Later, the entrepreneur is faced with the dilemma of having to shift their leadership style as the firm evolves.

A transactional leader focuses on maintaining day-to-day operations, assuring the firm runs as efficiently as possible. This leadership style tends to focus on correcting issues that impact the effectiveness of the firm's day-to-day operations. It is less concerned with transforming the organization to handle future changes in the market. The transactional leadership style is most evident in large firms with well established brands. These firms invest mainly in initiatives to promote their brands and ensure their existing customer base is satisfied. When an organization focuses exclusively on transactional leadership, however, it finds it difficult to develop novel new products and services. This leaves the larger firm vulnerable to smaller, less well-known firms that are free to devote their time to innovation (Rosing et al., 2011; tinyurl.com/72eyvmv). The reverse seems true for small companies that have fewer customers and are focused primarily on product development. Once their product development begins to pay off, the small company must integrate transactional leadership into the organization to provide support for their growing customer base.

Ambidextrous leadership is a combination of both the transformational and transactional leadership styles. Ambidextrous leaders have mastered the ability to alternate between the two styles depending on the needs of the company. Ambidextrous leadership successfully establishes the right balance in order to promote growth within the company. Leaders of startups must be able to efficiently change from one leadership style to the next depending upon the innovation requirements. Simply keeping up with both styles does not lead to higher innovation (Rosing et al., 2011).

An example of ambidextrous leadership comes from International Safety Research Incorporated (i-s-r.ca), which is a small firm committed to providing safety management solutions in the fields of nuclear power and radiation protection. The company consists of a small collection of licensed safety inspectors and software de-

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velopers who can switch efficiently between re-certification tasks for existing customers and new product development related to their exercise simulation product (i-s-r.ca/products_e.html) or other innovations. To effectively balance the nature of these responsibilities, the staff must continuously shift from customer support to new product development. The ability to alternate between explorative and exploitative work benefits International Safety Research Incorporated; it creates an efficient system where lessons learned from customer support can be incorporated into the improvement of upcoming products. Due to the size of ISR, leaders within the company must shift their focus from customer service to product development along with the rest of the staff. In fact, it is due to the ambidextrous nature of its leadership that ISR employees can themselves be ambidextrous.

Outsource one of the two functions

A small company that wishes to strike a balance between supporting customers and developing innovating new products can enter into partnerships with other companies to perform one of these two functions. When engaging a partner to perform one of the two functions, and for externalization to work properly, the small firm must maintain strong ties with the partner and integrate the externally acquired knowledge base back into the organization (Raisch et al., 2009; tinyurl.com/84jzpbn).

An example is Blindside Networks (blindsidenetworks.com), a Carleton University spin-off company that produces open source web conferencing solutions for universities and colleges. Blindside generates revenue supporting existing customers (exploitation) and innovates by collaborating with the global BigBlueButton (bigbluebutton.org) open source community (exploration) (Dixon, 2011; timreview.ca/article/441). It was the strategic decision to outsource exploration activity that allowed the startup to develop a complex web application and quickly deploy it to customers. Another example is InGenius (ingenius.com), which provides telecommunication software solutions. InGenius entered into an agreement with Mitel Networks (www.mitel.ca) to develop components for Mitel's MCD platform. In turn, Mitel assumes the responsibility of handling customer support tasks. Through this arrangement, InGenius can focus aggressively on new product development while its partner can focus on providing a unified customer support experience. In this situation, a small company has partnered with a larger one to create an ambidextrous collaboration for mutual advantage.

Attract and retain employees who can both explore and exploit

Researchers have focused on firm-level mechanisms to enable ambidexterity. Many employees of smaller firms, however, are forced to take on both exploitative and explorative tasks. Individual-level mechanisms that enable ambidexterity assume that ambidextrous capability is rooted in the individual or small team, not the overall organization. In the case of a small company, resources may not be available to hire people specifically for the development and support functions. Ideally, these employees should learn to perform tasks that support both functions. A single team may become ambidextrous by allocating different roles to each individual (Raisch et al., 2009; tinyurl.com/84jzpbn).

Consider Met Inspiratie (metinspiratie.nl), a small web design firm operating in the Netherlands. The firm consistently secures customer contracts because their design team develops innovative products and provides customer support. Due to its size, designers at Met Inspiratie take care of clients through the whole lifecycle of product design from inception to final deployment. This gives customers the "personal touch" they do not receive from larger firms. This ambidexterity gives designers more direct access to their customers and allows them to develop the relationships that enable them to anticipate their customers' needs. By having these strong relationships cemented early in the design phase of a project, designers can ensure all requirements are incorporated into the final design and the customer's needs are always considered. Another example is the Zope Europe Association (ZEA; zeapartners.org), which is a network of small firms of one or more employees that collaborate to operate as an ambidextrous organization (Weiss, 2011; http://www.timreview.ca/article/436). The network enables its members to partition tasks so they can innovate as well as provide customer support. These examples illustrate that it is important to attract employees who possess the skills and breath of prior knowledge and understanding necessary to perform both exploitation and exploration tasks (Raisch et al. 2009; tinyurl.com/84jzpbn).

Attract executives with balanced capabilities

Executives who can view a firm's problems from the perspective of a leader, a manager, and an entrepreneur add to the firm's ambidextrous capability. Dover and Dierk (2010; tinyurl.com/7pcll3j) defined an index whereby executives can be ranked in terms of their effectiveness on three separate scales: manager, entrepreneur, and leader. Executives with high scores in the

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manager dimension are driven by short-term objectives and clear metrics, and they tend to be risk averse. Executives with high scores as entrepreneurs are risk takers. Executives with high scores in the leadership dimension take a middle course; through vision and future orientation, they show a propensity for risk, while at the same time, they carefully search for a balanced portfolio of innovation opportunities.

The ability to balance managerial, entrepreneurial, and leadership effectiveness optimizes a firm's capability to incorporate customer inputs generated by support activities into product development. Achieving this balance also encourages the entrepreneur to assume more risk based on their knowledge of what customers need, because they are strongly linked to the market. Executives who can effectively integrate exploitative and explorative activities have the ability and power to transform a small company into an ambidextrous one (Raisch et al., 2009; tinyurl.com/84jzpbn). This will allow the small company to better handle contradictions and conflicting goals (Smith and Tushman, 2005; tinyurl.com/8xcd9bn), engage in paradoxical thinking, and fulfil multiple roles (Raisch et al., 2009).

Shift resources across projects

Some researchers suggest that ambidexterity can be obtained by shifting resources from one project to the next, regardless of whether the project goals are explorative or exploitative in nature. These resources can include: cash, talent, expertise, customers, and technologies (O'Reilly and Tushman, 2004; tinyurl.com/6uavbe6). In its ability to effectively shift resources from one project to the next, the small technology firm benefits in the following ways:

1. Increased customer satisfaction during periods of increased demand for support

2. Reduced time required to allocate resources to take advantage of a new market opportunity and remove resources used to support products in declining markets

3. Increased ability to respond to environmental changes such as the arrival of a new incumbent or new technology

A technology startup that can easily move resources from development to customer support improves its ability to compete. The firm can innovate effectively since those who are familiar with the designs of the product are also familiar with the needs, complaints, and expectations of customers. This customer-driven knowledge can potentially translate into better requirements, more comprehensive testing, and simpler customer deployment.

The ability for a startup to quickly shift from development to support and back again is crucial to responding to environmental changes. Consider the company thinkRF (thinkrf.com), a small firm specializing in the development of software-enabled radio frequency analysis tools. The company consists of less than a dozen hardware and software engineers who perform both development and customer support tasks. To help with its growth, thinkRF has partnered with the large investment firm Wesley Clover (wesleyclover.com), which specializes in telecommunication companies and provides thinkRF with sales contacts and partnerships that leads directly to new business opportunities. This structuring allows thinkRF to focus on switching between customer support and product development without having to divert resources to marketing and sales. This arrangement between a small and large company allows the small company to remain lean and agile by focusing on what it does best: solving technical problems.

Conclusion

The challenges of survival and growth are a constant concern for the small business entrepreneur. Frequently, a startup must compete in a market dominated by larger companies that have more staff and resources at their disposal. The small company's advantage is that it is more agile than its competitors. If properly managed, a startup can have an advantage over its larger competitors by more efficiently providing customer support and simultaneously working on new product development

Balancing support and research activities – both simultaneously and effectively – is what the ambidextrous organization strives to accomplish. In this article, we identified five mechanisms that can be used to improve a technology company's ability to juggle support and development tasks. These mechanisms offer a useful set of guidelines an entrepreneur can consider when planning growth strategies for a market environment that demands multitasking.

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Social Entrepreneurship: Definition and Boundaries

Samer Abu-Saifan

> *"Whenever society is stuck or has an opportunity to seize a new opportunity, it needs an entrepreneur to see the opportunity and then to turn that vision into a realistic idea and then a reality and then, indeed, the new pattern all across society. We need such entrepreneurial leadership at least as much in education and human rights as we do in communications and hotels. This is the work of social entrepreneurs."*
>
> Bill Drayton
> Founder of Ashoka: Innovators for the Public

While individuals may be publicly recognized as social entrepreneurs for their contributions to improve the welfare of communities, the field of social entrepreneurship continues to struggle to gain academic legitimacy. Social entrepreneurship is a term in search of a good definition. The current use of the term seems vague and limitless; it needs boundaries to demarcate its function. The lack of a common definition hinders research and raises questions about which social or profit-making activities fall within the spectrum of social entrepreneurship. To become an important stream in the entrepreneurship literature, social entrepreneurship needs to be properly defined and it requires a theoretical framework that links it to the theory of entrepreneurship. This article builds on the literature to define social entrepreneurship, discusses the boundaries of socially-oriented entrepreneurial activities, and positions the social entrepreneur in the spectrum of entrepreneurship.

Introduction

Most economists and academics support the notion that entrepreneurship is becoming a crucial factor in the development and well-being of societies. Whether the entrepreneurial activities are practiced in factor-driven, efficiency-driven, or innovation-driven economies (Porter et al., 2002; tinyurl.com/7vwutgr), the ultimate results continue to exhibit: i) lower unemployment rates; ii) increased tendency to adopt innovation; and iii) accelerated structural changes in the economy. Entrepreneurship offers new competition, and as such promotes improved productivity and healthy economic competitiveness (UNCTAD, 2004; tinyurl.com/d3xkdj4).

Social entrepreneurship is the field in which entrepreneurs tailor their activities to be directly tied with the ultimate goal of creating social value. In doing so, they often act with little or no intention to gain personal profit. A social entrepreneur "combines the passion of a social mission with an image of business-like discipline, innovation, and determination commonly associated with, for instance, the high-tech pioneers of Silicon Valley" (Dees, 1998; tinyurl.com/86g2a6).

The use of the term social entrepreneurship is gaining increased popularity. However, confusion and uncertainty are constantly noted about what exactly a social entrepreneur is and does. The term social entrepreneur is ill-defined (Barendsen and Gardner, 2004: tinyurl.com/75jr5sp; Weerawardena and Mort, 2006: tinyurl.com/7erg5lz), it is fragmented, and it has no coherent theoretical framework (Weerawardena and Mort, 2006). The absence of consensus on a research topic usually results in researchers working independently and failing to build upon one another's work, therefore knowledge cannot be accumulated (Bruyat and Julien, 2000; tinyurl.com/76ahqkm).

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There is a need to better define what is meant by the term social entrepreneur. How are social entrepreneurs different from other entrepreneurs? How are social entrepreneurs different from managers of social workers? What constitutes social entrepreneurship and what does not?

In this article, we first review some of the literature discussing the definition of entrepreneurship and then provide a clear and concise definition of social entrepreneurship. Next, we identify the unique features of social entrepreneurs and suggest boundaries for social entrepreneurship.

Characteristics of Entrepreneurship

Social entrepreneurship needs to be defined in a way that is consistent with what is known about entrepreneurship. This section identifies the characteristics of the entrepreneur.

According to the business management literature, entrepreneurship is an exceptional set of activities carried out by individuals with an exceptional mind-set in order to maximize profit. Therefore, the process is closely tied to success. We use "exceptional mind-set" as a broader term to encapsulate the characteristics that shape the entrepreneurial activities of those individuals (see Table 1). The business literature differentiates entrepreneurs from business people by including statements such as: entrepreneurs "create needs"; while business people "satisfy needs" (2010 Global Report: Global Entrepreneurship Monitor, 2011; tinyurl.com/8xzvv3p). Entrepreneurs are conceptualized as individuals who see the world differently and envision the future better than others do. They seize opportunities that otherwise would go unnoticed. They perceive and accept risks differently than others. Table 1 shows the core characteristics of entrepreneurs, as extracted from full or partial definitions in the literature on venture creation, opportunity exploitation, and profit maximization. These characteristics highlight the economist's view of an entrepreneur as an individual with an exceptional mind-set; individuals with such a mind-set are seen as key to venture growth maximization and economic prosperity.

Table 1. Contrasting definitions and core characteristics of the terms "entrepreneur" and "entrepreneurship"

Source	Definition	Core Characteristics
Schumpeter (1934) tinyurl.com/6mqfkro	An entrepreneur is an innovator who implements entrepreneurial change within markets, where entrepreneurial change has five manifestations: 1) the introduction of a new/improved good; 2) the introduction of a new method of production; 3) the opening of a new market; 4) the exploitation of a new source of supply; and 5) the carrying out of the new organization of any industry	• Innovator
McClelland (1961) tinyurl.com/6nsgtpd	The entrepreneur is a person with a high need for achievement. This need for achievement is directly related to the process of entrepreneurship [...] Entrepreneur is an energetic moderate risk taker.	• High achiever • Risk bearer • Dedicated
Kirzner (1978) tinyurl.com/87mtxax	The entrepreneur recognizes and acts upon market opportunities. The entrepreneur is essentially an arbitrageur.	• Arbitrageur
Shapero (1975) tinyurl.com/8xcuvj8	Entrepreneurs take initiative, organize some social and economic mechanisms and accept risks of failure.	• Organizer • Initiative taker
Carland et al. (1984) tinyurl.com/7xa9s7f	The entrepreneur is characterised principally by innovative behaviour and will employ strategic management practices in the business.	• Strategic thinker
Kao and Stevenson (1985) tinyurl.com/6wcq6su	Entrepreneurship is an attempt to create value through recognition of business opportunities.	• Value creator • Opportunity aware
Timmons and Spinelli (2008) tinyurl.com/7sfqdh2	Entrepreneurship is a way of thinking, reasoning, and acting that is opportunity obsessed, holistic in approach and leadership balanced.	• Leader • Holistic • Persistent • Committed

Social Entrepreneurship: Definition and Boundaries

Samer Abu-Saifan

Characteristics of Social Entrepreneurship

Although the use of the term social entrepreneur is growing rapidly, the field of social entrepreneurship lacks rigour and is in its infancy compared to the wider field of entrepreneurship. Success stories of individuals solving complex social problems are being used to legitimize the field of social entrepreneurship. For example, in 2004, Stanford University launched Social E Lab (socialelab.org) as part of its Entrepreneurial Design for Extreme Affordability course, which promotes the use of entrepreneurship principles to solve social and environmental problems. The program spun off a number of successful projects, including DripTech (driptech.com), Project Healthy Children (projecthealthychildren.org), and Embrace (embraceglobal.org). Other examples of well-established organizations that are frequently referenced in the literature on social entrepreneurship include: Ashoka (ashoka.org), OneWorld Health (oneworldhealth.org), The Skoll Foundation (skollfoundation.org), and the Schwab Foundation for Social Entrepreneurship (schwabfound.org). However, the field is arguably phenomenon-driven (Mair and Martı´, 2005; tinyurl.com/7ubxt5q) and falls short when compared to areas that are perceived to have greater rigour applied to them. As evidence of this, scholars have yet to link social entrepreneurship to the theory of entrepreneurship and knowledge.

The interest in social entrepreneurs stems from their role in addressing critical social problems and the dedication they show in improving the well-being of society (Zahra et al., 2008; tinyurl.com/87upzh3). The public often hold social entrepreneurs in high regard because of the multitude of social needs they satisfy and the improved life quality they bring to affected societies.

When comparing the definitions and characteristics of entrepreneurs (Table 1) with those of social entrepreneurs (Table 2), we see that the ultimate goal of an entrepreneur is to create economic wealth whereas, for a social entrepreneur, the priority is to fulfill their social mission. Social entrepreneurs design their revenue-generating strategies to directly serve their mission to deliver social value.

Table 2. Contrasting definitions and core characteristics of the terms "social entrepreneur" and "social entrepreneurship"

Source	Definition	Core Characteristics
Bornstein (1998) tinyurl.com/6ucfnc6	A social entrepreneur is a path breaker with a powerful new idea who combines visionary and real-world problem-solving creativity, has a strong ethical fiber, and is totally possessed by his or her vision for change.	• Mission leader • Persistent
Thompson et al. (2000) tinyurl.com/7mkp7ah	Social entrepreneurs are people who realize where there is an opportunity to satisfy some unmet need that the state welfare system will not or cannot meet, and who gather together the necessary resources (generally people, often volunteers, money, and premises) and use these to "make a difference".	• Emotionally charged • Social value creator
Dees (1998) tinyurl.com/86g2a6	Social entrepreneurs play the role of change agents in the social sector by: • Adopting a mission to create and sustain social value • Recognizing and relentlessly pursuing new opportunities to serve that mission; • Engaging in a process of continuous innovation, adaptation, and learning; • Acting boldly without being limited by resources currently in hand; • Exhibiting a heightened sense of accountability to the constituencies served for the outcomes created.	• Change agent • Highly accountable • Dedicated • Socially alert
Brinckerhoff (2009) tinyurl.com/7w8dfs5	A social entrepreneur is someone who takes reasonable risk on behalf of the people their organization serves.	• Opinion leader
Leadbeater (1997) tinyurl.com/7exweb6	Social entrepreneurs are entrepreneurial, innovative, and "transformatory" individuals who are also: leaders, storytellers, people managers, visionary opportunists and alliance builders. They recognize a social problem and organize, create, and manage a venture to make social change.	• Manager • Leader
Zahra et al. (2008) tinyurl.com/87upzh3	Social entrepreneurship encompasses the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner.	• Innovator • Initiative taker • Opportunity alert
Ashoka (2012) tinyurl.com/5jjv6u	Social entrepreneurs are individuals with innovative solutions to society's most pressing social problems [...] They are both visionaries and ultimate realists, concerned with the practical implementation of their vision above all else.	• Visionary • Committed

Social Entrepreneurship: Definition and Boundaries

Samer Abu-Saifan

Defining Social Entrepreneurship

In this section, we build on the definitions presented in Table 2 and propose a definition that captures the key factors that are vital to social entrepreneurship. We hope that our definition will reduce the constantly perceived vagueness about the field, identify the scope of related research, and accelerate the advancement of social entrepreneurship as a legitimate academic research field.

We propose the following definition:

The social entrepreneur is a mission-driven individual who uses a set of entrepreneurial behaviours to deliver a social value to the less privileged, all through an entrepreneurially oriented entity that is financially independent, self-sufficient, or sustainable.

This definition combines four factors that make social entrepreneurship distinct from other forms of entrepreneurship. Social entrepreneurs:

1. are *mission-driven*. They are dedicated to serve their mission of delivering a social value to the underserved.

2. act *entrepreneurially* through a combination of characteristics that set them apart from other types of entrepreneurs (see Table 3).

3. act within *entrepreneurially oriented organizations* that have a strong culture of innovation and openness.

4. act within *financially independent organizations* that plan and execute earned-income strategies. The objective is to deliver the intended social value while remaining financially self-sufficient. This is achieved by blending social and profit-oriented activities to achieve self-sufficiency, reduce reliance on donations and government funding, and increase the potential of expanding the delivery of proposed social value (Bacq et al., 2011; tinyurl.com/7nry6jp).

Table 3 summarizes the unique characteristics of profit-oriented and social entrepreneurs presented in Tables 1 and 2 and identifies those characteristics that are most likely to be found in both types of entrepreneurs.

Table 3. Unique and common characteristics of profit-oriented entrepreneurs and social entrepreneurs

Unique characteristics of the profit-oriented entrepreneur	Characteristics common to both types	Unique characteristics of the social entrepreneur
• High achiever • Risk bearer • Organizer • Strategic thinker • Value creator • Holistic • Arbitrageur	• Innovator • Dedicated • Initiative taker • Leader • Opportunity alert • Persistent • Committed	• Mission leader • Emotionally charged • Change agent • Opinion leader • Social value creator • Socially alert • Manager • Visionary • Highly accountable

Social Entrepreneurship: Definition and Boundaries

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Boundaries of Social Entrepreneurship

This section distinguishes between social entrepreneurship and other non-entrepreneurial, mission-driven initiatives. As discussed earlier, the term social entrepreneurship is becoming more popular and is attracting growing amount of resources. It is frequently observed in the media, used by public officials, and is commonly referred to by academics. This is in part because of the support social entrepreneurs are receiving from complex network of organizations that highlight their work and contributions to society (Dacin et al., 2011; tinyurl.com/7a9bh9d). However, the lack of consensus on the definition of social entrepreneurship means that other disciplines are often confused with and mistakenly associated with social entrepreneurship. Philanthropists, social activists, environmentalists, and other socially-oriented practitioners are referred to as social entrepreneurs. It is important to set the function of social entrepreneurship apart from other socially oriented activities and identify the boundaries within which social entrepreneurs operate.

According to the Skoll Centre for Social Entrepreneurship, the definition of social entrepreneurship should not extend to philanthropists, activists, companies with foundations, or organizations that are simply socially responsible (tinyurl.com/yd8ggyq). While all these agents are needed and valued, they are not social entrepreneurs.

Building on our proposed definition of social entrepreneurship, we propose boundaries to properly position social entrepreneurs in the spectrum of entrepreneurship. As illustrated in Figure 1, social entrepreneurs operate within the boundaries of two business strategies:

1. Non-profit with earned income strategies: a social enterprise performing hybrid social and commercial entrepreneurial activity to achieve self-sufficiency. In this scenario, a social entrepreneur operates an organization that is both social and commercial; revenues and profits generated are used only to further improve the delivery of social values.

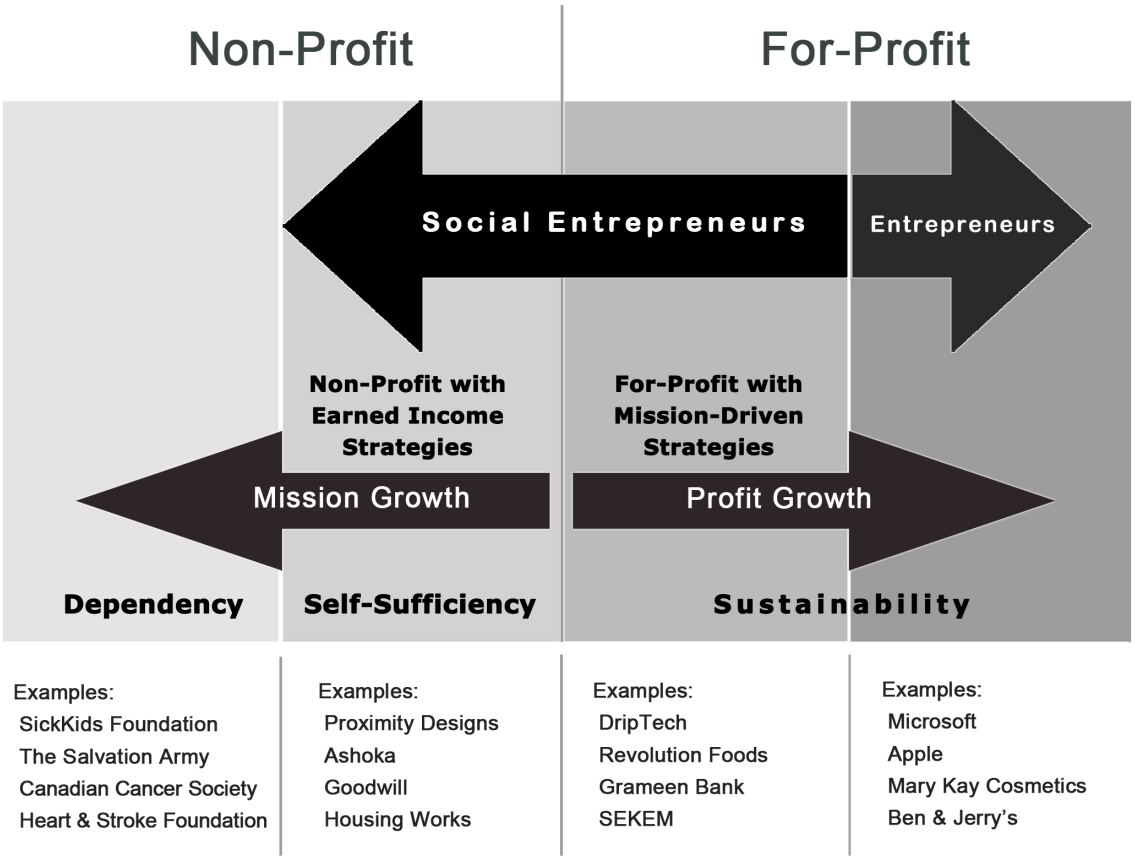

Figure 1. The entrepreneurship spectrum illustrating the boundaries of social entrepreneurship

Social Entrepreneurship: Definition and Boundaries

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2. For-profit with mission-driven strategies: a social-purpose business performing social and commercial entrepreneurial activities simultaneously to achieve sustainability. In this scenario, a social entrepreneur operates an organization that is both social and commercial; the organization is financially independent and the founders and investors can benefit from personal monetary gain.

Conclusion

Social entrepreneurship has recently emerged as a field of academic inquiry, but the lack of a common definition of social entrepreneur impedes research in this field. In this article, we reviewed literature that defined profit-oriented entrepreneurship and social entrepreneurship in order to extract the core characteristics of each type. We then proposed a definition of social entrepreneurship, which contributes to the literature on social entrepreneurship by clarifying and bounding the scope of research in this field.

Social entrepreneurship has flourished significantly at the practical level, but not at the theoretical level. Future research should focus on linking social entrepreneurship as a new discipline and research field to the theory of entrepreneurship. Scholars should also focus their attention on introducing new research questions that are meaningful to the different domains that intersects with social entrepreneurship, including social innovation and the management of non-profit organizations.

Recommended Reading

The Rise of the Social Entrepreneur
by Charles Leadbeater
tinyurl.com/7exweb6

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Chinese Entrepreneurs Go Global

Daniel Zhou

> *"Entrepreneurs and small and medium enterprises often go global in response to the state of their domestic market environment."*
>
> Neuman F. Pollack
> Dean, Florida Atlantic University, USA

China may be on the tipping point of explosive global growth. In response to changes in the global economy and an economic slowdown domestically, hundreds of thousands of Chinese SMEs are being encouraged to "go global" by their central and local governments. To a Chinese company, going global requires the expansion of its existing business in other countries or the development of new ventures with partners operating in other countries. Explosive growth in China may be possible, but it will depend on an appropriate strategy for going global.

For a country that has firmly established itself as an international manufacturing hub, going global requires a shift in its entrepreneurial capacity, which is the focus of this article. We first assess the current situation in China to understand its current entrepreneurial focus and capacity, as well as the impetus for change. Next, we contrast the Kirznerian and Schumpeterian views of entrepreneurship to illustrate that – to go global – Chinese entrepreneurs must shift from an emphasis on exploiting pricing inefficiencies (i.e., Kirznerian entrepreneurship) to an emphasis on innovation (i.e., Schumpeterian entrepreneurship). Finally, we examine unique characteristics of the business environment and culture in China, which are likely to impact the ability of Chinese entrepreneurs to go global.

Introduction

China has experienced strong, steady growth over the past 30 years, with its gross domestic product (GDP) increasing annually at a rate around 10% since Deng Xiaoping became leader and started to introduce economic reforms in 1990s (tinyurl.com/6gv4rnu). China is now the world's second-largest economy (tinyurl.com/y2pn7u) and the world's largest exporter (tinyurl.com/37qb83).

China's 42 million small and medium enterprises (SMEs) have played a very important role in the growth of its economy (tinyurl.com/7p3fl23). In 2009, SMEs contributed to 58.5% of GDP, 50% of tax revenues, 68% of exports, and 75% of new employment (tinyurl.com/7wcrhtg). Over the past few decades, these SMEs have helped China successfully position itself as the "world's factory". Many developed countries such as the United States and United Kingdom have transferred their manufacturing operations to China to gain the advantages of cost and scale of production when products are "Made in China". This positioning helped China become the world's second-largest economy at a time when the global economy was healthy.

However, when the current global financial crisis began in 2008, the situation in China also began to change. As world stock markets fell, large financial institutions collapsed (or were bailed out) and a European debt crisis developed. Global manufacturing demand fell, causing a predictable decline in China's export growth (tinyurl.com/7f7guej). The world's largest exporter has seen its trade surplus in September 2011 decreased by 12.4% from a year earlier (tinyurl.com/8ysvfbe). China's GDP growth dropped to 9.1% in the third quarter of 2011 from 9.5% in the second quarter and 9.7% in the first quarter, and this downward spiral is expected to continue in 2012 (tinyurl.com/7234wxs).

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High inflation and pressure on the foreign exchange rate make life difficult for Chinese SMEs during the economic slowdown. The Chinese government has made significant efforts to control inflation over the past few years by increasing interest rate and constraining lending (tinyurl.com/3rv7sho). However, these tightening measures became a double-edged sword for many Chinese, leading to an increased rate of bankruptcy, particularly in coastal cities (tinyurl.com/767ftyb).

Helping SMEs survive and become more competitive in the global market is essential for economic growth in China. The central and local governments of China have adopted a new series of policies and measures to promote the rapid launch and growth of SMEs in the global market. These efforts include increasing the export tax rebate of some labor-intensive products, offering greater financial support to SMEs and providing knowledge assistance for SMEs to go global (tinyurl.com/7nwjbuz).

The challenge for many Chinese SMEs that contribute to the "World's Factory" is that they lie at the bottom of the global value chain. This means that Chinese SMEs rarely go global in the sense of competing in the global market; rather, they usually fill the role of manufacturer. Moreover, while pressure on the Chinese Yuan increased, so did the cost of manufacturing goods that are "Made in China". Other emerging countries, such as India, increasingly began to erode China's manufacturing dominance. In response to the global financial crisis and the corresponding slowdown in the Chinese economy, it is time for China to reduce its dependence on a low-cost labour strategy and shift the "Made in China" model to a "Designed and Made in China" model.

In this article, we examine China's changing entrepreneurial capacity as one factor that will determine whether it can successfully move up the value chain and achieve growth amid tough global economic challenges. First, we compare two types of entrepreneurship and discuss the need for China to shifts its dependence from one type of entrepreneurship to another as a success factor for going global. Next, we discuss unique attributes of Chinese entrepreneurship that will also affect the ability of Chinese entrepreneurs to go global. Finally, we offer conclusions.

Schumpeter and Kirzner

Joseph Schumpeter and Israel Kirzner are two notable 20th century economists who have made significant contributions to our understanding of entrepreneurs. However, Schumpeter and Kirzner held distinctly different perspectives on entrepreneurs and the role of entrepreneur in a capitalist economy. In this section, we examine the views of Schumpeter and Kirzner to allow us to characterize Chinese entrepreneurship in the past, present, and future.

Schumpeter viewed entrepreneurs as innovators who actively create opportunities by recombining information or resources into new products or new methods of production (Schumpeter, 1934; tinyurl.com/6nkwrdj). Schumpeter's entrepreneurs are agents of change that are the source of the creative destruction. They introduce new production processes; they produce new products or produce old products in new ways. Schumpeter's entrepreneurs generate a temporary gap between the price of the inputs and outputs, thereby creating profits for their organizations. The action of the Schumpeter's entrepreneur can be thought of as a process that moves the economic system away from equilibrium. As such, Schumpeter's innovation entrepreneur usually exists in rapidly growing markets and creates new products and services to satisfy future needs.

In contrast, Kirzner emphasized an entrepreneur's ability to identify and exploit gaps in the existing economic system (Kirzner, 1973; tinyurl.com/6t87n3w). To exploit an opportunity, a Kirznerian entrepreneur does not innovate, but rather spots pricing inefficiencies that others have missed and thus exploits an information advantage for profit. To Kirzner, entrepreneurs are individuals who spontaneously discover. Kirzner's entrepreneurs discover previously unnoticed profit opportunities in an existing market and capitalize on this imbalance – an act also known as "arbitrage". Unlike a Schumpeterian entrepreneur, a Kirznerian entrepreneur focuses on exploiting existing gaps to meet today's needs and makes no long-term impact on economic growth. The action of the Kirznerian entrepreneur moves the economic system towards equilibrium. As such, Schumpeter's alert entrepreneur usually is the strong player in an existing market.

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Schumpeterian and Kirznerian entrepreneurs lie at opposite ends of a spectrum and yet they can coexist. In the following section, we describe the dominance of one type of entrepreneur in China's economy over the past few decades and then argue that the other entrepreneurial type may need to play an increasingly important role for China to successfully go global.

China's SMEs Go Global

In the late 1980s and early 1990s, the second stage of Chinese Economic Reform (tinyurl.com/72uv9vu) set the stage for Chinese entrepreneurs to exploit the labour cost difference between Western countries and China. China became the world's largest low-cost manufacturer in the global market. Low labour costs allowed Chinese manufacturers to adopt a straightforward and simple business model based on pricing inefficiencies. Thus, Kirznerian entrepreneurs became the main driving force for China's economic growth.

While China's GDP grew significantly, many problems appeared: an inefficient and corrupt banking system, high levels of pollution, poor quality public health services, increasing extreme poverty, and inefficient state-owned enterprises (Morrison, 2009; tinyurl.com/6qb67aa). As the gloomy global economy continues to impact China, many Chinese SMEs that provide low-cost labour are suffering from business downturns, resulting in workforce reductions and factory closures; about 72,000 SMEs closed in Wenzhou alone in 2011 (tinyurl.com/767ftyb).

The central government of China has begun to implement policy changes and new initiatives to maintain economic growth and address the problems described above by helping SMEs go global. As stated by the National Development and Reform Commission (2011; tinyurl.com/7s3c2z6): "We will thoroughly implement the 'go global' strategy. We will improve fiscal, taxation, financial and insurance policies to help Chinese enterprises 'go global.'" These initiatives are reflected in China's 12th Five-Year Program (2011; tinyurl.com/8xpc8k3), which includes five primary missions relating to SMEs:

1. Improve the capacity for establishing business and creating new jobs

2. Optimize the structure of SMEs

3. Boost the development "new, distinctive, specialized and sophisticated" industries and industrial clusters

4. Upgrade enterprise management levels

5. Refine the service system of SMEs

The success of SMEs will also depend on their capacity to innovate. China is expected to lead the world in innovation by the year 2020 (tinyurl.com/7u2jtxl). Already, China has made significant strides in its capacity for research and innovation. In 2005, China submitted 2,452 international patent applications; this represented a 44% increase over the previous year and brought China into the international top 10 for patent applications (tinyurl.com/7nghlyn). Further, the total number of degrees granted per year in China nearly doubled from 2004 to 2007, according to the Ministry of Education of the People's Republic of China (tinyurl.com/89joczz). These substantial strides indicate that China has already begun to increase its capacity for innovation and that this precondition for a shift in entrepreneurial types – necessary for China to go global – is already being established.

SMEs that can develop and commercialize new technologies in the global market can China compete in the global market. In the near-term, China can benefit by promoting Kirzner's entrepreneurs to maintain its competitive position in labour-intensive industries, while promoting Schumpeter's entrepreneurs to commercialize new technology globally. In the long run, China's go-global strategy will increasingly depend more on Schumpeter's entrepreneurs than on Kirzner's entrepreneurs. However, as Chinese businesses attempt to go global, their success will also depend on their ability to harness the unique attributes of Chinese entrepreneurship, as will be discussed in the next section.

Attributes of Chinese Entrepreneurship

Two important attributes of the context in which Chinese entrepreneurship is embedded are familism and social capital, also known as guanxi. To go global, Chinese SMEs will need to search for ways to succeed in Western countries, where they will encounter contexts that are quite different than their own. Familism and guanxi represent unique challenges and opportunities for Chinese SMEs.

Familism refers is a social structure where the needs of the family are more important and take precedence over the needs of any of the individual family members (Gao and Kotey, 2008; tinyurl.com/7nv7nuj). Familism has great influence on business decisions in Chinese soci-

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ety, particularly since many of China's SMEs are family based. Familism affects the management of China's SMEs as well as the foundation of new firms given that start-up capital is often provided by family members, who are accorded influence over decisions in the venture and its operation. As more and more family members expand their footprint overseas, a family-owned business can take advantage of a wide network of trust, which further helps family members and their business go global.

Guanxi relates to personalized networks of influence, and it is a "central idea in Chinese society" (tinyurl.com/cogo9d). In China, social capital is also very important in business. Chinese society is tightly bundled with informal interpersonal ties and relationships, including relationships with the Chinese government in almost every aspect of social interaction. Most entrepreneurs in China have transferred their informal interpersonal networks into their firms to strengthen inter-organizational ties. These relationships and their associated exchanges of favours contribute to information sharing and partnerships, which have positive influence on financial performance (Zhang and Zhang, 2006; tinyurl.com/8278ezj). For example, with proper guanxi, some firms are more likely than others to be approved for loans, or they may receive import/export licenses sooner than other firms. Because guanxi is known as the most powerful force in Chinese culture, it can be considered as a special type of currency in China. Without proper guanxi, it is very difficult for new ventures to go global.

Conclusion

Chinese SMEs are going global. To accomplish this goal, China's SMEs should embody the spirit of Schumpeter's entrepreneur and focus on innovation. Few Chinese SMEs are able to produce independent innovation now, but China's capacity for innovation is increasing and its ability to go global will improve substantially in the near future. In addition to an increasing role for Schumpeterian entrepreneurs in the Chinese economy, we should also expect that guanxi and familism will play a critical role in the success of Chinese entrepreneurs as they attempt to go global.

About the Author

Daniel (Dongyang) Zhou is a software designer at Ciena Networks; prior to this, he has worked at a variety of technology-based companies, including Alcatel-Lucent and Nortel. He is also a Master's student in Carleton University's Technology Innovation Management program. His interests include open source business, strategic planning for technology-based SMEs, and international business between China and North America. Daniel was born in China and came to Canada in 2001, which gives him perspectives on both Canadian and Chinese cultures. He graduated with High Distinction in Electrical Engineering from Carleton University in 2007.

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Q&A

Aparna Shanker

Q. What is customer value and how do you deliver it?

A. Delivering value to customers is important to managers, leaders, and entrepreneurs alike. To be willing to pay, a customer must derive value from a market offer. However, what is customer value? How does a supplier deliver customer value?

What is customer value?
There are various interpretations of what is meant by customer value. The term may mean low price, receiving what is desired, receiving quality for what is paid, or receiving something in return for what is given (Zeithaml, 1988; tinyurl.com/7kjz6nf). Woodruff's (1997; tinyurl.com/825pdwn) definition of customer value is widely cited and encompasses most interpretations of customer value. Woodruff defines customer value as: "a customer perceived preference for and evaluation of those products attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations".

The definition above suggests that there are two aspects to customer value: desired value and perceived value. Desired value refers to what customers desire in a product or service. Perceived value is the benefit that a customer believes he or she received from a product after it was purchased.

Customer value can be examined at different levels. At a low level, customer value can be viewed as the attributes of a product that a customer perceives to receive value from. At a higher level, customer value can be viewed as the emotional payoff and achievement of a goal or desire. When customers derive value from a product, they derive value from the attributes of the product as well as from the attribute performance and the consequence of achieving desired goals from the use of the product (Woodruff, 1997; tinyurl.com/825pdwn).

How does a supplier deliver customer value?
An entrepreneurial firm must deliver value along the dimensions that matter most to its customers. For example, from a customer's perspective, the value of a cup of coffee enjoyed with a friend at a coffee shop might be greater than the value of a take-out cup of coffee. While the monetary cost of the cup of coffee in both cases might be the same, the value the customer extracts is different.

To develop compelling customer value propositions, a supplier needs to keep in mind the following:

1. There are two stages at which customers assess value: before and after they purchase a product or service.

2. Value is perceived at various levels; therefore, value needs be delivered at various levels.

3. Understanding what customers value is the first step in delivering customer value.

For a complete view on the customer value creation strategies that managers, entrepreneurs, and leaders can implement to help distinguish themselves from competitors, Smith and Colgate (2007; tinyurl.com/759o9j3) provide a comprehensive framework. However, the challenge for suppliers is not just recognizing what value to create or what the benefits are, but to operationalize customer-facing processes to deliver value to customers. Table 1 synthesizes views from the extant literature pool on customer value creation and delivery; it shows how entrepreneurs can use their understanding of customer value to their advantage.

As an example application of the concepts in Table 1, consider an entrepreneur that has developed a new user interface for a point-of-sales system that can be used in a coffee shop. Although the entrepreneur might think that the software solution provides value to the customer (i.e., the coffee shop owner) in terms of cost or ease of use, the customer might consider the greatest point of value to be 24/7 technical support because the coffee shop is open overnight during examination periods on a university campus. In this particular case, processes relating to the first and second row of Table 1

Q&A: What Is Customer Value and How Do You Deliver It?

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Table 1. The customer value delivery process

Understanding of customer value concept	Actions that entrepreneurs can take	The entrepreneur's advantage
Points of value that matter to customers*	Develop market offer based on points of value that matter to customers	Create customer value proposition with a resonating focus*
Dimensions along which value is perceived†	Identify opportunities for new value creation propositions‡	Compete based on points of value other than just cost
Customer's desired needs change over time**	Observe customer environment to better understand changes in customer requirements	Deliver value proactively by anticipating changes in customer's desired needs**
Customer feedback†	Combine existing organizational capabilities (market orientation, knowledge management, customer relationship management)††	Improve value proposition of existing products and services

* Anderson et al. (2006; tinyurl.com/6tmrqvv)
† Woodruff (1997; tinyurl.com/825pdwn)
‡ Smith and Colgate (2007; tinyurl.com/759o9j3)
** Flint et al. (2002; tinyurl.com/7xm8dvr)
†† Landroguez et al. (2011; tinyurl.com/6pxej39)

could be implemented by an entrepreneur and they could showcase the technical support plan as a point of value that would resonate with the customer; instead of focusing on advantages that other competitors could also potentially deliver. Similarly, the third and fourth row of Table 1 could be used by entrepreneurs as a guideline to process customer value knowledge and anticipate changes in customer needs and improve existing value propositions.

Conclusion

Entrepreneurial firms focus their scarce resources on the dimensions of value (e.g., cost, use value, emotional value, social value) (Smith and Colgate, 2007; tinyurl.com/759o9j3) that most matter to customers and market their capabilities in terms that their customers can associate with and are known to value. However, delivering customer value is not a one-off event. Firms must continuously strive to better understand and anticipate what their customers will value and then keep delivering it. As Steve Jobs once said: "You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new." (tinyurl.com/c5n27g)

About the Author

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Topic

Start by asking yourself:

- Does my research or experience provide any new insights or perspectives?
- Do I often find myself having to explain this topic when I meet people as they are unaware of its relevance?
- Do I believe that I could have saved myself time, money, and frustration if someone had explained to me the issues surrounding this topic?
- Am I constantly correcting misconceptions regarding this topic?
- Am I considered to be an expert in this field? For example, do I present my research or experience at conferences?

If your answer is "yes" to any of these questions, your topic is likely of interest to readers of the TIM Review.

When writing your article, keep the following points in mind:

- Emphasize the practical application of your insights or research.
- Thoroughly examine the topic; don't leave the reader wishing for more.
- Know your central theme and stick to it.
- Demonstrate your depth of understanding for the topic, and that you have considered its benefits, possible outcomes, and applicability.
- Write in a formal, analytical style. Third-person voice is recommended; first-person voice may also be acceptable depending on the perspective of your article.

Format

1. Use an article template: .doc .odt

2. Indicate if your submission has been previously published elsewhere. This is to ensure that we don't infringe upon another publisher's copyright policy.

3. Do not send articles shorter than 1500 words or longer than 3000 words.

4. Begin with a thought-provoking quotation that matches the spirit of the article. Research the source of your quotation in order to provide proper attribution.

5. Include a 2-3 paragraph abstract that provides the key messages you will be presenting in the article.

6. Any quotations or references within the article text need attribution. The URL to an online reference is preferred; where no online reference exists, include the name of the person and the full title of the article or book containing the referenced text. If the reference is from a personal communication, ensure that you have permission to use the quote and include a comment to that effect.

7. Provide a 2-3 paragraph conclusion that summarizes the article's main points and leaves the reader with the most important messages.

8. Include a 75-150 word biography.

9. If there are any additional texts that would be of interest to readers, include their full title and location URL.

10. Include 5 keywords for the article's metadata to assist search engines in finding your article.

11. Include any figures at the appropriate locations in the article, but also send separate graphic files at maximum resolution available for each figure.