ALLIANCES, CORPORATE TECHNOLOGICAL ENTREPRENEURSHIP, AND FIRM PERFORMANCE: TESTING A MODEL

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Recommended Citation
Available at: http://digitalknowledge.babson.edu/fer/vol26/iss23/1

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ALLIANCES, CORPORATE TECHNOLOGICAL ENTREPRENEURSHIP, AND FIRM PERFORMANCE: TESTING A MODEL

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ABSTRACT

Corporate entrepreneurship can be considered important for organizational performance. While being recognized to be important for development of innovations and technologies of small and medium sized firms and for innovation/technology strategies of large firms, inter-organizational relationships in terms of networks and alliances have received limited research attention in the context of corporate entrepreneurship in general, and in corporate technological entrepreneurship in particular. This study developed and tested a model of alliance-driven corporate technological entrepreneurship activities that impact organizational performance. The model was tested on 226 usable responses from a mail survey data from a sample of manufacturing firms from Slovenia. The model indicates the value of engagement in strategic alliances for the development of corporate technological entrepreneurship activities and consequential performance improvements.

Keywords: corporate technological entrepreneurship, alliances, performance

INTRODUCTION

Corporate entrepreneurship can be considered important for organizational survival, profitability, growth, and renewal (Zahra, 1996). In industries with high technological opportunities, for a firm to succeed it is important to engage in corporate entrepreneurship and take risks, and at the same time make investments in developing products and technologies (Zahra and Covin, 1995). For a firm it is beneficial to use internal and external sources in pursuit of a competitive advantage by being effective and timely in commercialization of new technology (Zahra and Nielsen, 2002). While being recognized to be important for development of innovations and technologies of small and medium sized firms and for innovation/technology strategies of large firms, inter-organizational relationships in terms of networks and alliances have received limited research attention in the context of corporate entrepreneurship (Antoncic, 1999) in general, and in corporate technological entrepreneurship in particular. This study aims to develop and test a model of alliance-driven corporate technological entrepreneurship activities that impact organizational performance.

THEORY AND HYPOTHESES

Corporate entrepreneurship, also referred to as corporate venturing (Vesper, 1990), internal corporate entrepreneurship (Jones and Butler, 1992) or intrapreneurship (Pinchot, 1985), is defined as entrepreneurship within an existing organization, including emergent behavioral intentions and behaviors of an organization related to departures from the customary (Antoncic and Hisrich, 2003), which can have several characteristic dimensions, such as new business venturing, product/service innovation, process innovation, self-renewal, risk taking, proactiveness, and competitive aggressiveness. In this paper, the focus is on corporate technological entrepreneurship, which can be considered a part of corporate entrepreneurship and defined in terms of technological and process innovativeness activities.

More specifically, the emphasis is on the development and innovation in technology. Zahra (1993) wrote about technological entrepreneurship considering it as one of innovative aspects of manufacturing firms. There are several expressions used in research papers for technological entrepreneurship (technology entrepreneurship, technical entrepreneurship, techno-entrepreneurship, technopreneurship)
and several definitions are applicable. Dorf and Byers (2005) defined technological entrepreneurship as a style of business leadership that involves identifying high-potential, technology-intensive commercial opportunities, gathering resources such as talent and capital, and managing rapid growth and significant risk using principled decision-making skills. Technology ventures exploit breakthrough advancements in science and engineering to develop better products and services for customers. The leaders of technology ventures demonstrate focus, passion, and unrelenting will to succeed. Shane and Venkataraman (2003) defined technological entrepreneurship as the processes by which entrepreneurs assemble organizational resources and technical systems, and the strategies used by entrepreneurial firms to pursue opportunities. Technological entrepreneurship (The Canadian Academy of Engineering, 1998) can be the innovative application of scientific and technical knowledge by one or several persons who start and operate a business and assume financial risks to achieve their vision and goals. Technically, engineers are well-qualified in many respects for this activity, but often lack the necessary business skills and entrepreneurial mentality.

Corporate technological entrepreneurship can include new production methods and procedures (Schollhammer, 1982). The tendency of technological leadership has been considered important for the entrepreneurial posture (Covin and Slevin, 1991). Techniques and technologies in production have been seen as a part of organizational innovativeness (Knight, 1997). Corporate technological entrepreneurship can be mostly concerned with technology-related innovation (process innovation) (Tushman and Anderson, 1997), where technology can be described as “the ensemble of theoretical and practical knowledge, knowhow, skills and artifacts that are used by the firm to develop, produce and deliver its products or services... (it) can be embodied in people, materials, facilities, procedures, and in physical processes” (Burgelman and Rosenbloom, 1997: 273).

Thus, we define corporate technological entrepreneurship as a process within an existing organization in which a technological entrepreneur or a group of technological entrepreneurs establish and manage an enterprise based on research, development, innovation and technology. This process also involves taking risks; technological entrepreneurs generally have broad technical knowledge, but they often lack the necessary business savvy to make the new technological company a success. Because a large field of expertise and a relatively high financial input are needed when the company is established and when it starts growing, a number of other experts from the technological entrepreneurs' business networks and outside institutions should also be present during these processes.

Corporate Technological Entrepreneurship and Performance

Growth and profitability are performance elements that can be considered important consequences of corporate entrepreneurship. Corporate entrepreneurship has been regarded as an important element of successful organizations (Peters and Waterman, 1982; Kanter, 1984; Pinchot, 1985; Thornhill and Amit, 2001; Miles and Covin 2002), since it has its consequences in organizational survival, growth, and performance (Kazanjian, Drazin and Glynn, 2001). On one hand, the relationship between corporate entrepreneurship and growth has received wide support in past research. Corporate entrepreneurship was found predictive of growth of small firms (Covin, 1991) and large firms (Covin and Slevin, 1986; Zahra, 1991, 1993; Zahra and Covin, 1995). A positive corporate entrepreneurship-growth relationship was discovered for Slovenian (Antonicic and Hisrich, 2001, 2004) and U.S. established firms (Morris and Sexton, 1996; Antoncic and Hisrich, 2001) and health care firms (Stetz et al., 1998). Luo, Zhou and Liu’s (2005) results indicate that corporate entrepreneurship is positively related to sales growth and market share in the study of Chinese firms. On the other hand, past research on the relationship between corporate entrepreneurship and profitability produced mixed support. Corporate entrepreneurship was found to be related to profitability of large firms (Covin and Slevin, 1986; Zahra, 1991, 1993; Zahra and Covin, 1995), and small, medium-sized, and large firms from various industries in Slovenia, but not in the U.S. (Antonicic and Hisrich, 2001). In contrast, Zahra and Garvis’s (2000) study, using 98 U.S. companies, showed that international corporate entrepreneurship was positively associated with a firm's overall profitability and growth as well as its foreign profitability and growth. Similarly to Antoncic and
Hisrich (2001), Morris and Sexton (1996) did not found a significant positive relationship between entrepreneurial intensity and profitability of U.S. firms. One explanation for such mixed results is that “firms in the U.S. are more growth oriented and value growth more than profitability than the firms in Slovenia that may be still more survival and profit rather than growth oriented” (Antoncic and Hisrich, 2001: 523). For firms in transition economies it may particularly beneficial to exercise corporate entrepreneurship in order to ensure change and growth (Antoncic and Hisrich, 2000). Hence, we would expect a general positive relationship between corporate entrepreneurship and performance in terms of profitability and growth. Small innovating firms tend to be significantly more likely to have grown more than small non-innovating firms (Freel, 2000). Since corporate technological entrepreneurship in terms of innovativeness in processes and technologies can be considered a dimension of corporate entrepreneurship (Antoncic and Hisrich, 2003), we suspect that the relationship between corporate technological entrepreneurship and performance elements can be also positive. This research forms the basis of the following hypothesis:

Hypothesis 1: The extent of corporate technological entrepreneurship will be positively related to organizational performance in terms of:
1a: growth and
1b: profitability.

Alliance Characteristics and Corporate Technological Entrepreneurship

Open and prompt communication is indispensable in inter-firm cooperative relationships (Das and Teng, 1998). Poor communication within an alliance and between partners can spoil the start-up of a venture and significantly undermine its performance; it can create an atmosphere of mistrust and suspicion that can undermine both the legitimacy and effectiveness of the venture (Kelly, Schaan and Joncas, 2002). Information sharing is an important element in dyadic network exchanges (Uzzi, 1997) and in network connections referring to structural embeddedness (Jones, Hesterly, and Borgatti, 1997). Mohr and Spekman (1994) found that communication quality and participation are crucial for success in vertical partnerships between manufacturers and dealers in the personal computer industry. Kauser and Shaw (2004) found that the level of co-ordination (which is based on communication) between partners is higher in successful international strategic alliances than in less successful partnerships. Face-to-face interaction has been seen as the most efficient way to address unexpected complications in a supplier relationship as evidenced in a case of computer systems firms in Silicon Valley (Saxenian, 1991). The frequency of communication has been advocated an important element for success in strategic alliances among biotechnology firms (Deeds and Hill, 1998). Also, frequency of communication within the network positively influences a firm's satisfaction with its knowledge-sharing in the network (Wagner and Buko, 2005). Midgely, Morrison, and Roberts (1992) found that both pre-existing and innovation-specific communication network links are used in innovation diffusion. Therefore, it is expected that the frequency and quality of inter-firm communication will have a positive impact on corporate technological entrepreneurship. This discussion leads to the following hypothesis:

Hypothesis 2a: The extent of inter-firm communication will be positively related to the extent of corporate technological entrepreneurship.

Trust refers to the belief in another partners’ reliability in terms of fulfillment of obligation in an exchange (Pruitt, 1981). According to Das and Teng, “just as control mechanisms are meant to enhance the probability of having the desired behavior, trust also is useful in enhancing the perceived probability of desired behavior” (1998: 494). In addition, Das and Teng (1998) proposed that the deployment of formal control mechanisms in strategic alliances would undermine the level of trust among alliance partners. Weaver and Dickson (1998) have considered trust to be a more appropriate assumption than opportunism in alliances among small and medium sized enterprises. In the context of business trust and knowledge transfer (which occurs in corporate entrepreneurship), Roberts (2000) propagates the opinion that the exchange of knowledge, particularly tacit knowledge, is not amenable to enforcement by contract
but by trust. Although contracts are an important part of any interorganizational relationship, it is generally accepted that informal understanding, based on trust, may prove even more powerful than contracts in assuring a successful relationship (Adobor, 2005). Trust may be associated with the length of the relationship in strategic alliances (Parkhe, 1993). Saxton argued that “a high level of mutual involvement acts as both a signaling and a monitoring mechanism by establishing and building trust and commitment” (1997: 446). Kauser and Shaw (2004) found that the level of trust between partners tends to be greater in successful international strategic alliances than in less successful partnerships. Trust was also found to be related to the success of vertical partnerships (Mohr and Spekman, 1994). It can be also seen as an essential prerequisite for technological innovation that comes from inter-firm R&D collaboration (Hausler, Hohn, and Lutz, 1992) and appears to be a crucial component in the persistence of networks of innovators (Saxenian, 1991). Mediated by resource exchange and combination, inter-unit trust was also found to have a significant influence on product innovation of a multinational firm (Tsai and Ghoshal, 1998). Thus, inter-firm trust is expected to have a positive impact on corporate technological entrepreneurship. From this discussion follows the next hypothesis:

**Hypothesis 2b:** The extent of inter-firm trust will be positively related to the extent of corporate technological entrepreneurship.

Organizational support and commitment in alliances can be important for corporate technological entrepreneurship. Commitment indicates a willingness of alliance partners to exert effort in the relationship (Porter et al., 1974; Mohr and Spekman, 1994), and was found to be related to the success of vertical partnerships (Mohr and Spekman, 1994). In networks, as in the firm, some permeability of boundaries is needed for fostering innovation (Jones, Hesterly, and Borgatti, 1997). Gudmundson, Tower and Hartman’s (2003) study indicates that initiation and implementation of innovation are related to aspects of culture and ownership. They also found that organizational support is more important for implementation than for initiation of innovation. Management and organizational support somewhat blur with values that refer to cognitive evaluations of appropriate behavior, but in contrast to organizational values, support is more tangible. Support can be expressed through a commitment to inter-organizational relationships in the form of time and resources such as management time commitment, employee rewards and time availability for inter-firm collaboration. Hence, organizational support can be seen as a crucial element for corporate technological entrepreneurship in inter-firm relationships and alliances. On the basis of this discussion, the following hypothesis is postulated:

**Hypothesis 2c:** The extent of externally oriented organizational support will be positively related to the extent of corporate technological entrepreneurship.

Inter-organizational value congruence can be important in corporate technological entrepreneurship. Organizational values, norms and cultures are utilized as social control mechanisms that encourage desirable behavior in alliances (Das and Teng, 1998). “Since structural embeddedness diffuses information throughout the system, it also facilitates the development of macroculture—the common values, norms, beliefs shared across firms” (Jones, Hesterly, and Borgatti, 1997: 925). Corporate culture is defined as “the fundamental totality of all common value and norm conceptions and shared models of thinking and behaving which influence decisions and behavior of the employees in the company. The group considers these values and norms to be proven to be helpful and successful, so they are presented as the proper way to think and to do things to new members.” (Ulijn and Weggeman, 2001). Parkhe (1991) has identified corporate culture as one of organizational level dimensions of inter-firm diversity that represent sources of tension in strategic alliances and that consequently reduce alliance success; in order to improve alliance success, he proposed a solution to be employed to cope with this difference: to encourage organizational learning to facilitate an intermediate (between the alliance partners) corporate culture. Thus, congruence of organizational values between partner firms can be seen as an important predictor of corporate technological entrepreneurship.
Hypothesis 2d: The extent of inter-organizational value congruence will be positively related to the extent of corporate technological entrepreneurship.

The number of alliances may be essential in corporate technological entrepreneurship. In high-technology industries, such as for example biotechnology, innovation may be primarily dependent on organizational learning through inter-organizational collaboration (Powell, Koput, and Smith-Doerr, 1996). Saxenian (1991) points out for Silicon Valley firms that production networks of collaborative relationships promote technological advances and new product development. Kelley and Rice (2002) found that firms forming a high rate of alliances are likely to have a high rate of product innovation. Deeds and Hill (1996) found a positive relationship between the use of alliances and new product development. This relationship between the number of strategic alliances and the rate of new product development, however, tends to be non-linear (inverted U-shape). Similarly Rothenberg and Deeds’s (forthcoming) findings, based on the study of 325 biotechnology firms, provide broad support for suggestion that the relationship between alliances and new product development is inverted U-shaped, regardless of alliance type (upstream, horizontal and downstream alliances). Deeds and Hill (1996) found that at low levels the relationship is positive, but at high levels of strategic alliances, the costs of additional alliances outweigh the benefits, causing the rate of new product development to decrease. We expect a similar relationship between the number of alliances and corporate technological entrepreneurship. Inter-organizational networks tend to contribute to the diffusion and acceleration of technological innovation (Park, 1996; Robertson, Swan and Newell, 1996). The number of network links (density), especially, can significantly affect the extent of innovation diffusion (Abrahamson and Rosenkopf, 1997). Gemunden, Ritter, and Heydebreck (1996) found a positive relationship between network configuration in terms of intensity and the pattern of technological interweavement, and product and process innovation success in high-technology industries. Additionally, Ritter and Gemunden (2004) found a positive relationship between the degree of a company's innovation success and its level of network competence. Thus, a hypothesis based on the above discussion is postulated as follows.

Hypothesis 2e: The association between the firm’s number of alliances and the extent of corporate technological entrepreneurship will be positive, but it will have the form of an inverted U-shape.

METHODS

The methodology will be discussed in terms of measurement instrument, data collection, the sample, and data analysis.

Measurement Instrument

In this research, corporate technological entrepreneurship, alliance characteristics, and performance elements were measured mostly through scales previously tested and used by other researchers. Perceptual measures were selected based on their congruence with the concepts under examination. Five point scales (Likert-type scales and semantic differentials) were used to keep the questionnaire as simple as possible. In some cases longer scales were needed to capture the information. Companies reported answers for the past three-year period.

Corporate technological entrepreneurship was measured by selected items of technological/process innovation from the corporate entrepreneurship scale used by Antoncic and Hisrich (2004) and included eight items; questions refer to investments or an emphasis on creating proprietary technology, an emphasis on pioneering and experimentation in technological developments, on R&D and technological innovation, and on designing new processes and methods of production.

Alliance characteristics were assessed across five dimensions. Communication was measured by Mohr and Spekman’s (1994) communication quality scale that was supplemented by two items (frequency and quality of communication). Trust was measured by scales adopted from Mohr and
Spekman (1994) (three items on perceived trust) and from Weaver and Dickson (1998) (three items on perceived opportunistic behavior). The organizational support dimension was operationalized by using three items adapted from Hornsby et al. (1993), and one item adapted from Mohr and Spekman (1994). Questions on organizational support for collaboration discussed encouraging and rewarding employees to collaborate with partner companies, permeability of the firm boundaries, and the organizational commitment to alliance partners. The organizational value congruence dimension was operationalized as the perceived level of congruence between the values of the focal firm and its strategic alliance partners across different alliance types. Finally, the number of strategic alliances of the focal firm was measured. In contrast to the study of Deeds and Hill (1996), who used the number of alliances with different types of firms, the number of alliances was assessed according to different alliance types such as customer-supplier relationships, licensing, technology sharing, joint development and equity joint ventures (Mowery, Oxley and Silverman, 1996), as well as by the overall level. This multi-type assessment is important, because alliance types as different forms of collaboration may have differential effects on corporate entrepreneurship. In the Slovenian electric appliance and equipment industry, for example, customer-supplier dyadic ties may be important in the development of new markets, as evident in the companies Jaksa and Le-Tehnika, whereas technology sharing and joint development may be important for innovativeness in products and technologies, as evident in the case of Hyla (see Glas et al., 1998). More importantly, by using alliance-type specific questions, the measure may be more precise and therefore better understood by managers as well.

Dependent variables – performance – were measured in terms of growth and profitability in absolute and relative terms (Antonicc and Hisrich, 2001): absolute growth items are the average annual growth in number of employees in the last three years and the average annual growth in sales in the last three years, while relative growth item is growth in market share (Chandler and Hanks, 1993) in the last three years; absolute profitability items are average annual return on sales (ROS), average return on assets (ROA), and average annual return on equity (ROE), in the last three years, while relative profitability items are a subjective measure of firm performance relative to competitors (Chandler and Hanks, 1993) and its extension (Antonicc and Hisrich, 2001, 2004): the company’s profitability in comparison to all competitors as well as to competitors that are at about same age and stage of development. Control variables included firm age and size, as well as industry dynamism.

**Data Collection, Sample, and Data Analysis**

Questionnaire data was collected from top executives of selected firms in Slovenia. A representative random sample with 226 usable responses was obtained from a mail survey data from a sample of manufacturing firms with 30 and more employees. The sample distribution was comparable to the database population in terms of firm size and geographic location.

Constructs and their dimensions were tested by using confirmatory factor analysis. After the confirmatory factor analyses the number of items was reduced by forming construct dimension items as an average of dimension items. The model was estimated by using structural equation modeling. The model included the hypothesized relationships and correlations among construct dimension items. The impact of control variables was analyzed in two ways: (1) the model was re-estimated with the two-half split samples based on age and size variables and (2) industry characteristics were assessed with their addition into the model.

**FINDINGS**

The resulting model goodness-of-fit indices indicated a moderately good model fit (NFI 0.88, NNFI 0.84, CFI 0.92, SRMR 0.11, RMSEA 0.09). The technological entrepreneurship variance explained was 27%. Coefficients from structural equations are shown in Appendix. Structural coefficients did not indicate substantial variations with the introduction of control variables (control variables were not found important).
Hypothesis 1 postulated the relationship between corporate technological entrepreneurship and organizational performance in terms of growth (1a) and profitability (1b) and received support (positive and significant coefficients between corporate technological entrepreneurship and performance elements (standardized): absolute growth 0.22, relative growth 0.33, absolute profitability 0.21, and relative profitability 0.19).

Hypothesis 2a postulated the relationship between inter-firm communication and corporate technological entrepreneurship. This hypothesis did not receive full support (coefficient positive but not significant).

Hypothesis 2b predicted the relationship between inter-firm trust and corporate technological entrepreneurship and was not supported (coefficient close to zero).

Hypothesis 2c (organizational support for alliances-corporate technological entrepreneurship relationship) received support (positive significant standardized coefficient 0.24).

Hypothesis 2d (inter-organizational value congruence-corporate technological entrepreneurship relationship) received support (positive significant standardized coefficient 0.19).

Hypothesis 2e postulated a positive association between the firm’s number of alliances and the extent of corporate technological entrepreneurship with the form of an inverted U-shape. The first part of this hypothesis received strong support (positive significant standardized coefficient 0.25), while the second part (non-linear form) received moderate support (quadratic term: standardized coefficient -0.09, but significant only at 0.10).

**DISCUSSION AND CONCLUSION**

The study offers some important contributions. First, a model of alliance-driven corporate technological entrepreneurship was developed and empirically tested. It showed the value of engagement in strategic alliances for the development of corporate technological entrepreneurship activities and consequential performance improvements. Results are especially relevant for manufacturing firms.

Second, the model has practical implications. On the basis of the findings based on the model estimations the study pinpoints the alliance element selection strategies, with the purpose of development of corporate technological entrepreneurship that may be the most beneficial for performance of the firm. The most important alliance elements in development of corporate technological entrepreneurship were found: number of alliances (U-shaped relationship), organizational support, and value congruence. In practice this means the following: In order to foster corporate technological entrepreneurship firms must take good care of their alliance relationships. They may like to consider: (1) increasing the number of alliances, but not to exaggerate in this activity, (2) increasing the levels of organizational support for alliances (encouraging and rewarding employees to collaborate with partner companies, increasing permeability of the firm boundaries, and increasing the organizational commitment to alliance partners), and (3) improve the organizational value congruence with alliance partners (across different alliance types).

The model also emphasizes the importance of technological corporate entrepreneurship activities for growth and performance of firms. Manufacturing firms may benefit by improving the technological entrepreneurial activities such as investments for creating proprietary technologies, pioneering and experimentation in technological developments, R&D and technological innovation, and designing new processes and methods of production.
Key limitations of the study are: the use of perceptual measures, the use only of one predictor (corporate technological entrepreneurship) of performance, estimation of the model on a sample of manufacturing firms in only one country. Despite these limitations we are convinced that this study offers important contributions and opens grounds for future research. Future investigations may include for example the following areas: cross-national comparisons of corporate technological entrepreneurship models and extensions of the model to non-manufacturing industries.

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REFERENCES


## APPENDIX

Structural Equations with Total Effects (Direct and Indirect) (Standardized Coefficients)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Dependents</th>
<th>Absolute Growth</th>
<th>Relative Growth</th>
<th>Absolute Profitability</th>
<th>Relative Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Technological</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Entrepreneurship</td>
<td></td>
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<tr>
<td>Alliance Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter-firm Communication</td>
<td>0.10</td>
<td>0.02</td>
<td>0.03</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Trust</td>
<td>-0.02</td>
<td>-0.00</td>
<td>-0.01</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td>Organizational Support</td>
<td>0.24*</td>
<td>0.05*</td>
<td>0.08*</td>
<td>0.05*</td>
<td>0.04*</td>
</tr>
<tr>
<td>Value Congruence</td>
<td>0.19*</td>
<td>0.04*</td>
<td>0.06*</td>
<td>0.04*</td>
<td>0.04*</td>
</tr>
<tr>
<td>Number of Alliances</td>
<td>0.25*</td>
<td>0.06*</td>
<td>0.08*</td>
<td>0.05*</td>
<td>0.05*</td>
</tr>
<tr>
<td>Number of Alliances (quadratic term)</td>
<td>-0.09</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>Technological Entrepreneurship</td>
<td></td>
<td>0.22*</td>
<td>0.33*</td>
<td>0.21*</td>
<td>0.19*</td>
</tr>
<tr>
<td>Error (direct)</td>
<td>0.85</td>
<td>0.98</td>
<td>0.95</td>
<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
<td>R-squared (direct)</td>
<td>0.27</td>
<td>0.05</td>
<td>0.11</td>
<td>0.04</td>
<td>0.04</td>
</tr>
</tbody>
</table>

* Coefficients significant at 0.05 level (one-tailed). Indirect effects are in *italics.*