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Internationalization of SMEs and Organizational Factors in Emerging Economies: High -Tech Industry of Iran¹

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Abstract

SMEs as an engine of growth play an important role in emerging economies for poverty reduction, the role which has attracted the attention of scholars in recent years. This study explores the effect of *firm characteristics, resources* and *top management team (TMT) characteristics* on the internationalization of SMEs. According to our conceptual model, we assumed that firm resources mediate the link between international performance of SMEs and characteristics of firms and of TMT. To test our model, we asked top managers of international SMEs in Iran ICT sector to fill in a questionnaire. The data was analyzed through structural equation modeling which leads us to codifying a causal model accordingly. The findings show a direct and indirect positive effect of TMT characteristics on internationalization of SMEs, however, it indicates that indirect effect of firm characteristics is not significant. Finally, a set of guidelines are proposed for internationalization of SMEs in emerging economies.

Keywords: Internationalization of SMEs, Emerging Economies, Top Management Team (TMT) Characteristics, Firm Resources, Firm Characteristics.

The manuscript of the current paper was stolen in 2011 and was illegally sent with the title of

"INTERNATIONALIZATION OF SMES AND ORGANIZATIONAL FACTORS IN A DEVELOPING

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COUNTRY: (A CASE STUDY OF ICT INDUSTRY IN PAKISTAN)" to Australian Journal of Business and management Research (AJBMR) for publication. As it was confirmed that it was an infringement of copyright after a series of legal actions, it was promptly removed from AJBMR's official website. Any further publication of the same content by anyone anywhere is plagiarism. We would like to thank the editorial team of AJBMR for their kind cooperation in removing the stolen manuscript from the journal (see the appendix).

2 Kambeiz Talebi & Mahdi Tajeddin contributed equally as first author

Introduction

Nowadays, radical changes in the business environment have led to a situation where small and medium-sized enterprises (SMEs) represent a sector of growing importance; They play a large and diverse role in the growth of emerging nations and advanced market economies especially in providing employment and driving economic development (Kula & Tatoglu, 2003; McNaughton, 2000). Moreover, integration into the global economy calls for the establishment of a competitive environment; besides, the best way to overcome poverty and inequality in emerging economies is moving toward the development of a private sector, in which SMEs play a central part (Hubner, 2000). It is necessary for SMEs in emerging economies to internationalize, particularly due to a trend that reduces direct subsidies and government protections (Etemad, 1999). Although, the Iranian government is striving to eliminate this gap and is developing centers to support SMEs, the steps taken have not yet come to fruition. Support for SMEs can certainly be translated into support for entrepreneurial activities.

Despite the above discussion, the article 44th of the Iranian constitution (the privatization and deregulation principle) and the government support for the non-oil sector oblige SMEs in Iran to accelerate their internationalization process in order to cope with the new business environment. However, there are a number of disadvantages inherently faced by SMEs in their transition to international environments (Chen & Huang, 2004).

Despite the fact that most empirical studies have focused on these factors, there is still insufficient knowledge about the internationalization of SMEs (Hohenthal et al., 2003) in emerging economies (Kuada & Sörensen 2000). In this paper, we will discuss strategic challenges faced by SMEs in Iran as they are forced to change due to international expansion. More specifically, the objective of this paper is to address the following questions: what are the organizational factors that facilitate internationalization of SMEs Iran? How these factors affect internationalization of SMEs? According to the literature, several major organizational factors are identified in internationalization process: firm variables, resources and TMT characteristics (Westhead et al. 2001; Karadeniz & Göc er, 2007). The aim of this study is to focus on exploring the effects of organizational factor on internationalization of SMEs to minimize the existing gap in the literature.Including the introduction, this paper has seven sections. The next section reviews the related literature, whereas the third section discusses hypotheses development. The fourth section provides research methodology and the fifth highlights results and analysis. Finally, the paper provides some general discussions and draws conclusions.

Literature Review

The term "internationalization" is ambiguous, and its definitions vary in the scope of phenomena they include (Welch and Luostarinen, 1988; Beamish, 1990). As an example, Calof and Beamish (1995) define internationalization as "the process of adapting firms' operations (strategy, structure, resource, etc) to international environments". Reviewing the literature indicates that numerous efforts are made to understand internationalization. Many theories have been presented, some of which have addressed the internationalization of SMEs, but a comprehensive 'theory of SME internationalization' is still out of reach. Hence, there is a growing awareness of the need to conduct extensive research on internationalization.

Studies on internationalization of SMEs were started by Uppsala University in order to describe the export behavior of SMEs (Olson & Wiedersheim-Paul, 1978; Wiedersheim-Paul et al., 1978). Then Oviatt and McDougall (1994) proposed a new theory of small business internationalization, which described the international new venture model. Another theory for internationalization of SMEs is the network theory, according to which the development of smaller firms depends on their relationships with others (Coviello & Munro, 1995), and is implemented in the area of international entrepreneurship research as well (Young et al., 2003). In this study, Johanson & Wiedersheim-Paul's (1975) definition of internationalization process is used, which includes four stages: no regular export activities, export via independent representatives (agents), sales subsidiary, and production/manufacturing.

A research is conducted to identify the effective factors on the internationalization of SMEs. For instance, Calof and Beamish (1995) found that changes in mediating variables (including resources, organization, strategy, and environment) influence the internationalization process. Determinants of a firm export behavior are discussed in two broad levels (Aaby & Slater, 1989; Ford & Leonidou, 1991): the external environment level (macro-economic, social, physical, cultural, and political aspects, as well as industry characteristics), and the firm level (the potential effect of the structural and behavioral aspects on exporting) (Leonidou & Katsikeas, 1996). This paper explores the following firm level variables which are mentioned in Zahra and George model (2002): Firm characteristics, Firm resources, and TMT characteristics.

Our model is tested in Iran ICT sector SMEs, in which there is great potential but insufficient knowledge of internationalization. Figure 1 indicates the first conceptual model of the effective organizational factors in the internationalization process of SMEs.

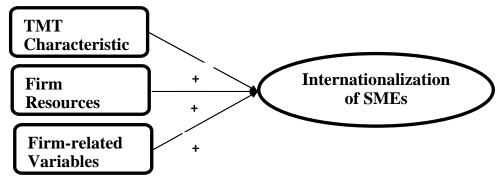


Figure 1.The First Conceptual Model Internationalizing of SMEs

of the Effective Organizational Factors

in

Hypotheses Development

In a very competitive environment, it is necessary to identify and understand factors that affect international performance (Kuivalainen et al., 2004). Therefore, in this section, we formulate some hypotheses on organizational factors to explain why some SMEs are more likely to export their goods or services abroad (Westhead et al., 2002). The effect of organizational factors on internationalization of SMEs was the area that attracted some attention in previous and primary studies (Westhead et al., 2002). Organizational factors refer to forces operating within the firm, affecting (both positively and negatively) its speed and the level of internationalization, such as TMT characteristics, firm-related variables and firm resources. The following section will develop hypotheses about linking various organizational factors to the level of firm internationalization. As it is shown in the next section, we divide these variables to intervening and independent variables.

Intervening Firm Resources and Internationalization of SMEs

SMEs often lack sufficient resources, capabilities, and market power of traditional multinational enterprises when they want to engage in internationalization (Kaufmann, 1995). For instance, Malecki and Veldhoen (1993) state that small firms are "most plagued by a holistic problem of inadequate expertise and skills at several levels- managerial, supervisory, production and employees" (Holmlund & Kock, 1998). Therefore, larger firms will have a greater ability to expand resources and absorb risks compared to smaller ones, and may have a higher bargaining power (Erramilli & Rao, 1993). Resource-based theory has implied to mention how SMEs obtain a differential advantage in international markets and has proposed different resource classifications. For example, Amit and Schoemaker (1993) suggest six main categories of resources: financial (size and type of capital), physical (location, plant, access to raw materials, transportation etc), human (personnel and management), technological (product and processrelated), reputation (image, brand, loyalty, trust, goodwill), and organizational resources (management systems). In this paper, we have divided internationalization resources into tangible and intangible. Tangible resources include: industrial quality (Holmlund & Kock, 1998), higher R and D to sales ratio (Burgel & Murray, 1998), higher ratio of employees who spend at least 50 percent of their time on new product development, financial and capital resources (Holmlund & Kock, 1998), received industry grants (Westhead et al., 2001), access to venture capital (Burgel & Murray 1998) and hardware resources such as machinery, buildings, equipment, raw materials, and transportation. On the other hand, intangible resources include: I. Reputation (image, brand, loyalty, trust, goodwill) (Zahra et al., 2000).

- II. Networking which includes extensive networks (Oviatt & McDougall, 1995), technological networks (Zahra et al., 2000), relationship with research institutions, universities and various expert organizations, and social networks.
- III. Software resources including knowledge about exiting technology, manufacturing process, machinery, marketing, buyers and suppliers (Holmlund & Kock 1998), and Personnel resources

Hence the study gauges firm resource with regards to the intangible and tangible resources of firm. Firm resources variable has an intervening role on internationalization of SMEs for independent variables (TMT characteristics and firm-related variables), and this study elaborates on this role and attempts to affect internationalization of SMEs.

Independent Variables

TMT Characteristics and Internationalization of SMEs

Researchers have invariably considered TMT as the principal force behind the start-up, development, maintenance and success of SMEs' internationalization (Westhead et al. 2002; Lindsay et al., 2003) because of the direct responsibility and involvement in decision making of the firm (Miesenbock, 1988), and TMT role in the expansion of firm' resources which they have caused. We mention both direct and indirect effects of TMT on internationalization of SMEs, elaborated in the following. Hutchinson et al (2006) have pointed to two objective and subjective characteristics of management as effective factors on SME internationalization. As a result, we account for objective and subjective characteristics as main characteristics of TMT in this study.

Objective characteristics, as mentioned in the first hypothesis, consists of diverse management know-how (Westhead et al., 2002), the number of languages spoken by the management, whether the decision maker was born, lived, or worked abroad (Bijmolt & Zwart, 1994; Reuber & Fischer, 1997), foreign work experience (Burgel & Murray, 1998), overseas education (Burgel & Murray, 1998) and managerial parental backgrounds (Westhead et al., 2001), and ability to form formal and informal networks (the personal contacts of managers in certain foreign markets). All of these factors have positive effect on internationalization. In other words, internationalization of SMEs require appropriate resources such as acquisition of new managerial talent experienced in international business or receiving assistance from consulting companies that can offer such expertise (Mughan et al., 2004). In fact, these objective characteristics of TMT help to access and expand knowledge and experience that were absent within the firm (Rutashobya & Jaensson, 2004). Hence:

H1: TMT characteristics through firm resources have a positive effect on internationalization of SMEs.

Subjective characteristics, as mentioned in the second hypothesis, are comprised of high perception of export advantages and low perception of export barriers (Calof & Beamish, 1995; Rundh, 2003), the personality characteristics of the owner-manager such as creativeness, innovation, risk-taking and proactiveness. These are the qualities that can enable successful development of the firm abroad despite resource deficiency (Fillis, 2001) and lack of a global vision (Oviatt & McDougall, 1995). In fact, these characteristics have an important and direct role on internationalization of SMEs. Hence:

H2: TMT characteristics have a positive effect on internationalization of SMEs.

Firm-related Variables and Internationalization of SMEs

Researchers have also examined the effects of several firm-related variables such as age, size, location, and origin on SMEs' internationalization. First of all, we focus on their relationships with firm-related variables, and then the role of these variables in internationalization will be discussed.

Researchers discuss that these variables, firm size, firm age and firm location, affect the internationalization of SMEs. Obviously, firm-related variable improvement leads to the reinforcement of firm resources. In other words, firm-related variables through firm resources affect internationalization of SMEs.

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The size is the first firm-related variable, and the most important measure for size is the number of full-time employees (which is positively related to its exportation capabilities) (Katsikeas, 1994; Bonaccorsi, 1992; Karadeniz & Göc¸er, 2007). Indeed, the firm size shows available resources which collect different types of export information which can increase the possibility of internationalization (Bonaccorsi, 1992).

Firm age is another variable that has been studied. Based on the Uppsala model, firms will gradually increase their foreign market commitments as they gain knowledge and experience in such markets (Johanson & Vahlne, 1990). The gradual acquisition of knowledge about foreign markets, cultures, languages, and distribution systems reduces the perceived risk of performing business in these markets and motivates SME to follow internationalization. Researchers have pointed out the positive correlation between the firm age and internationalization (Zahra et al., 2002; Burgel & Murray, 1998) particularly in SME domain. However, some researchers argue that knowledge-based firms are born globally (Knight & Cavusgil, 1996), and younger firms are most likely to become exporting firms (Autio et al., 2000). Nevertheless, Iran's ICT industry as our sample is a young industry with SMEs not generally born and though their entry into international environment will take a long time. Hence, the age of a firm may be an important factor in explaining the internationalization of small firms.

The third variable is firm location. Firms which are located in high-facility regions solely seek customers in growing domestic markets (Keeble et al., 1992). However, this variable does not have the same role in the present study since all of our case studies are located in urban areas and big cities. It follows that firm-related variables enable firms to acquire export-related information and use export information sources. Overall, these resources will develop tangible and intangible resources resulting in the development of export and internationalization. Hence:

H3: Firm-related variables through firm resources have a positive effect on internationalization of SMEs.

The Conceptual Model

The previously discussed relationships may be investigated by specifying an appropriate path analysis model (Bollen, 1989) as depicted in Figure 2 (modification of Figure 1 based on the new relationships discussed above). It should be pointed out that all the variables in Figure 2 are considered as latent (non-observable) variables throughout this study.

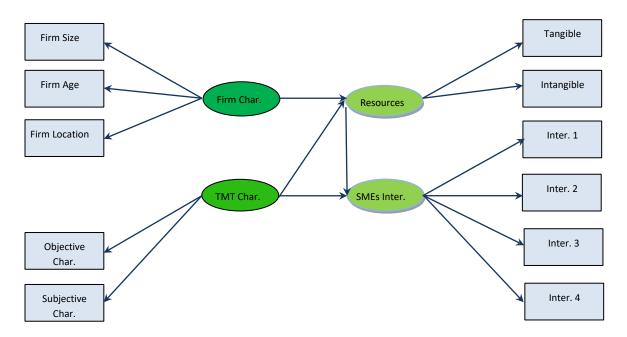


Figure 2. Conceptual Model of the Effective Organizational Factors on Internationalization of SMEs

Methodology

The Sample

The empirical evidence presented in this paper is part of a larger research project on the internationalization of SMEs in ICT industry. To test the hypothesized model, a questionnaire was mailed to the top management team of SMEs operating in ICT industry. Out of 250 questionnaires, 120 (or 50 percent) were usable for analysis. The strategy of collecting completed questionnaires was exclusively through peer-to-peer communications of the research team with the managers.

Statistical Methods

Path analysis (also known as structural equation modeling) is a useful tool for evaluating the relationships among a set of variables and has been used by a number of researchers. The statistical methods used in this study regard the variables as latent variables, measured by questionnaire queries. Cronbach alpha coefficient is used to assess the reliability of the measuring instrument. The questionnaire was pre-tested in order to check for the content validity. Indeed, we used content validity of 8 variables in level three (see Table 1). The content validity is the extent to which the measure captures the different facets of a construct. Agreement should be sought on the content adequacy among the researchers who developed the measure – in addition to support from experts and/or the literature. While literature is important, it may not cover all aspects of the construct. Evaluating face validity of a measure (that is, the measure "on its face" seems like a good translation of the theoretical concept) can indirectly assess its content validity. Face validity is a matter of judgment and must be assessed before data collection. One approach used to quantify face validity involves a panel of subjectmatter experts and the computation of Lawshe's (1975) content validity ratio (*CVR_i*) for each candidate item in the measure. *CVR_i* is computed as follows:

Where n_e is the number of subject-matter experts denoting the measurement item i as "essential", and N is the total number of subject-matter experts in the panel.

Lawshe (1975) has further established minimum CVR_i for different panel sizes. Calculated CVR_i were then compared to the level required for statistical significance. For example, a minimum CVR_i value of .75 was necessary for statistical significance at P<.05 based on nine panelists.

N=29, $n_e=25$, CVR=0.79

Table1
Instrumental Survey

Level4	Level3	Level2	Level1
		Objective Characteristics	11Q
	Top Management Team	Subjective Characteristics	7Q
		Tangible	7Q
	Resource	Intangible	18Q
		Firm Size	3Q
		Firm Age	1Q
Organizational		Firm Location	1Q
Factors	Firm-related Variables		
		Firm Kind	1Q

Results

Reliability

To measure the reliability of instruments, a Cronbach's alpha coefficient was calculated for each scale used. As shown in Table 2, the values for all the instruments are above 0.5 which is regarded as an acceptable minimum level for further analysis. According to Nunnally (1976, cite in, Gilbert and Churchill 1979), "low" for alpha depends on the purpose of the research, and researches which are in early stages satisfy reliabilities of 0.50 to 0.60.

Table 2
Cronbach Alpha Coefficients of Instruments

Instrument	Coefficient	
Objective characteristics of TMT Subjective characteristics of TMT	0.82 0.625	
Tangible Resource Internationalization	0.66 0.89 0.50	

Validity

Confirmatory factor analysis involves the specification and estimation of one or more putative models of factor structure, each of which processes a set of latent variables (factors) to

account for covariance among a set of observed variables (Lee, 1999). The measure model of three variables (Top management team, resources and Firm-related variables) is tested by confirmatory factor analysis. The results are indicated in Table 3.

The adequacy of the model fit was determined by using the indices, including the goodness-offit index (GFI), NFI, root mean square error of approximation (RMSEA), Chi-Square/ df and Tvalue. Chi-Square /df ratio adjusts the Chi-Square test to control the sample size, and values exceeding 3 suggest poorer fitting models. Many researchers interpret GFI scores in the .80 to 0.89 ranges as representing reasonable fit; scores of 0.90 or higher are considered evidence of good fit (Doll et al., 1995). As with the GFI, levels above 0.90 for NFI imply adequate fit. The RMSEA is an average difference per degree of freedom expected to occur in the population, with lower values indicating a better model fit (Pedhazur & Schmelkin, 1991) and with lower values of 0.08, T-value scores must be higher than 1.96. Results indicate a suitable validity of variables.

Table 3
Confirmatory Factor Analysis of the Organizational Factors

Variable				Estimate	T-value
Top Team	Management	Objective Characteristics Subjective Characteristics		0.68 0.51	5.03 4.20
Resourc	ce	Tangible	Intangible	0.87 0. 42	fixed 3.29
Firm-related Variables		Firm Size	Firm Age	0.33 0.30	6.00 5.62
		Firm Locatio	n	0.64	6.07

Chi-Square= 50.29, df=49, Chi-Square/ df=1.026, RMSEA=0.016, GFI= 0.92, NFI= 0.90

Path Analysis with Latent Variables

The model depicted in Figure 2 was fitted to the observed data. For this purpose the Lisrel 8.53 software was used, by specifying an analysis based on the covariance matrix with maximum likelihood estimation. The resulting maximum likelihood estimates with their associated significance information in terms of T-values are shown in Figure 3. In this figure it is evident that TMT characteristics (TMT) exerts a direct and significant positive influence (point estimate 0.42; T-values= 2.44> 1.96) on internationalization of SMEs (Int.). Also, indirect influence of TMT through firm resource on internationalization of SMEs is positive and significant (point estimate 0.24; T-values= 2.23> 1.96). Indirect influence of factors is measured by the following command in Lisrel.

LISREL OUTPUT: RS SC MI EF

In addition, Indirect influence of Firm Characteristics through firm resource on internationalization of SMEs is positive but not significant (point estimate 0.19; T-values= 1.93< 1.96). Direct influence of firm resource as one of the by-results is positive and significant (point estimate 0.49; T-values= 2.54> 1.96).

Top management team (TMT) variable has positive and significant relationships with objective characteristics and subjective characteristics. Firm characteristics variable has positive and significant relationships with firm age, size and location. Firm resource variable has positive and significant relationships with tangible and intangible resources.

The measures of fitness of the model are depicted in Figure 3. Both the Chi-Square test statistical value (50.29) and the 95 percent confidence interval for the population discrepancy function value suggest that the Null hypothesis of a perfect fit is rejected at a level of significance of 0.05. Chi-Square/ df (1.026) is lower than 3, which is reasonable. The RMSEA value of 0.016, values of NFI (0.90) and GFI (0.92) are higher than 0.9 which indicate a reasonable fit to the data.

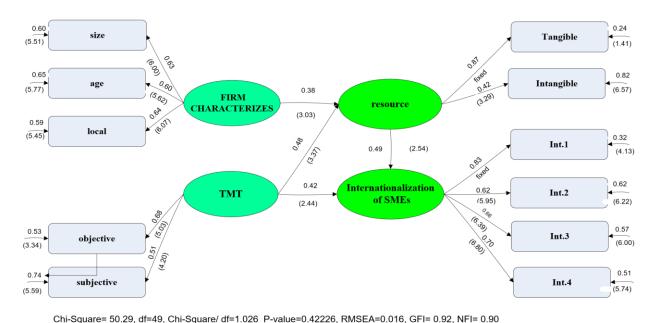


Figure 3. Empirical Evaluation of the Proposed Causal Model

Conditions of Variables

Statistical test of one-sample T-Test is used in order to explore a suitable and not- suitable variable and the results are given in Table 4. However, the questionnaires which were evaluated on a Likert scale of five points; therefore means being higher than 3 for variables express a suitable condition and is nearing 3 and lower of it are respectively average and not-suitable condition. The results of test show that all variables have suitable and average condition except of internationalization variable. Because international SMEs in Iran's ICT industry are going through their embryonic stages of internationalization, result of Not-suitable to internationalization variable is rational.

Table 4
Condition of variables based on one-sample T-Test

Variable	Mean	Condition	
Internationalization	2.54	Not- suitable	
TMT	3.47	suitable	
Resource	3.37	Suitable	
Firm Size	3.38	Suitable	
Firm Age	10.7	Average	
Firm Location	3.58	Suitable	

Discussion of Empirical Findings

This paper elaborated on the effect of some variables which are known for their positive relationship with internationalization of SMEs in the context of emerging economies. Related research focuses on the impact of organizational factors (firm resources, firm-variables and TMT characteristics) on the internationalization of SMEs. However, the direct impacts of TMT characteristics are growing due to the important role of think-style, making decision entry mode and other subjective characteristics of managers, particularly, SMEs. Most studies have explored the role of resources as a key factor for internationalization, but paper results show that TMT characteristics, particularly subjective characteristics (0.42), have more effect than other ones on internationalization. Findings of Rundh (2003); Fillis (2001) support the positive relationship TMT characteristics with internationalization in the subjective characteristics field. Consideration of subjective characteristics helps to understand why subjective characteristics of TMT have more significant effect than objective characteristics of TMT on internationalization. Because the ICT firms are high-tech and novice, so they need to be actuated and stimulated toward international markets. This act requires creativity, innovation, risk-taking and proactiveness. However, more effect of subjective characteristics against objective characteristics that are related to resources was supported by Fillis (2001) because he expressed the successful development of the international firm abroad depends on the personality characteristics of the owner-manager despite resource deficiency. In the present study, remarkable results were found which indicate the ineffectiveness of firmrelated variables on internationalization of SMEs (0.19; 1.93< 1.96) compared with our hypothesis. The ineffectiveness was supported by Autio et al (2000) because they expressed information and knowledge-based firms are born globally and younger firms are most likely to be exporting firms. Indeed, ICT firms in Iran are able to be internationalized by fewer employees which merit at a shorter time.

Conclusion

The internationalization of SMEs is a serious subject in all countries and in particular in Iran. The results of many researchers and studies show that one of the most factors associated with the success of Hi-Tech SMEs in the competitive markets is internationalization of SMEs, particularly, in emerging economies because of niche market in globally market and other reasons such as lack of resources in these countries. The aim of this research was to elaborate what factors lead to internationalization of SMEs in Iran; therefore, the present paper studied the impact of the independent variables (TMT and firm-related variables) through intermediate variable (Firm resources) on the internationalization of SMEs in ICT sector.

Analytical results of our research found out (1) positive effects of TMT variables on the internationalization of SMEs, and (2) ineffectiveness of firm-related variables on internationalization of SMEs. Another emphasis of research showed lack of resources (tangible and intangible) is not a barrier in process of internationalization; rather the attitude of TMT is very important factor in process of internationalization of SMEs in Iran. Hence, in Iran as a developing country, it is required to pay more attention to the TMT by improving the entrepreneurial knowledge capability and skills development, networking and establishment of entrepreneurial communities and membership at those in order to maximize the speed of internationalization.

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