
INTRAPRENEURSHIP: CONSTRUCT REFINEMENT AND CROSS-CULTURAL VALIDATION

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EXECUTIVE SUMMARY

Intrapreneurship (entrepreneurship within existing organizations) has been of interest to scholars and practitioners for the past two decades. Intrapreneurship is viewed as being beneficial for revitalization and performance of corporations, as well as for small and medium-sized enterprises. The concept has four distinct dimensions. First, the new-business-venturing dimension refers to pursuing and entering new businesses related to the firm's current products or markets. Second, the innovativeness dimension refers to the creation of new products, services, and technologies. Third, the self-renewal dimension emphasizes the strategy reformulation, reorganization, and organizational change. Finally, the proactiveness dimension reflects top management orientation in pursuing enhanced competitiveness and includes initiative and risk-taking, and competitive aggressiveness, and boldness. While differing somewhat in their emphasis, activities and orientations, the four dimensions pertain to the same concept of intrapreneurship because they are factors of Schumpeterian innovation, the building block of entrepreneurship. The pursuit of creative or new solutions to challenges confronting the firm, including the development or enhancement of old and new products and services, markets, administrative techniques, and technologies for performing organizational functions (e.g., production, marketing, sales, and distribution), as well as changes in strategy, organizing, and dealings with competitors are innovations in the broadest sense.

Intrapreneurship theory and measures have an American basis. While being considered universal, their generalizability has been limited because their cross-cultural testing has been extremely limited. Two main measures of intrapreneurship (the ENTRESALE and the corporate entrepreneurship scale) were developed independently but lack validity for cross-national comparisons and do not tap all four dimensions of intrapreneurship when used independently.

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In order to fill the gaps in previous research, these two scales are integrated into a four-dimensional measure of intrapreneurship. Refinement and validation was done by using two samples from two distinct economies: Slovenia (a small transition economy from Central and Eastern Europe with a short entrepreneurship tradition) and the United States (a large, developed, and advanced economy that is a leader in entrepreneurship research and practice). The refined multidimensional measure of intrapreneurship was developed to be cross-culturally generalizable because its refined dimensions' scales include only cross-culturally comparable items. The refined intrapreneurship construct measure showed reasonably good convergent and discriminant validity as well as good nomological validity in terms of expected positive relationships to its antecedents (organizational and environmental characteristics) and consequences (growth and profitability) across the two samples that included large, medium-sized, and smaller firms from a variety of different industries (manufacturing consumer and industrial goods, consumer and business services, trade, and construction).

In addition to the generalizability of the refined intrapreneurship construct measure, the results of this study support the notion that intrapreneurship is an important predictor of firm growth in terms of absolute growth (growth in number of employees and in total sales) and relative growth (growth in market share in comparison to competition). Firms that nurture organizational structures and values conducive to intrapreneurial activities are more likely to grow than organizations that are low in such characteristics. Open and quality communication, existence of formal controls, intensive environmental scanning, management support, organizational support, and values all help an organization become more intrapreneurial. Intrapreneurial organizations are those that engage in new business venturing, are innovative, continuously renew themselves, and are proactive. In transition economies, which are adapting their economies to more developed economies' standards of doing business, and where growth may not yet be the primary goal, intrapreneurship may be even more important for the growth and profitability of existing organizations. © 2001 Elsevier Science Inc.

INTRODUCTION

Intrapreneurship (entrepreneurship within existing organizations) is an important element in organizational and economic development. Scholars and practitioners have shown interest in the concept since the beginning of the 1980s due to its beneficial effect on revitalization and performance of firms (Schollhammer 1981, 1982; Burgelman 1983, 1985; Kanter 1984; Pinchot 1985; Rule and Irvin 1988; Mckinney and McKinney 1989; Guth and Ginsberg 1990; Zahra 1991). Intrapreneurship can be important not only for large corporations but also for small and medium-sized enterprises (Carrier 1994). Previous research that measured entrepreneurship at the organizational level focused mostly on large corporations and used measures such as the firm entrepreneurial orientation or posture (Khandwalla 1977; Miller and Friesen 1978; Covin and Slevin 1986, 1989; Knight 1997) or engagement of the corporation in corporate entrepreneurship (Zahra 1991, 1993). These measures are also used in this research but are combined into a more parsimonious multidimensional intrapreneurship construct. In addition, previous research, with the exception of a validation study of the entrepreneurial orientation scale in two cultures in Canada (Knight 1997), used one sample per study for analysis and validation. Yet, for a scale to be generalizable, it should be applicable to different cultures. In this research, the developed integrative intrapreneurship scale is validated in a cross-cultural study.

Organization phenomena have been studied cross-culturally in a wide variety of areas (Earley and Singh 1995). Some authors feel that cross-cultural research has a potential to expand concepts and theories developed in a single cultural setting (Brislin 1980) and form a basis for assessment of universal relationships between variables (Triandis 1980). One problem in cross-cultural organizational research is the lack of univer-

sal organizational theories (Nasif et al. 1991); while implicitly universal theories exist, they are rarely tested cross-culturally. Entrepreneurship research is no exception, as there is a lack of explicitly tested universal entrepreneurship constructs. Hills and La-Forge (1992) stressed the importance of conducting entrepreneurship research in international contexts. They particularly emphasized that the shift from socialism to market-based systems in Central and Eastern Europe has brought about research opportunities to assess the role of entrepreneurship in firm's performance. However, this and other cross-cultural research cannot be undertaken until research instruments, that usually have an American basis, are developed and validated for these cultures.

For this purpose, data from two contrasting economies are used: Slovenia and the United States. The United States is an old, well-established market-based economy and can be considered the most entrepreneurial country in the world with a long tradition in entrepreneurship practice and research. Slovenia, part of the former Yugoslavia, has a relatively short entrepreneurship tradition, because its private sector started to grow only after the start of reorientation towards a market economy in 1989. Slovenia, an independent country since 1991, has the highest GDP per capita and highest standard of living among all former socialist countries in Central and Eastern Europe. In contrast to the United States, Slovenia is a small transition economy with a population of 2 million and a short entrepreneurship history.

The objective of this research was to generalize the intrapreneurship construct in a cross-national study. In the first section of the paper, the intrapreneurship construct is discussed in terms of its definition, dimensions, measures, and its antecedents and consequences. Previous classifications and measures of intrapreneurship are integrated into four distinct intrapreneurship dimensions (new business venturing, innovativeness, self-renewal, and proactiveness). Then, the theoretical bases for the intrapreneurship model are presented. The model includes hypothesized positive relationships between intrapreneurship and its predictors (organizational and environmental characteristics) and between intrapreneurship and its consequences (growth and profitability). Following the methodology section, the results of the tests of convergent and discriminant validity of the refined intrapreneurship construct measure and its relationships in the intrapreneurship model are presented. The paper concludes with a discussion of the findings in terms of their implications for research, theory, and practice.

THE INTRAPRENEURSHIP CONCEPT

Terms such as intrapreneuring (Pinchot 1985), corporate entrepreneurship (Burgelman 1983; Vesper 1984; Guth and Ginsberg 1990; Hornsby et al. 1993; Stopford and Baden-Fuller 1994), corporate venturing (MacMillan 1986; Vesper 1990), and internal corporate entrepreneurship (Schollhammer 1981, 1982; Jones and Butler 1992) have been used to describe the phenomenon of intrapreneurship. "Increased consensus has been attained on the concept of entrepreneurship as the process of uncovering and developing an opportunity to create value through innovation and seizing that opportunity without regard to either resources (human and capital) or the location of the entrepreneur—in a new or existing company" (Churchill 1992, p. 586). Perhaps the broadest definition of intrapreneurship is that intrapreneurship is entrepreneurship within an existing organization. In previous research, intrapreneurship was viewed as a process by which individuals inside organizations pursue opportunities without regard to the resources they currently control (Stevenson and Jarillo 1990), as doing new things and

departing from the customary to pursue opportunities (Vesper 1990), and as a spirit of entrepreneurship within the existing organization (Hisrich and Peters 1998). Some researchers used narrower definitions excluding smaller organizations and focusing on corporations (Schollhammer 1982; Burgelman 1983, 1985; Pinchot 1985; Rule and Irwin 1988; Kuratko et al. 1993). Others limited themselves to just new venture formation (Kanter and Richardson 1991, Baduerahanian and Abetti 1995). In this study intrapreneurship is defined as entrepreneurship within an existing organization. It refers to a process that goes on inside an existing firm, regardless of its size, and leads not only to new business ventures but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies, and competitive postures.

Intrapreneurship Dimensions

Previous views of intrapreneurship can be classified into four dimensions: (1) new business venturing, (2) innovativeness, (3) self-renewal, and (4) proactiveness. New business venturing is the most salient characteristic of intrapreneurship because it can result in a new business creation within an existing organization (Stopford and Baden-Fuller 1994) by redefining the company's products (or services) (Rule and Irwin 1988; Zahra 1991) and/or by developing new markets (Zahra 1991). In large corporations it can also include formation of more formally autonomous or semi-autonomous units or firms (often labeled incubative entrepreneurship) (Schollhammer 1981, 1982), internal venturing (Hisrich and Peters 1984), corporate start-ups (MacMillan et al. 1984), autonomous business unit creation (Vesper 1984), and newstreams (Kanter and Richardson 1991). For all organizations regardless of size, the new business-venturing dimension refers to the creation of new businesses within the existing organization regardless of the level of autonomy.

In contrast, the innovativeness dimension refers to product and service innovation with emphasis on development and innovation in technology. Intrapreneurship includes new product development, product improvements, and new production methods and procedures (Schollhammer 1982). Covin and Slevin (1991) considered one part of the entrepreneurial posture that reflected itself in the extensiveness and frequency of product innovation and the related tendency of technological leadership. Knight (1997) included the development or enhancement of products, services, and techniques and technologies in production as part of organizational innovativeness. Zahra (1993) included product innovation and technological entrepreneurship as innovative aspects of manufacturing firms.

The self-renewal dimension reflects the transformation of organizations through the renewal of key ideas on which they are built (Guth and Ginsberg 1990; Zahra 1991). It has strategic and organizational change connotations and includes the redefinition of the business concept, reorganization, and the introduction of system-wide changes for innovation (Zahra 1993). Vesper (1984) viewed new strategic direction (significant departure from corporate strategy) as a part of intrapreneurship. Muzyka et al. (1995) considered the organizational imperative to continually renew its businesses and to achieve adaptability and flexibility as crucial characteristics of an entrepreneurial corporation. Stopford and Baden-Fuller (1994) viewed activities associated with renewal of existing organizations as an element of intrapreneurship.

The final dimension—proactiveness—is related to aggressive posturing relative to

competitors (Knight 1997). A proactive firm is inclined to take risks by conducting experiments (Stopford and Baden-Fuller 1994). It takes initiative (Lumpkin and Dess 1996) and is bold and aggressive in pursuing opportunities (Covin and Slevin 1991). The concept of proactiveness “refers to the extent to which organizations attempt to lead rather than follow competitors in such key business areas as the introduction of new products or services, operating technologies, and administrative techniques” (Covin and Slevin 1986, p. 631). Covin and Slevin (1991) felt that this was reflected in the firm’s propensity to aggressively and proactively compete with industry rivals. Both Stopford and Baden-Fuller’s (1994) frame-breaking change type and Miller’s (1987) assertive strategy making are congruent with this dimension. Mintzberg (1973) saw risk-taking and decisive action catalyzed by a strong leader as elements of his entrepreneurial mode. Miles and Snow (1978) viewed their prospector firms as risk takers. Dess et al. (1997) felt that entrepreneurial strategy consisted of a bold, directive, opportunity-seeking style with aspects of risk taking and experimentation. Proactiveness includes initiative and risk taking and the competitive aggressiveness and boldness that are reflected in orientations and activities of top management.

These dimensions integrate previous categorizations (Covin and Slevin 1989; Guth and Ginsberg 1990; Zahra 1991; Lumpkin and Dess 1996; Knight 1997), which are relevant for firm-level entrepreneurship. Some dimensions, such as risk-taking (Covin and Slevin 1989; Lumpkin and Dess 1996), competitive aggressiveness, and autonomy (Lumpkin and Dess 1996) were conceptualized in previous research as being distinct from the four dimensions used in this study. This research follows the findings of Knight (1997) that empirically found that risk-taking and competitive aggressiveness should be included in the same dimension with proactiveness. Autonomy, which was previously seen (Lumpkin and Dess 1996) as a part of entrepreneurial orientation but developed at the individual as opposed to the firm level, was captured in this study with the new business-venturing dimension.

The four dimensions are somewhat distinct in terms of their activities and orientations. For the new business-venturing dimension, emphasis is on pursuit and entering new businesses within the existing organization that are related to the firm’s current products or markets. The innovativeness dimension emphasizes creation of new products, services, and technologies. The self-renewal dimension emphasizes strategy reformulation, reorganization, and organizational change. The proactiveness dimension reflects top management orientation in pursuing enhanced competitiveness and includes initiative and risk taking and competitive aggressiveness and boldness. Therefore, in the frame of Lumpkin and Dess (1996), who suggested that dimensions of entrepreneurial orientation might vary independently, the intrapreneurship dimensions may be able to be differentiated from each other.

The four dimensions can also pertain to the same concept of intrapreneurship in terms of the Schumpeterian innovation concept, a building block of entrepreneurship. The pursuit of creative or new solutions to challenges confronting the firm, including the development or enhancement of old and new products and services, markets, administrative techniques, and technologies for performing organizational functions, as well as changes in strategy, organizing, and dealing with competitors, may be seen as innovations in the broadest sense. Entrepreneurial capability was equated to creativity and innovation in established corporations (Rule and Irwin 1988). The dimensions can not only be different from each other but can also be related, to form the basis of intrapreneurship.

From these two perspectives, the intrapreneurship construct was constructed from the four dimensions that are distinctive enough (discriminant) not to be redundant and at the same time similar enough (correlated–convergent) to pertain to the same construct. A refined intrapreneurship construct that includes four dimensions (new business venturing, innovativeness, self-renewal, and proactiveness) should show both convergent and discriminant validity.

Previous Measures of Intrapreneurship

Two key measures of intrapreneurship have been used in previous research. The first scale (the ENTRESALE), initially developed by Khandwalla (1977), refined by Miller and Friesen (1978) and Covin and Slevin (1989), and checked for cross-cultural validity and reliability by Knight (1997), is intended to measure a firm's general orientation towards entrepreneurship, or in Knight's (1997, p. 213) words, "entrepreneurship at the firm level . . . reflecting the innovative and proactive disposition of management at a given firm." The scale includes two main dimensions—orientation towards innovativeness and proactiveness. A second scale (the corporate entrepreneurship scale), developed and refined by Zahra (1991, 1993), is intended to measure engagement of the corporation in corporate entrepreneurship activities such as venturing, innovation, and self-renewal activities.

There are three main reasons for combining these two scales: (1) Their validity cannot be fully assessed when they are used separately; (2) if used together, they may be partly redundant; and (3) both have limited generalizability. At first glance it appears that the two scales are competitive measures of intrapreneurship because both try to approximate the whole of intrapreneurship. Knight (1997) felt that the former had a potential to grasp entrepreneurship orientation, whereas the latter was closer to entrepreneurial activities in existing organizations. If this was the case, the research results obtained should have been about the impact of either entrepreneurial orientation or entrepreneurial activities on performance, rather than about firm-level entrepreneurship and its impact on performance. If the two scales are indeed different, they should have items that differ across orientation/activities. However, the two scales were developed more or less independently. The ENTRESALE does include both orientation towards entrepreneurship in existing organizations (intrapreneurship), such as R&D leadership, and proactiveness, and entrepreneurial activity in existing organizations (intrapreneurship), such as the number of marketed new lines of products and services. The ENTRESALE assesses not only the orientation, but what the managers favor and how they act. Most of the action and orientation in the ENTRESALE is inseparable. Even if the scales are different, they need to be empirically checked for differential validity in a single study, which has not been done to date.

Another reason for using the two scales is that they may complement each other. The ENTRESALE explores two dimensions (innovativeness and proactiveness) of the four dimensions previously discussed. On the other hand, the corporate entrepreneurship scale includes three dimensions (new business venturing, innovativeness, and self-renewal). When used separately, the two scales do not evaluate all four dimensions, making comparisons more difficult. When used together, the five dimensions are reduced to four because both scales assess innovativeness. The combined measure is more complete, because it includes all four dimensions and is also more parsimonious in eliminating redundancy in the innovativeness dimensions.

Third, there is a problem of generalizability of the two scales. For the ENTRES-CALE, convergent and discriminant validity was assessed across two cultures in Canada (Knight 1997) but without checking for nomological validity of the construct in terms of its antecedents or consequences across the two cultures. Also, this assessment was done in the same economic context of Canada. Despite this, the ENTRES-SCALE has good practical value, because it was found to be positively related to performance. Previous research has supported a positive relationship between intrapreneurship and growth, profitability, or both (Covin and Slevin 1986) for large firms in general, as well as for small firm performance in hostile environments (Covin and Slevin 1989), or small firm growth (Covin 1991). However, it should be kept in mind that this support for the entrepreneurship orientation scale was based on studies that used only one sample for analysis and validation, with the exception of Knight's (1997) study. A validation sample was not used to further validate the generalizability of the findings. In addition, the samples had a North American bias. To date, no research has extended the generalizability of the intrapreneurship construct to such different economic contexts such as those found in the transition economies of Central and Eastern Europe.

Even though the corporate entrepreneurship scale was also found to be a good predictor of corporate financial performance (Zahra 1991, 1993), neither convergent nor discriminant validity was assessed. The scale was also not cross-validated through the use of a different sample, and it was used only on large firms in the United States. This research remedies these weaknesses by integrating the two scales in a single study and validating them in terms of convergent, discriminant, and nomological validity¹ in a cross-cultural study.

Antecedents and Consequences of Intrapreneurship

The literature on intrapreneurship has identified two main sets of antecedents: one pertains to the organization (intra-organizational environment), and the other pertains to the external environment of the firm. One important consequence of intrapreneurship is firm performance.

Organization

Previous research has emphasized the intra-organizational environment, with the internal environment of the organization being the defining factor of intrapreneurship. This research has focused either on the intrapreneur or on his or her intermediate context, that is, the organization in which the acts occur. Although it has been argued that ventures are more effectively started outside a corporate environment than within one (Fast and Pratt 1981) and that such newstreams fail (Kanter and Richardson 1991), size is not felt to be an impediment to entrepreneurship and innovation; rather, it is the existing operation itself (Drucker 1985). On the other hand, the existing organization constitutes an opportunity structure for entrepreneurship (Burgelman 1983). Previous research has focused on the type of intra-organizational environment impediments as well as the

¹ Convergent validity refers to the existence of correlations between alternative dimensions of the intrapreneurship construct. Discriminant validity refers to the existence of not-too-high correlations (distinctiveness) among the dimensions. Nomological validity refers to the existence of expected relations between the intrapreneurship construct and other constructs.

benefits of developing entrepreneurship in corporations (Souder 1981; Schollhammer 1982; Kanter 1984, Pinchot 1985; Luchsinger and Bagby 1987; Hornsby et al. 1993). The first set of antecedents that influences intrapreneurship are organizational characteristics (communication openness, control mechanisms, environmental scanning intensity, organizational and management support) and organizational values.

First, open communication as a way of information sharing and empowerment was proffered as one critical element for innovation (Kanter 1984; Pinchot 1985). Communication in terms of its quality and amount was viewed as important for success of intrapreneurial initiation and implementation in large corporations (Peters and Waterman 1982; Zahra 1991). Therefore, the amount and quality of communication is expected to be positively related to intrapreneurship.

Second, MacMillan et al. (1986) and Zahra (1991) stressed the inhibiting effect of the excessive use of formal controls. However, Kuratko et al. (1993) stressed the importance of control and evaluation for intrapreneurship. Kanter (1989) also considered formal controls essential for corporate entrepreneurship projects selection. Therefore, it is felt that formal controls used to monitor intrapreneurial activities will be positively associated with intrapreneurship.

Third, Khandwalla's (1977) findings suggest that environmental scanning directed toward forecasting the industry environment is important for companies in hostile environments. Scanning is important for intrapreneurial activities of the firm, especially for innovativeness and new business venturing, as it highlights industry trends and changes, as well as environmental opportunities and threats (Zahra 1991). Therefore, it is felt that intensive environmental scanning will be positively related to intrapreneurship.

Fourth, organizational support can be beneficial for intrapreneurship. Importance of management involvement (Merrifield 1993), as well as top management support, commitment, and style, and the staffing and rewarding of venture activities (MacMillan 1986) were felt to be important for intrapreneurship. Organizational support in terms of training and trusting individuals within the firm to detect opportunities (Stevenson and Jarillo 1990) was proposed to positively influence a firm's entrepreneurial behavior. Organizational support characteristics such as management support, work discretion, rewards, time availability, and loose intra-organizational boundaries (Hornsby et al. 1990) were seen as crucial organizational elements impacting intrapreneurship. It is expected that organizational support will be positively related to intrapreneurship.

Fifth, organizational values are viewed as important drivers of intrapreneurship. Guth and Ginsberg (1990, p. 8) argued that "entrepreneurial behavior in organizations is critically dependent on the characteristics, values/beliefs, and visions of their strategic leaders." Zahra (1991) found a positive relationship between corporate entrepreneurship and organizational values that are individual centered and organizational values that are competition centered. Indeed, it is emotional and value commitment that enhances innovativeness in organizations (Kanter 1984). Entrepreneurship within a company was proposed to be dependent on the attitude of the individuals within the firm (Stevenson and Jarillo 1990). It is expected that organizational values will be positively related to intrapreneurship. This previous research is the basis of the following overall hypothesis and its sub-hypotheses.

H1: Organizational characteristics will be positively related to intrapreneurship.

Intrapreneurship will be positively related to:

HIA: communication amount and quality;

HIB: formal controls;

HIC: environmental scanning intensity;

HID: organizational support;

HIE: competition-related values;

HIF: person-related values.

Environment

The external environment—the second antecedent—has historically been viewed as a determinant of entrepreneurial activity at both the individual as well as organizational level (Covin and Slevin 1991). Researchers building contingency models to explain and predict intrapreneurship and its outcomes tend to incorporate, in addition to internal variables, a set of external environmental variables (Zahra 1991, 1993; Badguerahanian and Abetti 1995). In terms of influencing intrapreneurship, the external environment is an important determinant (Miller 1983; Khandwalla 1987; Covin and Slevin 1991). Certain environmental characteristics, such as dynamism, technological opportunities, industry growth, and demand for new products, are viewed as favorable (munificent) for intrapreneurship, whereas other variables, such as unfavorable change and competitive rivalry, are viewed as unfavorable (hostile).

First, environmental munificence can be seen as a multidimensional concept that includes dynamism, technological opportunities, industry growth, and the demand for new products (Zahra 1993). Dynamism and technological opportunities are the first two environmental characteristics conducive to intrapreneurship. Dynamism refers to perceived instability and continuing changes in the firm's markets. Increased dynamism may be seen as conducive to the pursuit of intrapreneurship because it tends to create opportunities in a firm's markets (Zahra 1991). Organizations often respond to challenging conditions found in dynamic or high-tech environments by adopting an entrepreneurial posture (Khandwalla 1987). Environmental changes in industry competitive structure and the underlying technologies are thought to influence intrapreneurship (Guth and Ginsberg 1990).

Two other munificent environmental characteristics are perceived industry growth and increased demand for new products. Zahra (1993) suggested that the perceived decline of an industry would push companies into increased renewal activities. Growth markets, on the other hand, offer opportunities that lead to increased intrapreneurial activities. Accordingly, high market growth was proposed to be related to corporate start-up success (Hobson and Morrison 1983). Demand for new products also presents an important demand-pull (Zahra 1993) that encourages intrapreneurship. Therefore, it is expected that dynamism, technological opportunities, industry growth, and the demand for new products will be positively related to intrapreneurship.

Second, environmental hostility (i.e., unfavorable environmental conditions) can also stimulate intrapreneurial activities. Hostility has been found to be related to the entrepreneurial posture of successful small firms (Covin and Slevin 1989) and was proposed to be positively related to the organizational entrepreneurial posture (Covin and Slevin 1991) as well. Hostility tends to create threats for the organization and stimulates the pursuit of corporate entrepreneurship (Zahra 1991). Two hostile environmental

conditions may affect intrapreneurship—unfavorability of change and competitive rivalry. Unfavorability of change refers to the extent to which the environment is perceived as unfavorable to a company's goals and mission, whereas competitive rivalry refers to the intensity of competition (Zahra 1993). Both were found to stimulate corporate entrepreneurial efforts (Zahra 1993). Unfavorability of change and increased competitive rivalry are expected to be positively related to intrapreneurship. This research is the basis of the second overall hypothesis and its sub-hypotheses:

H2: Environmental characteristics will be positively associated with intrapreneurship.

Intrapreneurship will be positively associated with:

H2A: increased dynamism;

H2B: increased technological opportunities;

H2C: industry growth;

H2D: increased demand for new products;

H2E: unfavorability of change;

H2F: increased competitive rivalry.

Performance

Improved organizational results, usually in terms of growth and profitability, are thought to be a result of entrepreneurship in established organizations (Covin and Slevin 1991). Intrapreneurship was felt to be a part of successful organizations (Peters and Waterman 1982; Kanter 1984; Pinchot 1985) and was found to be related to growth and profitability (Covin and Slevin 1986; Zahra 1991, 1993; Zahra and Covin 1995) of large firms. It was found to a predictor of growth (Covin 1991) and of performance in hostile environments of small firms (Covin and Slevin 1989). However, some studies have proposed (Miller and Friesen 1983; Covin and Slevin 1989; Dess et al. 1997) that the relationship between intrapreneurship and performance should be seen in the context of the strategy and environmental factors. These studies proposed that entrepreneurial strategy-making could have the strongest association with performance when combined with the appropriate strategy and environmental conditions. In contrast to these studies, which used moderation as the conception of fit, in this study mediation is used as an alternative conception of fit (Venkatraman 1989) for the model itself. Mediation is used for continuous control variables, and moderation is used for nominal control variables. The effects of environmental conditions on the intrapreneurship-performance relationship were incorporated in the model as an indirect impact of environment on performance through intrapreneurship, whereas the strategy contingency was included as a control variable. Overall, intrapreneurship efforts have their practical value when they result in increased performance. Organizations that engage in intrapreneurial activities are expected to achieve higher levels of growth and profitability than organizations that do not. This forms the basis of the final hypothesis:

H3: Intrapreneurship will be positively related to the growth and profitability of an organization.

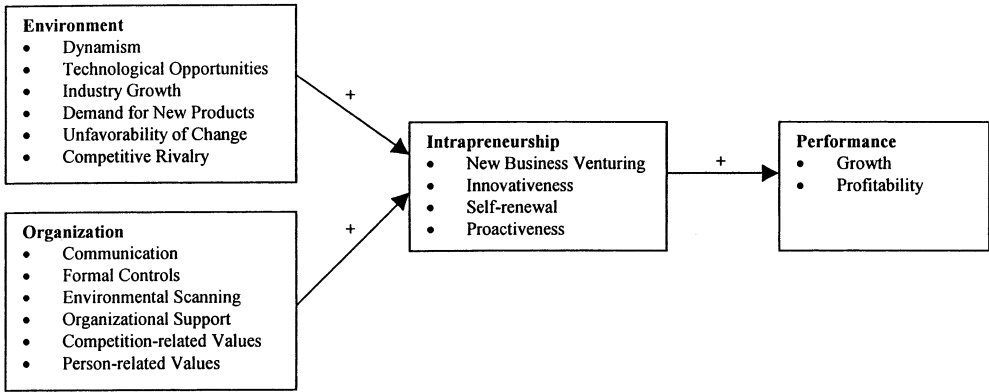


FIGURE 1 The Intrapreneurship Model and Its Direct Effects.

A resulting theoretical model of intrapreneurship that includes these hypothesized relationships is depicted in Figure 1. Some additional variables such as organizational age, size, overall strategy, and industry may influence relationships in the model and may need to be controlled for as well. The need for a reorientation to intrapreneurship or infusion of entrepreneurial thinking was recognized by older, larger organizations (Kanter 1984; Pinchot 1985). These organizations are hierarchical in nature and bureaucratized because of their size and history, which impedes growth. Organizational age and size may have a negative relationship to intrapreneurship. Miles and Arnold (1991) found a positive relationship between size but not organizational age and entrepreneurial orientation and suggested that these relationships need to be further explored. Organizational strategy, especially growth strategies as opposed to stability strategies (Hitt et al. 1982), can influence intrapreneurship and performance (Zahra 1991). Finally, the environments of organizations differ due to the industry of the firm (Shepherd 1990).

METHODOLOGY

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

Sampling and Data Collection

Data was collected by using two surveys, one in the United States and another in Slovenia. The same data-collection procedure (mail survey) was used in both surveys by the same researchers to improve measurement equivalence across cultures (Sekaran and Martin 1982; Sekaran 1983). Each questionnaire was addressed to a top executive of the selected firm, and anonymity was assured. Questionnaires were mailed to U.S. and Slovenian firms. The U.S. firms sampled were randomly selected from the Dun & Bradstreet database of companies. Firms for the Slovenian sample were randomly selected from the PASEF (Podatkovno analitico središče Ekonomske fakultete [Data Analysis Center of the Faculty of Economics, University of Ljubljana]) database of financial reports of Slovenian incorporated businesses, which were cross checked using data from the Slovenian Chamber of Commerce. Because the study focused on intra-

TABLE 1 Sample Composition

	Slovenia	U.S. (Ohio)
Sample size (number of firms)	141	51
Distribution of firms by size (number of employees, full-time equivalent)		
Sample		
50–99	26.2%	27.5%
100–499	56.7%	47.1%
500 or more	17.0%	25.4%
Population		
50–99	38.1%	34.8%
100–499	52.2%	41.2%
500 or more	9.6%	24.0%
Median size		
No. of employees (full-time equivalent)	100–249	100–249
Total sales	\$5–10 million	\$10–50 million
Median age	21–50 years	21–50 years
Main industries		
Manufacturing of industrial goods	35.5%	37.3%
Manufacturing of consumer goods	15.6%	17.6%
Consumer and business services	10.6%	9.8%
Trade	7.1%	11.8%
Construction	6.4%	5.9%

preneurship existing in the firm, only firms with 50 or more employees were selected. In order to assure better sample comparability, companies from some industries, such as health care organizations, financial institutions, and educational institutions, were not included in the samples because these industries are not in the Slovenian database. A variety of industries were included—manufacturing consumer and industrial goods, construction, retail and wholesale trade, engineering, research and development, consumer and business services, transportation, and public utilities.

In Slovenia 145 responses were received (29% response rate), whereas in the United States 56 responses were received (11% response rate). One blank questionnaire in Slovenia and four in the United States were returned by companies that were unwilling to participate in the study. In addition, four questionnaires had a high proportion of missing data² (25% or more) and were excluded. Thus, 141 firms from Slovenia and 51 firms from the United States gave responses that were usable for analysis. Even though the United States response rate was low, the distribution of the sample was quite similar to the population (see Table 1). In addition, the answers to intrapreneurship and performance items were well distributed across the answer range. Nonresponse bias was assessed on the basis that later respondents could be more like nonrespondents (Armstrong and Overton 1977). The responses of later respondents were found not to be statistically different (sig. 0.05) from responses of earlier respondents for all questionnaire items for both samples. This indicates that nonresponse bias was not present. In

² The extent and the pattern of missing data were checked in both samples. There was a small number of missing data (2.2%) in each of the samples. No variable was removed from the analysis, because missing data were spread across variables in a narrow range (from 0 to 9% for the Slovenian sample and from 0 to 11% for the U.S. sample). Because missing data were found to be missing completely at random (Hair et al. 1995), different imputation techniques can be applied. To preserve the sample sizes the following combined imputation was used for each sample: if only one item was missing for a particular construct dimension, then the mean of other items was used as the imputation value; otherwise the sample mean of the item was used.

TABLE 2 Intrapreneurship Dimensions Scales' Reliability and Validity

Sample	Dimension	No. of items	Cronbach alpha reliability	Range of standardized coefficients*	Model fit indices				Overall model			
					NFI	NNFI	CFI	SRMR	RMSEA	Composite reliability	Variance extracted	Variance shared
Slovenia	New business venturing	4	0.83	0.71 to 0.82	0.98	0.98	0.99	0.027	0.079	0.81	0.54	0.35
United States	Innovativeness	7	0.89	0.27 to 0.81	0.89	1.09	1.00	0.056	0.000	0.66	0.21	0.29
Slovenia	Self-renewal	11	0.87	0.29 to 0.94	0.96	0.96	0.97	0.047	0.107	0.82	0.62	0.37
United States	Proactiveness	3	0.83	0.25 to 0.86	0.90	0.92	0.94	0.088	0.138	0.80	0.56	0.21
Slovenia			0.92	0.55 to 0.89	0.90	0.90	0.92	0.071	0.148	0.89	0.65	0.26
United States			0.83	0.25 to 0.86	0.73	0.80	0.84	0.122	0.138	0.79	0.57	0.31
Slovenia			0.69	0.51 to 0.80	0.99	1.00	1.00	0.024	0.018	0.65	0.39	0.33
United States			0.66	0.25 to 0.88	0.94	0.90	0.97	0.047	0.139	0.66	0.47	0.07

Notes: NFI = normed fit index; NNFI = non-normed fit index; CFI = comparative fit index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation.

* All unstandardized coefficients were positive, high, and significant.

addition, response bias was assessed by comparing the structure of the firm size of respondents with the database population (that is, comparing these with 500 firms selected in each country and with all firms with 50 or more employees in the databases). As expected, because of the randomness of the sample, the 500 selected firms and all firms matched in terms of size distribution in both countries. Finally, even when using structural equations modeling that requires many degrees of freedom, the small size of the U.S. sample was not a concern because it was used for validation, whereas the Slovenian sample was used for analysis.

The properties of the two samples are shown in Table 1. The size distribution of respondents from the two countries was similar to the population, except that smaller firms (50 to 99 employees) were somewhat less likely to participate in the study. The two samples did not differ in terms of firm age, size in terms of number of employees, and industry. Firms in the Slovenian and the U.S. samples had a median age of 21 to 50 years and a median size of 100 to 249 employees. There was a slight difference between the two samples in terms of firm size. In the Slovenian sample there was a somewhat lower proportion of large firms of 1000 or more employees (8%) in comparison to the U.S. sample (18%). Median size in terms of total sales was \$10 to 50 million for the U.S. sample and less for the Slovenian sample (\$5–10 million). Such differences are expected because Slovenia is a small transition economy having more than two times lower GDP per capita than the United States and has very few multinational companies, with none having sales over \$500 million in 1997. The two samples are also well matched in terms of industry (see Table 1).

Measurement Instrument

Intrapreneurship and its antecedents (organization and environment) were measured through scales previously used by other researchers. The scales were checked for convergent and discriminant validity and for cross-cultural comparability.³ Because the study was conducted in two different countries with different languages, two versions of the questionnaire were administered. The Slovenian version was developed by translation and back-translation (Brislin 1976) of the American version into the Slovenian language. Because the questionnaire items were used in previous studies in the United States and because translation of management and entrepreneurship literature from English is a common practice in Slovenia, in the process of translation, no item in English needed to be decentered, and all items were translated as etic (that is, no item was found to pertain to a specific cultural context in terms of language).

Intrapreneurship dimensions were measured by items on semantic differential type scales from the ENTRESALE (Knight 1997) and by items on Likert-type scales from

³ Results of these checks for the intrapreneurship construct are reported in the results section. Scales for organizational and environmental characteristics were also tested. Organizational characteristics scales showed moderately good convergence in terms of internal consistency and model fit for dimensions. Environmental munificence scales were moderately good, except for the dynamism dimension that showed somewhat poorer internal consistency. On the other hand, there were problems with environmental hostility scales. The competitive rivalry scale was not internally consistent and was not comparable between the two countries because of negative correlation between the aspects of domestic and foreign competition in the Slovenian sample. This scale was excluded from the analysis, and Hypothesis 2F was not tested. Unfavorability of change scale had similarly poor internal consistency as the dynamism scale. Contrary to expectations, the unfavorability of change dimension was negatively correlated with the munificence dimensions. Because of this, it was reversed and included in the environment construct as favorability of change.

TABLE 3 Intrapreneurship Items

Item Description	Previous Scale	Expected Dimension	Result*
Stimulating new demand for existing products in current markets through aggressive advertising and marketing	The corporate entrepreneurship scale	New business venturing	Excluded in confirmatory factor analysis because of a low, nonsignificant coefficient in the U.S. sample
Broadening business lines in current industries	The corporate entrepreneurship scale	New business venturing	New business venturing
Pursuing new businesses in new industries that are related to current business	The corporate entrepreneurship scale	New business venturing	New business venturing
Finding new niches for products in current markets	The corporate entrepreneurship scale	New business venturing	New business venturing
Entering new businesses by offering new lines and products	The corporate entrepreneurship scale	New business venturing	New business venturing
Company's emphasis on developing new products	The corporate entrepreneurship scale	Innovativeness	Innovativeness
Rate of new product introduction into the market	The corporate entrepreneurship scale	Innovativeness	Excluded in cross-cultural comparison because its coefficient was significantly different across samples (the item can be seen as emic, that is, country specific)
Company's spending on new product development activities	The corporate entrepreneurship scale	Innovativeness	Innovativeness
The number of new products added by the company	The corporate entrepreneurship scale	Innovativeness	Innovativeness
The number of new products introduced by the company	The corporate entrepreneurship scale	Innovativeness	Innovativeness
Investment in developing proprietary technologies	The corporate entrepreneurship scale	Innovativeness	Excluded in exploratory factor analysis because it did not fit together with other innovativeness items
Emphasis on creating proprietary technology	The corporate entrepreneurship scale	Innovativeness	Excluded in exploratory factor analysis because it did not fit together with other innovativeness items

(continued)

TABLE 3 continued.

Item Description	Previous Scale	Expected Dimension	Result*
Adoption of technologies developed by other companies or industries	The corporate entrepreneurship scale	Innovativeness	Excluded in exploratory factor analysis because it did not fit together with other innovativeness items
Company's emphasis on technological innovation	The corporate entrepreneurship scale	Innovativeness	Excluded in exploratory factor analysis because it did not fit together with other innovativeness items
Company's emphasis on pioneering technological developments in its industry	The corporate entrepreneurship scale	Innovativeness	Excluded in exploratory factor analysis because it did not fit together with other innovativeness items
Percent of the company's revenue generated from products that did not exist three years earlier	The corporate entrepreneurship scale	Innovativeness	Innovativeness
Product lines	The ENTRESCALE	Innovativeness	Innovativeness
Product changes	The ENTRESCALE	Innovativeness	Innovativeness
R&D leadership	The ENTRESCALE	Innovativeness	Excluded in exploratory factor analysis because it loaded on different factors
Defining the company's mission	The corporate entrepreneurship scale	Self-renewal	Excluded in exploratory factor analysis because it loaded on different factors
Revising the business concept	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Redefining the industries in which the company will compete	The corporate entrepreneurship scale	Self-renewal	Excluded in exploratory factor analysis because it loaded on different factors
Reorganizing units and divisions to increase innovation	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Coordinated activities among units to enhance company innovation	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Increasing the autonomy (independence) of different units to enhance their innovation	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Adopting flexible organizational structures to increase innovation	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Training employees in creativity techniques	The corporate entrepreneurship scale	Self-renewal	Self-renewal

(continued)

TABLE 3 *continued.*

Item Description	Previous Scale	Expected Dimension	Result*
Rewarding employees for creativity and innovation	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Establishing procedures to solicit employee ideas for innovations	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Establishing procedures to examine new innovation ideas	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Designating formal idea (project or venture) champions	The corporate entrepreneurship scale	Self-renewal	Self-renewal
Making resources available for experimental projects	The corporate entrepreneurship scale	Self-renewal	Self-renewal
New techniques (first to introduce new/products services, administrative techniques, operating technologies, etc.)	The ENTRESALE	Proactiveness	Excluded in exploratory factor analysis because it loaded on different factors
Competitive posture ("undo-the-competitors" posture)	The ENTRESALE	Proactiveness	Proactiveness
Risk-taking proclivity	The ENTRESALE	Proactiveness	Proactiveness
Environmental boldness (bold, wide-ranging acts necessary to achieve objectives)	The ENTRESALE	Proactiveness	Excluded in cross-cultural comparison because its coefficient was significantly different across samples (the item can be seen as emic, that is, country specific)
Decision-making style (bold, aggressive posture)	The ENTRESALE	Proactiveness	Proactiveness

* For cross-culturally comparable items, the dimension that they fit is noted; for other items, the rationale for exclusion is given.

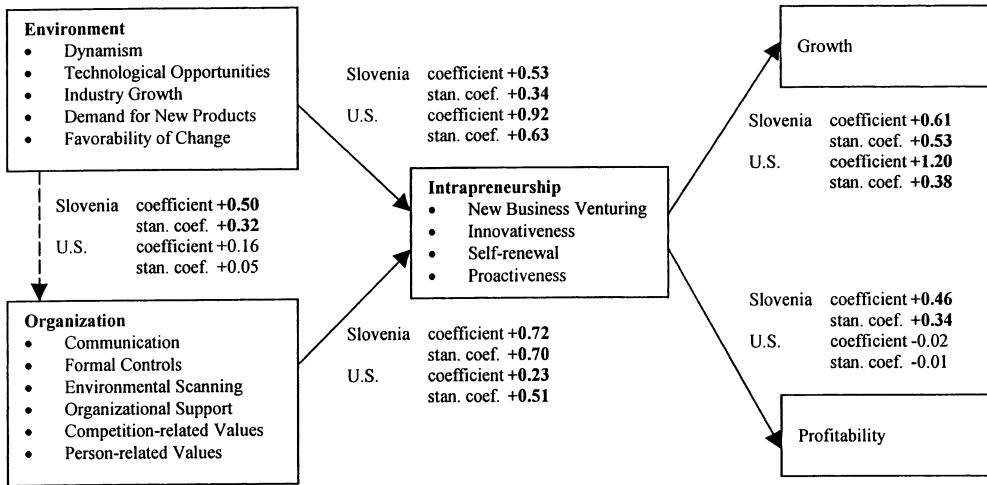


FIGURE 2 The Intrapreneurship Model Direct Effects (unstandardized and standardized coefficients). Significant Coefficients at 0.05 (one-tailed) in Bold.

the corporate entrepreneurship scale (Zahra 1993) and are indicated in Table 3. Organizational characteristics were assessed across six dimensions. The communication dimension⁴ and the formal control dimension were measured by scales used by Zahra (1991). The environmental scanning dimension was measured by items from Miller and Friesen (1984). The organizational support dimension was measured by items from Hornsby et al. (1993). Scales used by Zahra (1991) were used to measure competition-related values and person-related values. Environmental characteristics (dynamism, technological opportunities, perceived industry growth, demand for new products, unfavorability of change, and competitive rivalry) were all measured by scales used by Zahra (1993).

Variables of performance, the dependent variables in the model, were measured in terms of growth and profitability in absolute as well as relative terms. Absolute growth was measured by two items. While the first asked the average annual growth in the number of employees in the last three years, the second asked the average annual growth in sales in the last three years. Relative growth was assessed by growth in market share (Chandler and Hanks 1993) in the last three years. Absolute profitability was assessed by three items: average annual return on sales, average return on assets, and average annual return on equity in the last three years. Relative profitability was measured by two subjective measures of firm performance relative to competitors (Chandler and Hanks 1993). Respondents were asked to rate their company's profitability in comparison to all competitors as well as to competitors that were at approximately the same age and stage of development.

Control variables were also developed. Respondents checked appropriate boxes for age and size for their organization. Overall strategy was measured by the Hitt et al. (1982) measure of "grand" strategy. Respondents were asked to choose a strategy

⁴ From these 12 items (6 items for which quality and frequency of communication was assessed), 6 variables were calculated by multiplying quality and frequency. Even if variables computed by multiplication or summation were not statistically different (correlation coefficients were all over 0.97 and significant at 0.001), in contrast to Zahra (1991) who used summation, multiplication may be more appropriate because the resulting variables can be considered volume of quality communication.

TABLE 4 Direct Effects of Environmental and Organizational Characteristics on Intrapreneurship

Intrapreneurship Antecedents	Slovenia		United States	
	Unstandardized Coefficient	Standardized Coefficient	Unstandardized Coefficient	Standardized Coefficient
Environment				
Dynamism	+0.09	+0.12	+0.03	+0.06
Technological opportunities	+0.14	+0.21	+0.08	+0.26
Industry growth	-0.04	-0.07	+0.05	+0.17
Demand for new products	+0.10	+0.17	+0.08	+0.23
Favorability of change	+0.03	+0.04	+0.02	+0.04
Organization				
Communication	+0.17	+0.26	-0.02	-0.07
Formal controls	+0.05	+0.08	+0.12	+0.35
Environmental scanning	+0.03	+0.05	+0.05	+0.12
Organizational support	+0.19	+0.30	+0.23	+0.46
Competition-related values	+0.28	+0.43	+0.01	+0.02
Person-related values	-0.11	-0.18	+0.00	+0.01
Error		+0.59		+0.56
R-squared		0.66		0.68

Notes: Significant coefficients at 0.05 (one-tailed) in bold. Coefficients that significantly (sig. 0.05) differ across the samples in *Italics*.

that best described their company's grand strategy in the past three years in terms of stability, internal growth, external acquisitive growth, and retrenchment strategy.

Data Analysis

To assure comparability across samples and to avoid problems with variance differences (Reise et al. 1993), variables were standardized by combining the samples and standardizing each variable using data from both samples. All the scales were checked for their convergent and discriminant validity using exploratory and confirmatory factor analysis (Floyd and Widaman 1995). For each construct, exploratory factor analysis was conducted using the number of factors that were expected by theory (for example six factors for the organization construct), the maximum likelihood extraction method, and oblimin rotation. When comparing the construct items group together to expected grouping by dimension, poorly fitting items were excluded, or in exceptional cases moved to another dimension. Exploratory factor analysis and then confirmatory factor analysis was conducted for each dimension of each construct checking for the convergence of items. The Slovenian sample was used as the analysis sample and the U.S. sample as the validation sample. EQS software (Bentler and Wu 1998) was used for conducting confirmatory factor analysis as a special case of path analysis. Items that had high, positive, and significant coefficients were retained.

In addition, each dimension scale was checked for cross-cultural comparability. To draw comparative conclusions in cross-cultural research, measurement instruments must provide equivalent measurements across groups under study. Equivalent measurement is obtained when the relations between observed scores and latent constructs do not differ across groups under study (Drasgow and Kanfer 1985). In this analysis, structural equation modeling was used because it is considered very useful in cross-cultural research (Seror 1988) and has been previously used to assess measurement equivalence

TABLE 5 Total Effects Among Constructs, and Decomposition of Effects of Environment and Organization on Intrapreneurship Dimensions and on Performance Indicators

Dependent Variable	Sample	Coefficient	TOTAL EFFECTS			Error	R-squared
			Environment	Antecedents			
				Organization	Intrapreneurship		
Organization	Slovenia	Unstandardized	+0.50			+0.95	0.10
	United States	Standardized	+0.32				
Intrapreneurship	Slovenia	Unstandardized	+0.16			+1.00	0.00
		Standardized	+0.89	+0.72		+0.49	0.76
	United States	Unstandardized	+0.57	+0.70			
	United States	Standardized	+0.96	+0.23			
Growth	Slovenia	Unstandardized	+0.66	+0.51		+0.56	0.69
		Standardized	+0.54	+0.44	+0.61		
	United States	Unstandardized	+0.30	+0.38	+0.53	+0.85	0.28
Profitability	Slovenia	Unstandardized	+1.15	+0.27	+1.20	+0.92	0.15
		Standardized	+0.25	+0.20	+0.38		
	United States	Unstandardized	+0.41	+0.33	+0.46	+0.94	0.12
	United States	Standardized	+0.19	+0.24	+0.34		
		Unstandardized	-0.02	-0.01	-0.02	+1.00	0.00
		Standardized	-0.01	-0.00	-0.01		

(continued)

TABLE 5 continued.

		DECOMPOSITION OF EFFECTS			
Dependent Variable	Sample	Coefficient	Antecedents		
			Environment	Organization	Intrapreneurship
New business venturing	Slovenia	Unstandardized	+0.89	+0.72	
	United States	Standardized	+0.40	+0.49	
Innovativeness	Slovenia	Unstandardized	+0.96	+0.23	
		Standardized	+0.27	+0.21	
	United States	Unstandardized	+0.95	+0.77	
		Standardized	+0.41	+0.51	
Self-renewal	Slovenia	Unstandardized	+2.25	+0.53	
		Standardized	+0.51	+0.40	
	United States	Unstandardized	+0.97	+0.78	
		Standardized	+0.46	+0.56	
Proactiveness	Slovenia	Unstandardized	+1.52	+0.36	
		Standardized	+0.39	+0.30	
	United States	Unstandardized	+0.84	+0.68	
		Standardized	+0.37	+0.46	
Absolute growth	Slovenia	Unstandardized	+1.06	+0.25	
		Standardized	+0.22	+0.17	
	United States	Unstandardized	+0.54	+0.44	+0.61
		Standardized	+0.22	+0.28	+0.39
Relative growth	Slovenia	Unstandardized	+1.15	+0.27	+1.20
		Standardized	+0.19	+0.15	+0.29
	United States	Unstandardized	+0.69	+0.56	+0.77
		Standardized	+0.24	+0.30	+0.42
Return on sales	Slovenia	Unstandardized	+0.79	+0.19	+0.82
		Standardized	+0.12	+0.10	+0.19
	United States	Unstandardized	+0.41	+0.33	+0.46
		Standardized	+0.15	+0.19	+0.27
	United States	Unstandardized	-0.02	-0.01	-0.02
		Standardized	-0.00	-0.00	-0.01

(continued)

TABLE 5 continued.

Dependent Variable	Sample	Coefficient	Antecedents		
			Environment	Organization	Intrapreneurship
Return on assets	Slovenia	Unstandardized	+0.42	+0.34	+0.46
	United States	Standardized	+0.18	+0.23	+0.32
Return on equity	United States	Unstandardized	-0.03	-0.01	-0.03
		Standardized	-0.01	-0.00	-0.01
	Slovenia	Unstandardized	+0.45	+0.36	+0.50
	United States	Standardized	+0.17	+0.22	+0.31
Relative profitability	United States	Unstandardized	-0.02	-0.01	-0.02
		Standardized	-0.00	-0.00	-0.01
	Slovenia	Unstandardized	+0.29	+0.24	+0.33
	United States	Standardized	+0.12	+0.15	+0.21
	United States	Unstandardized	-0.01	-0.00	-0.01
	United States	Standardized	-0.00	-0.00	-0.00

Note: Significant coefficients at 0.05 (one-tailed) in bold.

(Drasgow and Kanfer 1985; Mullen 1995; Singh 1995). Items that did not differ significantly between the two samples in terms of coefficients were considered as etic (generalizable), whereas other items were considered as emic (country specific) and were removed from further analysis. Convergence and divergence of dimensions of each construct was checked by assessing the fit of confirmatory factor models and variance extracted and shared among dimensions in path models. For path models the number of items was reduced by using parcels. Parcels were used to increase parsimony of models especially because the U.S. sample was small and therefore had a rather low number of observations per parameter. This analysis resulted in cross-culturally comparable scales.

Finally, the intrapreneurship model was estimated and re-estimated as a path model (structural equations model) by using EQS. The ERLS (Elliptical Reweighted Least Squares) estimation method was used because it makes adjustments for skewness and kurtosis found in the data. Because the primary goal was to estimate relationships among constructs and to increase the estimation model parsimony, a partial aggregation model (Bagozzi and Edwards, forthcoming) was chosen. Each dimension was represented in the model with a variable that was calculated as an average of etic dimension items for each sample separately. For example, for the formal control dimension of the organization construct, one item (parcel) was calculated as an average of all six items. Finally, relationships among constructs (coefficients of the model) were compared between the two samples by using multi-group path analysis, as proposed by Singh (1995) and Janssens et al. (1995).

FINDINGS

The findings will be discussed in terms of the intrapreneurship construct and the intrapreneurship model.

The Intrapreneurship Construct

The intrapreneurship dimension scales were refined by considering cross-cultural comparability through exploratory and confirmatory factor analysis. The results in the form of retained and excluded intrapreneurship items are indicated in Table 3. Information on each intrapreneurship dimension's internal consistency (Cronbach alpha reliability) and convergence (model goodness-of-fit indices⁵) are indicated in Table 2. The resulting cross-culturally comparable business-venturing scale showed good reliability (Cronbach alpha 0.83) and convergence in terms of coefficients (all positive, high, and significant), and most model fit indices (NFI, NNFI, and CFI over the threshold of 0.90; low residuals: SRMR below the threshold of 0.05, but somewhat high errors: RMSEA over the threshold of 0.05) for the Slovenian sample. For the U.S. sample, results of the confirmatory factor model were quite good, but the reliability coefficient was rather low (0.51). Second, for the innovativeness dimension only items related to product innova-

⁵ Indices with which fit of structural equation models has been measured have no single test of significance (Schumacker and Lomax 1996). Usually multiple indices are considered to assess the model fit. Chi-square test was not considered in this study because it is sensitive to sample size (Bentler and Bonett 1980). Five other fit indices are reported: NFI (normed fit index), NNFI (non-normed fit index), CFI (comparative fit index), SRMR (standardized root-mean-square residual), and RMSEA (root-mean-square error of approximation). NFI, NNFI, and CFI are not sensitive to sample size (Bentler 1990). Values of these indices that are close to 0.90 or over indicate a good model fit (Hair et al. 1995). For RMSEA, values less than 0.05 indicate a good model fit (Schumacker and Lomax 1996). For SRMR the same level as for RMSEA was used.

tion were retained. While it was surprising that the technological innovation items were excluded in the exploratory factor analysis, these items did not fit the innovativeness dimension. This was probably not a result of the inclusion of nonmanufacturing firms in the samples, because the exclusion holds when each of the groups is analyzed separately. To determine if the items fit together as a separate dimension, a five-factor analysis was run. The results indicated that the items were split across different dimensions and did not form a single new dimension. The resulting innovativeness scale is good for both samples in terms of reliability [over 0.70 threshold (Hair et al. 1995)] and in terms of model-related indices (coefficients, NFI, NNFI, CFI, SRMR), except the residuals were slightly high (over 0.05) for the U.S. sample, and errors were somewhat high (over 0.05) for both samples. Third, the resulting cross-culturally comparable self-renewal scale showed good reliability (over 0.70) for both samples, but moderately good convergence for the Slovenian sample (good coefficients—positive, high, and significant), high (over 0.90) NFI, NNFI, CFI, somewhat high residuals: SRMR (0.07) over 0.05, and high errors: RMSEA (0.15) well over 0.05), and not good convergence for the U.S. sample [good coefficients, but moderate (around 0.80) NFI, NNFI, CFI, to high residuals: SRMR (0.12) well over 0.05, and high errors: RMSEA (0.14) well over 0.05]. Fourth, the resulting cross-culturally comparable proactiveness scale had moderately good reliability (Cronbach alpha around 0.70) for both samples, good convergence for the Slovenian sample [good coefficients, high (over 0.90) NFI, NNFI, CFI, low residuals: SRMR (0.02) below 0.05, and low errors: RMSEA (0.02) below 0.05], and moderately good convergence for the U.S. sample [good coefficients, high (over or equal to 0.90) NFI, NNFI, CFI, acceptably low SRMR (0.047) below 0.05, but RMSEA (0.14) well over 0.05].

The intrapreneurship dimensions were tested for convergent and discriminant validity together in the intrapreneurship construct model where dimensions are correlated. For the Slovenian sample the model showed a very good fit (NFI 0.98; NNFI 1.00; CFI 1.00; SRMR 0.04; RMSEA 0.00), whereas for the U.S. sample the fit was moderate [NFI 0.82; NNFI 0.93; CFI 0.95; but somewhat to high SRMR (0.10) and RMSEA (0.08)]. In addition, the variance extracted is over the threshold of 0.50 (Hair et al. 1995), except for proactiveness in the Slovenian sample and new business venturing for the U.S. sample (see Table 2). Overall, the model fit indices, the extracted variance, and the correlations⁶ indicate convergent validity. There is also evidence of discriminant validity, because the extracted variance for each dimension is higher than the variance shared with other dimensions for both samples. In addition, to point out the non-unidimensionality of the intrapreneurship construct, the model was compared with only one common (intrapreneurship) factor to a model that includes both the common factor as well as dimension factors. These two models are nested, which allows for statistical comparison. For both samples the impact of added dimensions was found to be significant at 0.001 [Chi-square 354.8 (30 df) for the Slovenian sample, and 115.6 (30 df) for

⁶ Correlations among the dimensions for the Slovenian sample ranged from 0.52 to 0.72, showing convergence but not redundancy of the dimensions. For the U.S. sample, correlations among the dimensions were in the 0.32 to 0.55 range except between new business venturing and proactiveness (correlation 0.06), which shows a great deal of distinctiveness between the two dimensions, and between new business venturing and self-renewal (correlation 0.82), which points to some redundancy in the two dimensions. However, the correlation between self-renewal and proactiveness was moderate (0.32). This different relation of new business venturing and self-renewal to proactiveness is an indication that the two dimensions can be considered distinct and nonredundant.

the U.S. sample]. This indicates that dimensions do make a difference and the intrapreneurship construct can be seen as multidimensional.

The results indicate that the refined intrapreneurship construct is composed of cross-culturally comparable dimensions with moderately good inter-dimensional convergence. Good convergent validity was found for the Slovenian sample, moderately good convergent validity for the U.S. sample, and moderately good differential validity for both samples. Overall there is moderately good cross-culturally generalizable convergent and discriminant validity.

The Intrapreneurship Model

By using structural equation modeling, the relationships of constructs in the intrapreneurship model and the intrapreneurship construct's nomological validity were assessed. For model estimation and modification, the Slovenian sample was used as the analysis sample and the U.S. sample was used as the validation sample. When the model was initially estimated with the Slovenian sample, an important relationship that was not included in the initial model was discovered. Lagrange Multiplier Test in EQS (Bentler and Wu 1998) showed that a relation between organization and environment, when included into the model, would significantly increase the model fit. Such a relationship is in accordance with the population ecology theory (Hannan and Freeman 1977), where the environment plays a paramount role in the selection and adaptation of firms, and with institutional theory (for example, DiMaggio and Powell 1983), wherein specific environments organizations tend to become more isomorphic. The impact of the environment on the organization can be theoretically grounded; therefore, this path was added to the initial model.

The final model is depicted in Figure 2. When the model was estimated with the Slovenian sample it showed a moderately good fit (NFI 0.88; NNFI 0.94; CFI 0.95; SRMR 0.08; RMSEA 0.06), whereas for the U.S. sample the fit was poorer (NFI 0.53; NNFI 0.79; CFI 0.82; SRMR 0.12; RMSEA 0.08). There are two main reasons for the poorer fit of the model on the U.S. sample. First, the sample is small and the number of observations per estimated parameter is very low. Second, two main relationships in the model (environment–organization, and intrapreneurship–profitability) are not significant and are close to zero.

When testing the hypotheses postulated as indicated in Figure 2, organizational characteristics (communication, formal controls, environmental scanning, organizational support, competition-related values, and person-related values) were found to be highly, positively, and significantly related to intrapreneurship in Slovenia (coefficient 0.72, standardized coefficient 0.70) as well as in the United States (coef. 0.23, stan. coef. 0.51). Therefore, the overall Hypothesis 1 was supported for both countries. Results of tests of sub-hypotheses 1A to 1F are shown in Table 4. In partial support of Hypothesis 1A, communication amount and quality was found to be positively and significantly related to intrapreneurship in Slovenia (coef. 0.17, stan. coef. 0.26) but not in the United States (coef. close to zero). In partial support of Hypothesis 1B, formal controls were found to be positively, but weakly, related to intrapreneurship in Slovenia (coef. 0.05), and this relation was positive and significant in the United States (coef. 0.12). Support for Hypothesis 1C (impact of environmental scanning intensity on intrapreneurship) was very weak, because coefficients were positive but not significant in both countries. In full support of Hypothesis 1D, organizational support was found to

be positively and significantly related to intrapreneurship in Slovenia (coef. 0.19) and in the United States (coef. 0.23). In partial support of Hypothesis 1E, competition-related values were found to be positively and significantly related to intrapreneurship in Slovenia (coef. 0.28) but not in the United States (coef. close to zero). Finally, Hypothesis 1F was not supported, because the relationship between person-related values was found to be negative in Slovenia (coef. 0.11) and close to zero in the United States.

Environmental characteristics (dynamism, technological opportunities, industry growth, demand for new products, and favorability of change) were also found to be highly, positively, and significantly directly related to intrapreneurship in Slovenia (coef. 0.53) and in the United States (coef. 0.92). Thus, the overall Hypothesis 2 was supported for both countries. Sub-hypotheses were partially supported. Support for Hypothesis 2A (impact of dynamism on intrapreneurship) was weak because coefficients were positive but not significant in Slovenia (coef. 0.09) and in the United States (coef. 0.03). In partial support of Hypothesis 2B, technological opportunities were found to be positively and significantly related to intrapreneurship in Slovenia (coef. 0.14), and this association was positive but not significant in the United States (coef. 0.08). Hypothesis 2C was not supported with the relationship between industry growth, and intrapreneurship was found to be close to zero in both countries. In partial support of Hypothesis 2D, demand for new products was found to be positively and significantly related to intrapreneurship in Slovenia (coef. 0.10) and positive but not significant in the United States (coef. 0.08). Hypothesis 2E was not supported, because the relationship between industry growth and intrapreneurship was found to be close to zero in both countries. Overall, organizational and environmental characteristics explained a substantial part of variance in intrapreneurship (66% in Slovenia and 68% in the United States).

Finally, intrapreneurship was expected to be positively associated with performance in terms of growth and profitability (Hypothesis 3). Intrapreneurship was found to be highly, positively, and significantly related to both growth (coef. 0.61) and profitability (coef. 0.46) in Slovenia, but only to growth (coef. 1.20) in the United States. The intrapreneurship–profitability relationship in the United States was not significant and close to zero (coef. 0.02). Hypothesis 3 was supported for Slovenia and partially supported for the United States. The hypotheses concerning relationships among intrapreneurship and its antecedents and consequences were mostly supported across both samples indicating that the refined intrapreneurship construct is valid in terms of nomological validity and generalizability across cultures.

The intrapreneurship antecedents also have differential importance in different countries. The environmental characteristics were found to have a strong direct (as well as indirect through organization) effect on intrapreneurship in Slovenia. As indicated in Table 5, the total effects of the environment (stan. coef. 0.57) are relatively less important for intrapreneurship than is the organization (stan. coef. 0.70). The situation in the United States is the opposite. The environment, even though having only minimal indirect effect through the organization, is more important (stan. coef. 0.66) for intrapreneurship than is the organization. Multi-group path analysis indicated that the impact of the environment on intrapreneurship is significantly higher in the United States than in Slovenia. There is also a relatively stronger impact of intrapreneurship on growth than on profitability in both countries. Finally, the effects of environment and organization on intrapreneurship dimensions followed similar patterns as the effects on the intrapreneurship construct, except that they were somewhat lower on proactiveness than on the other dimensions in the U.S. (see Table 5). The impact of intrapreneurship on

absolute growth in terms of growth of sales and number of employees was somewhat higher (stan. coef. 0.29 and significant) than on relative growth in terms of growth in comparison to competitors (stan. coef. 0.19 and not significant) in the United States.

To assess the influence of control variables, a control model was developed with organizational age and size included in the final model as predictors of the organizational characteristics construct. The final model can be seen as nested in the control model. The addition of the two variables was significant for the Slovenian sample (Chi-square 71.9, significant at 0.05) but not for the U.S. sample (Chi-square 43.1, not significant). In both samples, all direct and indirect effects of the two control variables were small and nonsignificant. Therefore, organizational age and size did not have any meaningful influences on the model. The influence of the other two control variables was also checked. To assess the impact of strategy, the two samples were combined, and the combined sample was split into the growth strategy group (internal and acquisitive growth; $N = 83$) vs. nongrowth strategy group (stability and retrenchment strategy; $N = 101$). The coefficients among the constructs of the control model were compared between the two groups using multi-group path analysis. No statistical differences in coefficients were found between the two strategy groups. The same procedure was used to assess the impact of industry, where the combined sample was split into manufacturing/construction group ($N = 122$) vs. service/trade group ($N = 59$). No statistical differences in coefficients were found between the two industry groups, with the exception of the relationship between environment and organization, which was positive and significant for the manufacturing/construction group but was zero for the service/trade group. Because this relationship was not part of the initial model and had minor influence on the relationships among intrapreneurship and its antecedents and consequences, it was determined that strategy and industry had no meaningful influences in the model.

CONCLUSIONS

The refined intrapreneurship construct of four dimensions (new business venturing, innovativeness, self-renewal, and proactiveness) showed moderately good convergent and good discriminant validity across the two samples (Slovenia and the United States). The intrapreneurship model had a moderately good fit. The three main hypotheses about relationships among intrapreneurship and its antecedents (organization and environment) and its consequences (growth and profitability) were mostly supported. Hypothesis 1 (positive association between organizational characteristics and intrapreneurship) and Hypothesis 2 (positive association between environmental characteristics and intrapreneurship) were supported for both samples, whereas some of the sub-hypotheses were only partially supported. Hypothesis 3 (positive association between intrapreneurship and performance in terms of growth and profitability) was supported for Slovenia and partially supported for the United States, where no association between intrapreneurship and profitability was found. Control variables (firm age, size, overall strategy, and industry) did not have any meaningful influence in the model. Overall, the intrapreneurship construct showed acceptable convergent, discriminant, and nomological validity, as well as external validity in terms of comparability across the two samples.

Implications for Research and Theory

Results of this study can be generalized to some extent because the two samples are from two very diverse and contrasting economies—the United States as representative of a leading developed economy and Slovenia as representative of a transition economy from Central and Eastern Europe. The samples were comparable in terms of firm size, age, and industry. Generalizability of the findings from this study is not limited to large corporations but is also relevant for smaller firms. This study did not incorporate very small firms (fewer than 50 employees) and newer firms because it dealt with intrapreneurship in established organizations. It included a wide variety of industries but not financial institutions, educational institutions, and health care organizations. The results of this study should be considered with some caution due to the sample sizes. Structural equation modeling usually requires sample sizes from 100 to 200. The U.S. sample that was used for the analysis was rather small ($N = 51$). Because for such small samples there can be a problem of power or a problem of high errors in terms of RMSEA (MacCallum et al. 1996), the results based on the U.S. sample should be interpreted with caution. Because the U.S. sample was used for validation, the issue of sample size is of much less importance than in the Slovenian sample, which was used for the analysis. Most current studies were conducted in the context of the United States or developed countries; therefore, the results based on the Slovenian sample provide strong evidence of cross-cultural comparability of the intrapreneurship construct and model. Because this study developed cross-culturally comparable constructs for use in entrepreneurship research, future research should use these in different countries.

An important aspect of this study is the refined multidimensional measure of intrapreneurship that includes only cross-culturally equivalent (etic) items. By successfully integrating two previously used measures of intrapreneurship (the ENTRESALE and the corporate entrepreneurship scale), the redundancy in the intrapreneurship construct was reduced, and a more parsimonious measure of intrapreneurship was developed. The new measure includes scales for four dimensions (new business venturing, innovativeness, self-renewal, and proactiveness). These new scales can still be improved. For example, the innovativeness dimension scale in this study is limited mostly to product innovation, because items related to technological innovation were excluded. In future research, incorporating other aspects of innovation can further refine this scale. Technological innovation items were excluded in the exploratory factor analysis. Their exclusion from our model does not mean that the items are bad or that they do not pertain to intrapreneurship, but rather that in our data they did not hold together with product innovativeness items or as a separate dimension. In past research (Zahra 1993) technological innovation was seen as a facet of innovativeness but was not tested for dimensionality. In future research, differential effects of the intrapreneurship dimensions on performance should be further explored, even though they are not found in this study.

While this study showed strong support for the positive impact of organizational and environmental characteristics on intrapreneurship, the environmental hostility had an influence that was opposite of expectations, and there was a problem with the measurement of one dimension. First, unfavorability of change was included as a negative rather than a positive influence on intrapreneurship because of its negative relationship to environmental munificence dimensions. A negative, rather than positive, relationship to intrapreneurship was supported by the results in the intrapreneurship model. Second,

the scale for competitive rivalry (Zahra 1993) was excluded from the model because it was not cross-culturally comparable. There are two possible explanations for why this scale may not be good for cross-cultural comparisons: (1) it may be outdated because of the increased importance of global competition, or (2) it may simply be a country-specific scale because of differences of importance of domestic versus international competition. Slovenia has such a small domestic market and its industrial structure is such that, in general, there are very few domestic competitors, whereas the pressure from foreign competitors is very strong. On the other hand, for the U.S., foreign and domestic competitors are both important. In future cross-cultural research it may be useful to assess competitive rivalry without regard to it being domestic or foreign.

Absolute as well as relative indicators of growth and profitability were used in this study for assessing performance, with the positive impact of intrapreneurship on growth being strongly supported. However, the impact on profitability was not found in the United States. One reason for this may be that in the United States profitability has lost its relative importance in comparison to other measures of performance reflected in its regression to the mean (Meyer and Gupta 1994). In other words, profitability may have become such an important measure of performance for U.S. firms that it can no longer differentiate successful from unsuccessful firms. If this is the case, new measures of performance are needed for the performance-based differentiation of firms in future research. Another reason may be that firms in the United States 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.

Implications for Practice

Intrapreneurship is an important predictor of a firm's growth, in absolute (growth in number of employees and in total sales) as well as in relative terms (in comparison to competition in terms of market share growth). Firms that nurture organizational structures and values conducive to intrapreneurial activities and have intrapreneurial orientations are more likely to grow than organizations that are low in such characteristics. Open and quality communication, existence of formal controls, intensive environmental scanning, management support, organizational support, and values help an organization become more intrapreneurial. Intrapreneurial organizations engage in new business venturing, are innovative, continuously renew themselves, and are proactive. In transition economies moving towards the more developed economies' standards of doing business where growth is yet the primary goal, intrapreneurship can be particularly critical for profitability and survival.

REFERENCES

- Armstrong, J.S., and Overton, T.S. 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* 14(August):396-402.
- Badguerahanian, L., and Abetti, P.A. 1995. The rise and fall of the Merin-Gerin Foundry business: A case study in French corporate entrepreneurship. *Journal of Business Venturing* 10(6):477-493.
- Bagozzi, R.P., and Edwards, J.R. (forthcoming). A general approach for representing constructs in organizational research. In *Organizational Research Methods* Vol. 1.

- Bentler, P.M. 1990. Comparative fit indexes in structural models. *Psychological Bulletin* 107(2): 238–246.
- Bentler, P.M., and Bonett, D.G. 1980. Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* 88(3):588–606.
- Bentler, P.M., and Wu, E.J.C. 1998. *EQS for Windows 5.7*. Encino, CA: Multivariate Software, Inc.
- Brislin, R.W. 1976. Comparative research methodology: Cross-cultural studies. *International Journal of Psychology* 11(3):215–229.
- Brislin, R.W. 1980. Introduction. In H.C. Triandis and R.W. Brislin, eds., *Handbook of Cross-cultural Psychology, Vol. 5, Social Psychology*. Boston, MA: Allyn and Bacon.
- Burgelman, R.A. 1983. Corporate entrepreneurship and strategic management: Insights from a process study. *Management Science* 29(12):1349–1364.
- Burgelman, R.A. 1985. Managing the new venture division: Research findings and implications for strategic management. *Strategic Management Journal* 6(1):39–54.
- Carrier, C. 1994. Intrapreneurship in large firms and SMEs: A comparative study. *International Small Business Journal* 12(3):54–61.
- Chandler, G.N., and Hanks, S.H. 1993. Measuring the performance of emerging businesses: A validation study. *Journal of Business Venturing* 8(5):391–408.
- Churchill, N.C. 1992. Research issues in entrepreneurship. In D.L. Sexton and J.D. Kasarda, eds., *The State of the Art of Entrepreneurship*. Boston, MA: PWS-KENT.
- Covin, J.G. 1991. Entrepreneurial vs. conservative firms: A comparison of strategies and performance. *Journal of Management Studies*:25(5):439–462.
- Covin, J.G., and Slevin, D.P. 1986. The development and testing of an organizational-level entrepreneurship scale. In R. Ronstadt et al., eds., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- Covin, J.G., and Slevin, D.P. 1989. Strategic management of small firms in hostile and benign environments. *Strategic Management Journal* 10(January):75–87.
- Covin, J.G., and Slevin, D.P. 1991. A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice* 16(1):7–25.
- Dess G.G., Lumpkin, G.T., and Covin, J.G. 1997. Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal* 18(9):677–695.
- DiMaggio, P.J., and Powell W.W. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review* 48(April): 147–160.
- Drasgow, F., and Kanfer, R. 1985. Equivalence of psychological measurement in heterogeneous populations. *Journal of Applied Psychology* 70(4):662–680.
- Drucker, P.F. 1985. *Innovation and Entrepreneurship*. New York, NY: Harper & Row.
- Earley, P.C., and Singh H. 1995. International and intercultural management research. *Academy of Management Journal* 38(2):327–340.
- Fast, N.D., and Pratt S.E. 1981. Individual entrepreneurship and the large corporation. In K.H. Vesper, ed., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- Floyd, F.J., and Widaman, K.F. 1995. Factor analysis and the development and refinement of clinical assessment instruments. *Psychological Assessment* 7(3):286–299.
- Guth, W.D., and Ginsberg, A. 1990. Guest editors' introduction: Corporate entrepreneurship. *Strategic Management Journal* 11:5–15.
- Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C. 1995. *Multivariate Data Analysis* (4th Ed). Englewood Cliffs, NJ: Prentice Hall.
- Hannan, M.T., and Freeman J. 1977. The population ecology of organizations. *American Journal of Sociology* 82(5):929–964.
- Hills, G., and LaForge, R. 1992. Research at the marketing interface to advance entrepreneurship theory. *Entrepreneurship Theory and Practice* 16(Spring):33–59.

- Hisrich, R.D., and Peters, M.P. 1984. Internal venturing in large corporations. In J.A. Hornaday et al., eds., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- Hisrich, R.D., and Peters, M.P. 1998. *Entrepreneurship: Starting, Developing, and Managing a New Enterprise* (4th Ed.). Chicago, IL: Irwin.
- Hitt, M.A., Ireland, R.D., and Palia, K.A. 1982. Industrial firms' grand strategy and functional importance: Moderating effects of technology and uncertainty. *Academy of Management Journal* 25(2):265–298.
- Hobson, E.L., and Morrison, R.M. 1983. How do corporate start-up ventures fare? In J.A. Hornaday, J.A. Timmons, and K.H. Vesper, eds., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- Hornsby, J.S., Naffziger, D.W., Kuratko, D.F., and Montagno, R.V. 1990. Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment. *Strategic Management Journal* 11:49–58.
- Hornsby, J.S., Naffziger, D.W., Kuratko, D.F., and Montagno, R.V. 1993. An interactive model of the corporate entrepreneurship process. *Entrepreneurship: Theory and Practice* 17(2): 29–37.
- Janssens, M., Brett, J.M., and Smith, F.J. 1995. Confirmatory cross-cultural research: Testing the viability of a corporation-wide safety policy. *Academy of Management Journal* 38(2): 364–382.
- Jones, G.R., and Butler, J.E. 1992. Managing internal corporate entrepreneurship: An agency theory perspective. *Journal of Management*:18(4):733–749.
- Kanter, R.M. 1984. *The Change Masters*. New York, NY: Touchstone, Simon & Schuster.
- Kanter, R.M. 1989. *When Giants Learn to Dance*. New York, NY: Simon & Schuster.
- Kanter, R.M., and Richardson, L. 1991. Engines of progress: Designing and running entrepreneurial vehicles in established companies—The Enter-prize program at Ohio Bell, 1985–1990. *Journal of Business Venturing* 6(3):209–229.
- Khandwalla, P.N. 1977. *The Design of Organizations*. New York, NY: Harcourt Brace Jovanovich.
- Khandwalla, P.N. 1987. Generators of pioneering-innovative management: Some Indian evidence. *Organization Studies* 8(1):39–59.
- Knight, G.A. 1997. Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation. *Journal of Business Venturing* 12(3):213–225.
- Kuratko, D.F., Hornsby, J.S., Naffziger, D.W., and Montagno, R.V. 1993. Implement entrepreneurial thinking in established organizations. *SAM Advanced Management Journal* 58 (1):28–33, 39.
- Luchsinger, V., and Bagby, D.R. 1987. Entrepreneurship and intrapreneurship. *SAM Advanced Management Journal* 52(3):10–13.
- Lumpkin, G.T., and Dess, G.G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review* 12(1):135–172.
- MacCallum, R.C., Browne, M.W., and Sugawara H.M. 1996. Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods* 1(2):130–149.
- MacMillan, I.C., Block, Z., and Narasimha, P.N.S. 1984. Obstacles and experience in corporate ventures. In J.A. Hornaday et al., eds., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- MacMillan, I.C. 1986. Progress in research on corporate venturing. In D.L. Sexton and R.W. Smilor, eds., *The Art and Science of Entrepreneurship*. Cambridge, MA: Ballinger Publishing Company.
- McKinney, G., and McKinney, M. 1989. Forget the corporate umbrella—Entrepreneurs shine in the rain. *Sloan Management Review* 30(4):77–82.
- Merrifield, D.B. 1993. Intrapreneurial corporate renewal. *Journal of Business Venturing* 8(5): 383–389.
- Meyer, M.W., and Gupta, V. 1994. The performance paradox. In B.M. Staw and L.L. Cummings, eds, *Research in Organizational Behavior, Vol. 16*. Greenwich, CT: JAI Press.

- Miles, M.P., and Arnold, D.R. 1991. The relationship between marketing orientation and entrepreneurial orientation. *Entrepreneurship Theory and Practice* 15(4):49–65.
- Miles, R.E., and Snow, C.C. 1978. *Organizational Strategy, Structure, and Process*. New York, NY: McGraw-Hill.
- Miller, D. 1983. The correlates of entrepreneurship in three types of firms. *Management Science* 29:770–791.
- Miller, D. 1987. Strategy making and structure: Analysis and implications for performance. *Academy of Management Journal* 30(1):7–32.
- Miller, D., and Friesen, P.H. 1978. Archetypes of strategy formulation. *Management Science* 24(9):921–933.
- Miller, D., and Friesen, P.H. 1983. Strategy-making and environment. *Strategic Management Journal* 4:221–235.
- Miller, D., and Friesen, P.H. 1984. *Organizations: A Quantum View*. Englewood Cliffs, NJ: Prentice-Hall.
- Mintzberg, H. 1973. Strategy making in three modes. *California Management Review* 16(2):44–83.
- Mullen, M.R. 1995. Diagnosing measurement equivalence in cross-national research. *Journal of International Business Studies* 26(3):573–596.
- Muzyka, D.F., de Koning, A.J., and Churchill, N.C. 1995. Entrepreneurial transformation: A descriptive theory. In W.D. Bygrave et al., eds., *Frontiers of Entrepreneurship Research*. Babson Park, MA: Center for Entrepreneurial Studies.
- Nasif, E.G., Al-Daeaj, H., Ebrahimi, B., and Thibodeaux, M.S. 1991. Methodological problems in cross-cultural research: An updated review. *Management International Review* 31(1):79–91.
- Peters, T.J., and Waterman R.H. 1982. *In Search of Excellence*. New York, NY: Harper & Row.
- Pinchot, G. III 1985. *Intrapreneuring*. New York, NY: Harper & Row.
- Reise, S.P., Widaman, K.F., and Pugh, R.H. 1993. Confirmatory factor analysis and item response theory: Two approaches for exploring measurement invariance. *Psychological Bulletin* 114(3):552–566.
- Rule, E.G., and Irwin D.W. 1988. Fostering intrapreneurship: The new competitive edge. *The Journal of Business Strategy* 9(3):44–47.
- Schollhammer, H. 1981. The efficacy of internal corporate entrepreneurship strategies. In K.H. Vesper, ed., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.
- Schollhammer, H. 1982. Internal corporate entrepreneurship. In C.A. Kent, D.L. Sexton, and K.H. Vesper, eds., *Encyclopedia of Entrepreneurship*. Englewood Cliffs, NJ: Prentice-Hall.
- Schumacker, R.E., and Lomax, R.G. 1996. *A Beginner's Guide to Structural Equation Modeling*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Sekaran, U. 1983. Methodological and theoretical issues and advancements in cross-cultural research. *Journal of International Business Studies* 14(2):61–73.
- Sekaran, U., and Martin, H.J. 1982. An examination of psychometric properties of some commonly researched variables in two cultures. *Journal of International Business Studies* 13(1):51–66.
- Seror, A.C. 1988. Cross-cultural organizational analysis: Research methods and the Aston program. *International Studies of Management and Organization* 18(3):31–43.
- Shepherd, W.G. 1990. *The Economics of Industrial Organization*. (3rd Ed). Englewood Cliffs, NJ: Prentice Hall.
- Singh, J. 1995. Measurement issues in cross-national research. *Journal of International Business Studies* 26(3):597–619.
- Souder, W.E. 1981. Encouraging entrepreneurship in the large corporations. *Research Management* 14(3):18–22.
- Stevenson, H.H., and Jarillo, J.C. 1990. A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal* 11:17–27.
- Stopford, J.M., and Baden-Fuller, C.W.F. 1994. Creating corporate entrepreneurship. *Strategic Management Journal* 15(7):521–536.

- Triandis, H.D. 1980. Introduction. In H.C. Triandis and W.W. Lambert, eds., *Handbook of Cross-cultural Psychology, Vol. 1, Perspectives*. Boston, MA: Allyn and Bacon.
- Venkatraman, N. 1989. The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of Management Review* 14(3):423-444.
- Vesper, K.H. 1984. Three faces of corporate entrepreneurship. In J.A. Hornaday et al., eds., *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.s
- Vesper, K.H. 1990. *New Venture Strategies (Rev. Ed.)*. Englewood Cliffs, NJ: Prentice-Hall.
- Zahra, S.A. 1991. Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. *Journal of Business Venturing* 6(4):259-285.
- Zahra, S.A. 1993. Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. *Journal of Business Venturing* 8(4):319-340.
- Zahra, S.A., and Covin, J.C. 1995. Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. *Journal of Business Venturing* 10(1):43-58.