

ENTERPRISES AND CLIENTS IN THE GLOBAL MARKET

Linking Entrepreneurial, Strategic and Network Variables in Explaining the Emergence of Born Global R&D Intensive Firm

Vytaute Dlugoborskyte and Monika Petraite

*Kaunas University of Technology
K. Donelaicio str. 73, LT-44029 Kaunas, Lithuania*

Stephan Buse

*Hamburg University of Technology
Am Schwarzenberg-Campus 1, 21073 Hamburg, Germany*

crossref <http://dx.doi.org/10.5755/j01.ss.87.1.12316>

Abstract

The nature of the knowledge based entrepreneurship relates to its essential reliance on R&D, deployment and maximization of R&D returns via technology solution development, and its commercialization via venturing. From the small catching up country perspective, R&D globalization, speed of new technology development, the need to deal with extremely complex conditions in searching and exploiting market, institutional and technological opportunities, the need to exploit R&D resources and their return globally leads to the formation of born global R&D driven entrepreneurial firms. As the cases studies from small catching up Baltic economy (Lithuania) demonstrate, these elaborate specific combinations of strategic choices under the high resource constraints and limitations of local markets for starting up globally. The specific combinations of strategic variables occur under the high resource constraints and limitations of local markets for starting up globally. The born global firms as a specific form of entrepreneurial firm occur from linking entrepreneurial, strategic innovation and network variables in a specific set up of market and technology conditions.

Keywords: born global firm, R&D intensive firm, knowledge-based entrepreneurship, Baltic region.

Introduction

Changes in the development of entrepreneurial activities, especially in R&D intensive sector, increasing role of open innovation (Chesbrough, 2003; Enkel et al., 2009; Cassiman and Valnetini, 2009), definition of innovation as a networked activity (Kriaucioniene, 2008),

intensity and direction of which is defined by the group of interrelated actors, has raised the natural need to investigate the changes in innovation and business models, especially in R&D intensive sectors (O’Conner, 1998; Verhaeghe and Kfir, 2002). Li and Kozhikode (2009) note that ‘emerging economy firms, which traditionally have played a secondary role in the global innovation landscape, have now begun to catch up in developing their own innovative capabilities’, and also identify the specific limitations rising from the catch up situations that define the specific innovation and business models (weak IPR protection, limited access to advanced markets, etc.). Recent studies of knowledge based entrepreneurship also show that new innovation capabilities and economy growth sources are emerging in catching up countries worldwide. However, the differences between small and large catching up countries are important, as the first group of countries can rely on domestic market oriented entrepreneurial growth strategies, while the small countries have to orient themselves globally from the first growth stages as the domestic markets are not capable to generate returns from R&D investment and innovation. This forms a particular interest to study R&D intensive entrepreneurship within Baltic countries, as a small catching up country base within the highly competitive Baltic Sea region.

A distinguished nature of the knowledge based entrepreneurship rises from its essential reliance on R&D as a core resource (Garavaglia and Grieco, 2005; Witt and Zellner, 2005), its commercialization via entrepreneurial activities (Johansson, 2005; Witt and Zellner, 2005; Kanellos, 2013), and also deploying and maximizing R&D returns via development of new technologies (Johansson, 2005; Witt and Zellner, 2005). R&D globalization, and speed of new technology development, the need to deal with extremely complex conditions in searching and

exploiting market, institutional and technological opportunities, the need to exploit R&D resources and their return globally (Petraite, 2010) leads to the new approaches towards R&D based entrepreneurship, namely the born global firms. The analysis of born global firm in the literature is essentially based on the empirical research and cases from various institutional and technological contexts, which leads to the formation of large empirical research body and extraction of core features. The eclectic composition of empirically found common characteristics of born global firm suggests that entire firms are not occasionally emerging, but are global by design and thus could be defined and explained while analysing variables playing an essential role in shaping the formation of R&D intensive born global firm.

Based on this problem formulation, the paper aims to provide the framework for analysing the key determinants leading to the formation of born global R&D intensive firm.

The theoretical framework relies on the theory of entrepreneurial firm, internationalisation of the firm and network theory, which are linked together in an analytical framework. The qualitative underpinnings of theoretically extracted variables are empirically tested via the empirical study from R&D intensive entrepreneurial firms from catching up Baltic country, Lithuania. The research methodology adopted is the case study, best suited to the objectives of our study: constructing theoretical approaches and revealing still relatively unknown aspects of the relationships being studied (Lee, 1999). The case studies come from 2 born global R&D intensive firms, two R&D intensive highly globalized sectors, i.e. medical and electronic measurement devices, and lasers. The selected firms had to meet auxiliary the criteria of being born global firm and operating globally up to the end customer, i.e. to demonstrate long term sustainable growth as opposed to rapid start up and exit strategies.

The paper is structured as follows. In the first part of the paper we provide the framework for the analysis of the formation of the born global firm, whereas the entrepreneurial, internationalisation strategy, and network based factors are conceptually linked. The analytical model proposes the analysis of strategic choices as a defining factor at the level of entrepreneurial behaviour, firm strategy, and network. The case study methodology is provided in part two. The third part of the paper provides the empirical linkages of entrepreneurial, strategy based and network variable manifestations and underpinnings in born global R&D intensive firms of Lithuanian origin. These are followed by discussion and conclusions.

The conceptual model for linking entrepreneurial, strategic and network variables in explaining the formation of born global R&D intensive firms

The idea of open innovation fits particularly well the concept of 'born global firm' R&D intensive enterprise, and defines the need to dedicate specific attention to the rising variety of networks, and firms knowledge acquisition and generation strategies in innovation

processes. The firms networking and knowledge acquisition attitudes to a large extent define the innovation management models within an organization (Love and Roper, 2001; Hagedoorn et al., 2006; Fukugava, 2006; Van de Vrande et al., 2006; Gassler and Nones, 2008; Williams and Lee, 2009). The interrelation between the firm specific internal capabilities and external partnership impact on innovation is also an important issue that has been studied by Su et al. (2009), Vega-Jurado et al. (2009). The impact of the contextual conditions on the firms innovative behaviour was proven to be an important factor, that affects firms search activities and innovation management approaches (Tidd, 2001; Gassler and Nones, 2008; van Beers et al., 2008). The choices of strategic orientations of high technology firms in transitional economies was also analysed by Lau et al. (2008), who again proved the existence of the important link between the development, institutional factors and firms behaviours. The industry specific factors, and specifically the strategic groups and their behaviors was studied by the large number of authors (for example, Zhang et al. (2007), Erden et al. (2009), in their studies provide the strategic group analysis, linkage and alliance formation behaviours in the biopharmaceutical industry; the specificity of R&D based innovation behaviour in the electronic industries of catching up economies was also studied by Kriaucioniene and Ragauskas (2008)). The role of public policy and interrelations of R&D, growth and internationalization of new technology based firms was also recently presented in the study of Filatotchev and Piesse (2009), whereas authors focus on the determinants of growth and success of the new technology firms at the different maturity stages basing their analysis on the evidence of advanced countries.

The systemic framework of factors shaping the formation of born global R&D intensive firms was provided via systemic literature review and synthesis, with a primary focus on the findings from empirical studies (Kudina, Yip and Barkema, 2008; Cavusgil and Knight, 2009; Varma, 2010; Cannone, Costantino, Pisoni and Onetti, 2012; Halldin, 2012; Travinsky, 2012; Dlugoborskyte and Petraite, 2013). We define the born global R&D intensive firm as setting that conduct international business at or near the founding of the firm and create new value for the market while transferring unique knowledge to innovative products or services through commercializing its R&D activities. In the first step of literature analysis, the set of systemic factors were extracted and categorized into three groups, representing *industry/firm*, *organization/strategy* and *individual/entrepreneur*. *External industry/firm* group factors portray the global market profile and market conditions for pushing or pulling for becoming born global firm, certain customer characteristics, internationalization level of competitors and distinctiveness of industry profile in which firm operates. *Internal organization/strategy* group factors encompass product characteristics that are significant for international markets and trading, international orientation of management either managing resources internationally in an effective way, knowledge

intensity and networking as a basis in value creating processes. *Individual/entrepreneur* level factors stand for such characteristic features as *global vision*, *proactiveness*, indicating the ability to recognize potential in foreign markets, as well as international *networking skills* based on international network of professional contacts used for business development. In this systematic approach external factors help to explain the resource acquisition strategies of firm, with a particular focus on internationalization, globalization and networked knowledge economy, while internal factors basically rely on the theories of entrepreneurship and organization, with the specific focus on dynamic capabilities, networks, organisational learning and knowledge management (Dlugoborskyte and Petraite, 2013).

In the second step of literature review the conceptual model was constructed with respect to characteristics of born global R&D intensive settings and systemic factors influencing the emergence of born global R&D intensive firm, and incorporating Dib, Rocha & Silva (2010) framework, which was created in their study in order to explain the emergence of born global firms. External factors are excluded from the further study as the reason is twofold: the intention to deepen the analysis of born global phenomenon from 'inside-out' while explaining the core variables and their linkages, formed by strategic choices, that leads towards born global firm; and the indication originated from the literature review that the entire link between external factors influencing rapid internationalization decision and the formation of born global R&D intensive firm is based on the impacts of *globalisation* (Cavusgil and Knight, 2009; Mets and Kelli, 2011; Cannone et al., 2012; Halldin, 2012). At the entrepreneurial firm level the response to globalization is based on global networks (Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012), which are considered as crucial conditions for early internationalization within our framework. Globalisation creates a number of pull and push factors affecting the emergence of born global settings, as well as conditions for early internationalisation of the firm, such as decreased trade and investment barriers in a global scale (Cavusgil and Knight, 2009; Mets and Kelli, 2011; Halldin, 2012), increasing homogeneity among particular industries (Cannone et al., 2012), global information flows (Mets and Kelli, 2011), growing mobility of human capital (Mets and Kelli, 2011; Cannone et al., 2012), knowledge globalization (Halldin, 2012), emergence of *global niche markets* (Cavusgil and Knight, 2009; Dib et al., 2010; Halldin, 2012), *global networks* (Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012), which are tested from the entrepreneurial opportunity exploitation perspective from our model, but not as independent variables.

Following the intention to investigate born global R&D intensive firms from internal perspective, the entrepreneurial, strategic, and networking variables supporting the emergence of born global R&D intensive firm were extracted (Figure 1). Each group relates to a greater list of sub-variables as characteristics, which were grounded by the literature analysis and extraction of the

characteristics born global firms, as well as by the analysis of factors that affect global orientation and the conditions influencing the choice of an early and accelerated internationalization path.

The entrepreneurial variables list a number of relevant features of an entrepreneur that leads the firm to a global path. The recent empirical studies underline high activity in international markets from or near the founding (Gabrielsson et al., 2008; Gabrielsson and Pelkonen, 2008; Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012; Tanev, 2012), strong international outlook of managers and international entrepreneurial orientation (Weerawardena et al., 2007; Gabrielsson et al., 2008; Cavusgil and Knight, 2009; Eurofound, 2012) as the core characteristics of born global firm. International orientation possessed by entrepreneur is highlighted to be one of the most relevant internal factor that may influence the choice of an early and accelerated internationalization path (Dib et al., 2010), and a desire to be involved in international business is claimed to impact the formation of born global firm (Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012; Eurofound, 2012). So particularly global firm profile from inception is supported by the core individual entrepreneur level factor – possession of *global vision*, where international orientation goes together with managerial competences to exploit the opportunities in global markets (Cavusgil and Knight, 2009; Cannone et al., 2012; Eurofound, 2012; Halldin, 2012). The changing nature of customers and markets towards global level also changes the *competitive environment* where firms operates nowadays, and either causes the need to scale returns from international markets, in order to remain competitive also in the conventional markets, while acquiring the resources for keeping up with the R&D and innovation speed globally (Kudina et al., 2008). *Proactiveness* and ability to recognize potential in foreign markets (Kudina et al., 2008; Cannone et al., 2012; Eurofound, 2012), and tolerance to risk (Dib et al., 2010) enables such entrepreneurial activity. That is usually strengthened by such personal management characteristics as *networking skills*, leading towards creation and exploitation of strong personal international network of professional relationships (Kudina et al., 2008; Cavusgil and Knight, 2009; Cannone et al., 2012; Eurofound, 2012; Halldin, 2012), experience in international business (Kudina et al., 2008; Dib et al., 2010; Cannone et al., 2012), education abroad, as well as technical know-how (Dib et al., 2010). In sum, entrepreneur level variables emphasize global vision, proactiveness in recognition and exploitation of opportunities globally, international networking as characteristics of top management that actually form the internal environment of the firm.

Consequently, strategic and organizational variables define the characteristics of born global R&D intensive settings that are excluded in the scientific literature and highly linked in between. Many of these are already underlined as the core characteristics of the born global firm, such as knowledge intensity (Kudina et al., 2008; Jones et al., 2011; Gonzalez-Menorca et al., 2012), industrial variety (Cavusgil and Knight, 2009; Crick, 2009;

Eurofound, 2012; Sullivan et al., 2012), emphasis on differentiation strategy (Cavusgil and Knight, 2009; Schulz et al., 2009; Cannone et al., 2012; Eurofound, 2012), emphasis on superior product quality and innovations (Gabrielsson et al., 2008; Cavusgil and Knight, 2009; Schulz et al., 2009; Gabrielsson and Kirpalani, 2012; Eurofound, 2012; Sullivan et al., 2012), utilization of advanced ICT (Cavusgil and Knight, 2009; Mettler and Williams, 2011; Gabrielsson and Kirpalani, 2012), global niche market orientation (Bailetti, 2012; Gonzalez-Menorca et al., 2012; Olejnik and Swoboda, 2012; Tanev, 2012). Particularly emergence of *global niche markets* (Cavusgil and Knight, 2009; Dib et al., 2010; Varma, 2010; Halldin, 2012; Eurofound, 2012) are identified as the core market based factors influencing the formation of born global firm. In these settings market opportunities are explored globally for the unique R&D intensive solutions either as the advantage to occupy global market niches in order to *leverage returns from R&D* investments is taken, which stands as one of the core factors for such enterprises formation (Cavusgil and Knight, 2009; Halldin, 2012). Certain *product* features are essential factors allowing the exploitation of global market opportunities with the niche based competition, these are unique and high value added products creating a significant first mover advantages. Knowledge intensity and management are manifested in continuous learning and knowledge acquisition from foreign partners in order to develop knowledge intensive unique products and speed up innovation processes (Cannone et al., 2012). Particularly innovativeness, specialization and focus, customer orientation, product differentiation, technological advantages possessed by the firm, either the use of information technologies as well as

all the spectrum of unique intangible assets acquired in the company are not only highlighted in the scientific literature investigating born global phenomenon but either are these variables excluded by Dib et al. (2010) and certified in their study as internal factors that influence the choice of an early internationalization path of the firm. Characteristics mentioned and excluded as organisational level variables in the model help the most frequently small and constrained by lack of tangible resources born global firm to successfully compete in global markets while commercializing the R&D activities and creating very specific but high value added products.

Finally networking variables derive from networking theory inherent to a born global phenomenon. The recent empirical studies allow to distil belonging to networks (Schulz et al., 2009; Renda, 2011; Eurofound, 2012) as one of the core characteristics of born global firm. Rapid internationalization decision is based on the supposed or existing impacts of *global networks* (Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012). Networking is essential in acquiring and exploiting resources in R&D activities, innovation development and market access globally. Thus the ability of the firm to develop networks and use them for growth is a core factor for the success of born global firm (Kudina et al., 2008; Cavusgil and Knight, 2009; Cannone et al., 2012; Halldin, 2012). Network can be reflected in various variables which stand for use of partnerships, business and personal networks, as well as participation in clusters (Dib et al., 2010), insertion in international value chains either expanding to foreign markets or developing business model in order to achieve a competitive position in a global market.

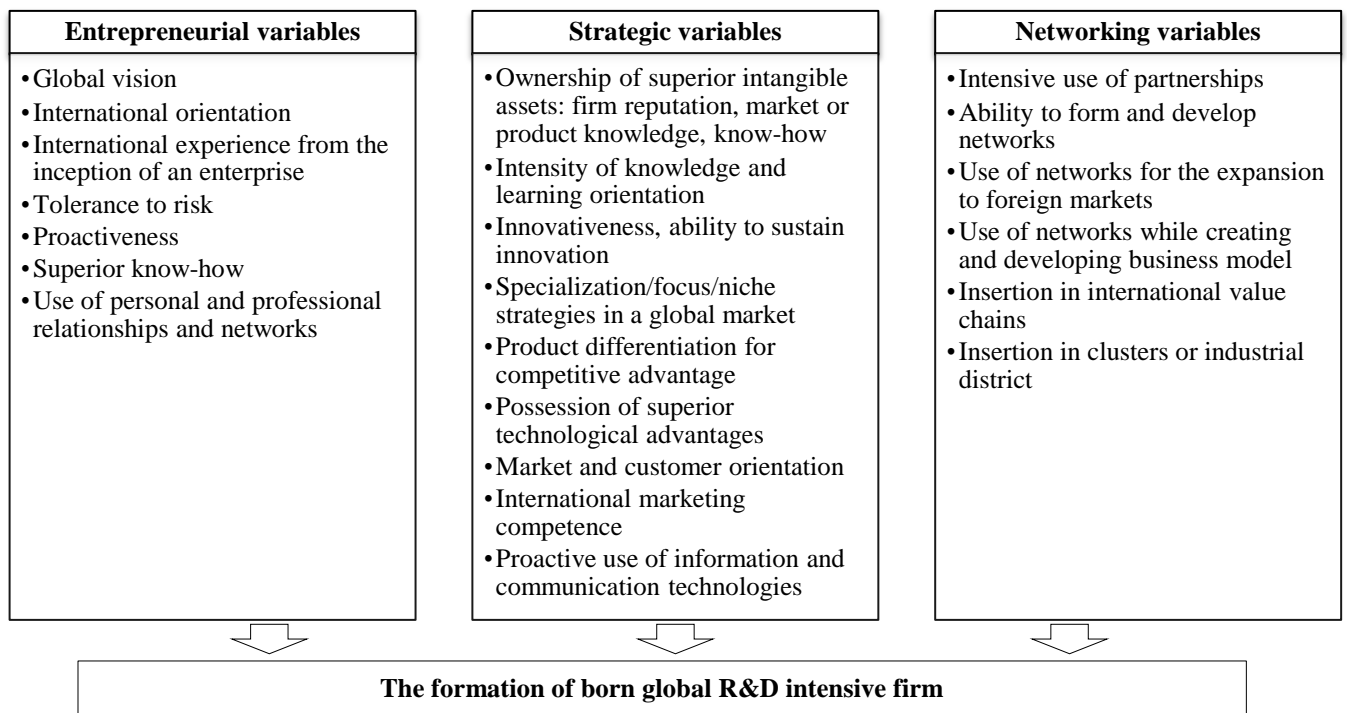


Figure 1. The Conceptual Model for linking Entrepreneurial, Strategic and Network variables

All network level variables stress the ability to form, develop and use professional and personal networks, as well as partnerships what is significantly important in order to start international activities from the inception and to compete with global players while being relatively small and new entrant.

Such complex view of theoretical interrelations forms the basis while using conceptual model for further analysis of born global R&D intensive firm formation at the empirical level.

Methodology of the study

The nature of the investigating topic determined the multiple case study method to choose: multiple case-based research serves as a basis for empirically testing previous theories (Cannone et al., 2012), it allows to analyse pattern-matching properties between the cases under study (Rialp, Rialp and Knight, 2005), enables to find richer explanations and a deeper insight into phenomenon and to use both literal and theoretical replication. In order to fulfil empirical objective, a particular type of firms was

targeted – born global in R&D intensive settings, where companies conduct international business at or near the founding of the firm and create new value for the market while transferring unique knowledge to innovative products or services through commercializing their R&D activities. Five criteria were identified in order to select the cases for the study: small or medium size of the firm; R&D intensity; early internationalization (export activities within three years from the establishment); exclusion of post – soviet restructuration based companies from the sample (year of company establishment no earlier than 1990); global vision and strong international entrepreneurial orientation, which stands for global activities from the inception of an enterprise. Hence, 2 cases were chosen on the basis of fulfilling criteria. The cases were selected for extending existing theories by being typical representatives of the pursued population rather than by random selection. Two cases were conducted, both operating on global markets with IPR protected R&D intensive products (Annex 1).

Table 1

Entrepreneur level variables for the formation of born global R&D intensive firm

Variables from the conceptual model of the case study		Variables for the formation of global orientation		Variables for the formation of born global R&D intensive firm
		Company A	Company B	
Entrepreneur level variables	Global vision	Global vision of the entrepreneur and international orientation development in the enterprise	Objective to produce a laser for foreign markets set on the moment of establishing	⇒ Possession of global vision
	International orientation	<ul style="list-style-type: none"> Global search for opportunities Orientation to international markets possessing the highest potential – which are characterized by investing to the medicine the most Testing the method in various clinics worldwide International search for the funding and grants, which are needed to develop the technology Participation in international R&D programs Ability to get foreign venture capitalists' funding for the commercialisation phase to overcome 	<ul style="list-style-type: none"> Development of technologies satisfying the needs of the most attractive and emerging markets International search for suppliers of components for producing laser systems High quality and effective scientific research carried out in foreign laboratories 	⇒ International orientation manifesting through: <ul style="list-style-type: none"> Global search for opportunities Orientation to the most attractive global niches Ability to get funding from abroad Implementation of R&D activities in foreign countries Formation of international product value chain
	Tolerance to risk	Development of radical innovation	Daily tolerance to risk while trying to overcome scientific issues and implement client's offer	⇒ Tolerance to risk while searching for the new scientific solutions, developing the technology
	Proactiveness		Proactiveness in creating new technological solutions as well as entering new global niches	⇒ Development of technologies based on radical innovations, discerning and creating new global niches
	Superior know-how		Strong competitive position in the scientific laser market gained as a basis for moving towards the industrial market	⇒ Possession of superior know-how
	International experience from the inception of an enterprise	Use of main manager's international experience and networks formed in order to globally develop the enterprise	Superior international experience of the scientists, as well as exclusive know-how and market knowledge gained before the establishment of the enterprise	⇒ International experience before establishing of the enterprise: <ul style="list-style-type: none"> Market knowledge International relations with subsequent partners and clients
Use of personal and professional relationships and networks	Close relations to the scientists of various fields – potential clients			

Table 2

Organisation level variables for the formation of born global R&D intensive firm

Variables from the conceptual model of the case study		Variables for the formation of global orientation		Variables for the formation of born global R&D intensive firm
		Company A	Company B	
Organisation level variables	Intensity of knowledge and learning orientation	Acquisition of the necessary competences and knowledge absorption from the global market	Strong learning orientation, characterized by knowledge intensity, the gain of the new competencies or acquisition externally	⇒ Learning orientation, acquisition of the necessary competences and knowledge absorption from the global market
	Innovativeness and ability to sustain innovations	Open innovation concept used to develop the technology	<ul style="list-style-type: none"> • R&D as the basis of business • Investment in R&D from the company's funds and international sources of funding 	⇒ The maintenance of innovation based on R&D: <ul style="list-style-type: none"> • In collaboration with other research centres around the world • Investing in R&D from the company's funds and international sources of funding
	Product differentiation	Invention of cutting edge technology replacing hitherto existing practices	Business model based on the production of specialised unit equipment meeting customer needs	⇒ Product differentiation through: <ul style="list-style-type: none"> • Technological leadership in various global niches • Meeting the needs of global niches
	Possession of superior technological advantages		Technological leadership in various global niches	
	Ownership of superior intangible assets	International patent registration in different countries of the world	Registration of patents protecting competitive position gained in foreign market	⇒ Ownership of superior intangible assets: <ul style="list-style-type: none"> • Reputation in international market • Exclusive technologies protected by international patents • Globally competitive workers in their high level of competence
	Ownership of superior intangible assets	Acquirement of reputation in international market	Global recognition of high-tech created and acquirement of reputation	
	Market and customer orientation	Clarification and satisfaction of the needs of global niche	<ul style="list-style-type: none"> • Observation of foreign markets to foresee likely future trends and attractive niches and plan the acquisition of the necessary competencies • Establishment of laboratories in the local and foreign markets for new technologies to find • Concentration of professional and experienced engineers the enterprise, enabling competent communication with the client in understanding and meeting his needs 	⇒ Market and customer orientation manifesting through: <ul style="list-style-type: none"> • Clarification and satisfaction of the needs of global niche • Observation of foreign markets to foresee likely future trends and attractive niches and plan the acquisition of the necessary competencies • Research on the new fields of use of the technology • Market knowledge in choosing the right way to enter it
	International marketing competence		Market knowledge in choosing the right way to enter it	⇒
Specialization/focus/niche strategies in a global market	Specialisation in various global niches		⇒ Orientation to global niches	
Proactive use of information and communication technologies	-	High quality customer service using the most advanced information and communication technologies and the worldwide network of representatives	⇒ Proactive use of information and communication technologies in communicating with partners and customer service on a global scale	

Data collection involved two main sources: multiple sources of secondary information, e.g. articles, websites and press releases, which provide more accurate and unbiased information and semi-structured interviews with entrepreneurs. Relying on different sources of information allowed data triangulation to ensure the validity of the study and to obtain a more comprehensive and accurate view of the topic analysed. Semi-structured in-depth interviews with the founders or CEOs - key decision makers in each firm were conducted, as they possess the most comprehensive knowledge of the characteristics of the organization, its strategy and performance.

The interviews ranged in time from 60 to 90 minutes and were semi-structured, allowing for collection of both factual information, such as major events in the firm's history, and narrative data. Most of the questions asked were open-ended, allowing the informants to describe and explain stories related to the firm's internationalization or personal characteristics. An interview guide was used to ensure the completeness of data. Interviews were recorded and later on rewritten to transcripts.

Table 3

Networking level variables for the formation of born global R&D intensive firm

Variables from the conceptual model of the case study		Variables for the formation of global orientation		Variables for the formation of born global R&D intensive firm
		Company A	Company B	
Networking level variables	Intensive use of partnerships	Creation, formation and development of global networks at all levels	Horizontal and vertical, local and international network formation, development and support	Intensive use of international partnerships throughout all product value chain
	Ability to form and develop networks		Regular and active participation in international exhibitions establishing useful contacts and partnerships	The formation, development and support of global networks at all levels
	Use of networks for the expansion to foreign markets		• Development of partnerships, acquisition of local companies, establishment of representative offices in order to enter the most attractive markets	Use of networks for expansion to foreign markets
	Use of networks while creating and developing business model	Use of networks while developing business model	• Worldwide network of representatives formed	Use of networks while creating and developing global business model
	Insertion in international value chains	Cluster structure of the research process and the international product value chain development	Formation and development of international product value chain	Formation of international product value chain
	Insertion in clusters or industrial district		Belonging to an already formed local cluster and involvement in the national value chain while creating the product	Belonging to a cluster (not necessarily formal)

Table 4

Variables for the formation of born global R&D intensive firm

Variables for the formation of born global R&D intensive firm:
Entrepreneurial variables
<ul style="list-style-type: none"> • Possession of global vision • International orientation manifesting through: <ul style="list-style-type: none"> - Global search for opportunities - Orientation to the most attractive global niches - Ability to get funding from abroad - Implementation of R&D activities in foreign countries - Formation of international product value chain • Tolerance to risk while searching for the new scientific solutions, developing the technology • Development of technologies based on radical innovations, discerning and creating new global niches • Possession of superior know-how • International experience before establishing of the enterprise: <ul style="list-style-type: none"> - Market knowledge - International relations with subsequent partners and clients
Strategic variables
<ul style="list-style-type: none"> • Learning orientation, acquisition of the necessary competences and knowledge absorption from the global market • The maintenance of innovation based on research and development: <ul style="list-style-type: none"> - In collaboration with other research centres around the world - Investing in research and development from the company's funds and international sources of funding • Product differentiation through: <ul style="list-style-type: none"> - Technological leadership in various global niches - Meeting the needs of global niches • Ownership of superior intangible assets: <ul style="list-style-type: none"> - Reputation in international market - Exclusive technologies protected by international patents - Globally competitive workers in their high level of competence • Market and customer orientation manifesting through: <ul style="list-style-type: none"> - Clarification and satisfaction of the needs of global niche - The observation of foreign markets to foresee likely future trends and attractive niches and plan the acquisition of the necessary competencies - The research on the new fields of use of the technology - Market knowledge in choosing the right way to enter it • Orientation to global niches • Proactive use of information and communication technologies in communicating with partners and customer service on a global scale
Networking variables
<ul style="list-style-type: none"> • Intensive use of international partnerships throughout all product value chain • The formation, development and support of global networks at all levels • Use of networks for expansion to foreign markets • Use of networks while creating and developing global business model • The formation of international product value chain • Belonging to a cluster (not necessarily formal)

The whole primary and secondary data from each case was analysed using qualitative content analysis, where sub-variables from the conceptual model of the study were as categories to group the information. Subsequently cases were first briefly individually described following the model of the study and then cross-compared in order to explore the replication. Such cross-case synthesis was used to determine similarities and differences in terms of the characteristics mentioned in the model and their impact on the formation of the enterprise. The analytic approach used allowed the generalization of the results from the cases and disclose variables for the formation of born global R&D intensive firm.

Analysis and discussion

Table 1 shows that entrepreneur level variables from the conceptual model of the case study are followed by the analysis of each firm which helps to compare the results and provide insights for the formation of born global R&D intensive firm. From the perspective of the entrepreneur, the key role is the reflection of global vision throughout the whole enterprise strategy what is directly related to an international orientation presented slightly different depending on the industry. Further, the strategy shaped by risk tolerance, proactiveness in technologies and possession on superior know-how is certainly linked with radical innovation and evidently implies discerning and creating new global niches. Such decisions and approach in the company cannot be achieved without international experience of an entrepreneur, market knowledge and international networks contained.

As follows, variables for the formation of born global R&D intensive firm derived from the strategy are provided in Table 2. With the reference to the study the ability to maintain innovation through R&D is one of the principal variables followed by strong learning orientation involving acquisition of the necessary competences and knowledge absorption globally. Not surprisingly this implies either the possession of superior technological advantages that manifest through technological leadership in various global niches while meeting their needs and differentiates the product worldwide. Accordingly conditioned ownership of superior intangible assets along with the possession of strong market and customer orientation as well as proactive ways to maintain a global network with customers and partners can be seen as a set of strategically relevant variables for globally oriented R&D intensive enterprise to born.

Furthermore, the results of current study verified the importance of networks for the formation of born global firm and fostering its R&D activities (Table 3). Therefore the case studies demonstrated the significance of the company's core processes based on networking. The formation, development and support of networks at all levels and intensive use of international partnerships help while creating and developing global business model, expanding to foreign markets or forming of international product value chain. Worldwide networking stands as a perfect way to absorb knowledge and acquire competences

in the company which from intension seeks to perform globally.

Case studies from Lithuanian born global R&D intensive firms provided a comprehensive view on such companies' formation and their strategic choices from three different perspectives. All variables that influence the emergence of born global settings that ground their activities with R&D disclosed in the study can be seen in Table 4.

Conclusions

Entrepreneur, strategy and network and relates to a greater list of sub-variables as characteristics, the occurrence of which influences the formation of born global R&D intensive firm. Following the objective of the research multiple case study method was chosen with the purpose to investigate two Lithuanian born global R&D intensive firms and their strategic choices that led to a particular formation of the enterprise. Cross-case synthesis was used to determine similarities and differences in terms of the characteristics mentioned in the model and their impact on the formation of global R&D intensive orientation from the inception.

The analytic approach used allowed to follow the conceptual model while describing briefly the main variables that affected each firms' formation as well as generalize the results from the cases disclosing the core influencing variables for the formation of born global R&D intensive firm. Primary variables originated from the theoretical analysis are close to the final insights that possess more details and connections.

Accordingly, empirical study allows excluding variables influencing the formation of born global R&D intensive firms grouped into three levels:

- From *entrepreneurial* perspective core variables encompass *global vision, tolerance to risk, development of radical innovation discerning and creating new global niches, superior know-how and international experience* before establishing of the enterprise;
- From *strategic* perspective core variables encompass *learning orientation, maintenance of innovation based on R&D, product differentiation, ownership of superior intangible assets, market and customer orientation, orientation to global niches, proactive use of information and communication technologies* in networking on a global scale;
- From *networking* perspective core variables encompass *intensive use of international partnerships* throughout all product value chain, the formation, development and support of *global networks* at all levels using them for *expansion to foreign markets*, while *creating and developing global business model* and *forming international product value chain*, as well as *belonging to a cluster*.

References

1. Bailetti, T. (2012). *The 'born global' disruption*. Retrieved January 4, 2013, from <http://francis-moran.com/index.php/marketing-strategy/the-born-global-disruption/>
2. Cannone, G., Costantino, G., Pisoni, A., & Onetti, A. (2012). Drivers of international development for born global companies founded by Italian entrepreneurs. *Working Papers Universita' dell'Insubria, Facolta' di Economia*. Varese: Universita' degli Studi dell'Insubria.
3. Cassiman, B., & Valentini, G. (2009). Strategic organization of R&D: The choice of basicness and openness. *Strategic Organization*, 7, (1), 43-73.
4. Cavusgil, S. T., & Knight, G. (2009). *Born Global Firms: A New International Enterprise*. NY: Business Expert Press. <http://dx.doi.org/10.4128/9781606490136>
5. Chesbrough, Henry W. (2003) "The Era of Open Innovation." *Sloan Management Review*, 44, 3 (Spring): 35-41.
6. Crick, D. (2009). The internationalisation of born global and international new venture SMEs. *International Marketing Review*, 4, (26), 453 – 476.
7. Dib, L. A., Rocha, A., & Silva, J. F. (2010). The internationalization process of Brazilian software firms and the born global phenomenon: Examining firm, network, and entrepreneur variables. *Journal of International Entrepreneurship*, 8, 233-253. <http://dx.doi.org/10.1007/s10843-010-0044-z>
8. Dlugoborskyte, V., & Petraite, M. (2013). Systemic Factors for the Formation of Born Global R&D Intensive Firm. *Social Sciences*, 2, (80), 7-16.
9. Enkel, E., Gassmann, O., & Chesbrough, H. W. (2009). Open R&D and open innovation: Exploring the phenomenon. *R & D Management*, 4, (39), 311-316.
10. Erden, Z., Von Krogh, G., Nytorp, C. & Hultberg, M. (2009). Strategic groups in the biopharmaceutical industry: Implications for performance. *Drug Discovery Today*, 14, (15-16), 726-730.
11. Eurofound (2012). *Born global: The potential of job creation in new international businesses*. Luxembourg: Publications Office of the European Union.
12. Filatotchev, I., & Piesse, J. (2009). R&D, export orientation and growth of newly listed firms: European evidence. *Journal of International Business Studies*, 40, 1260-1276;
13. Fukugawa, N. (2006). Determining factors in innovation of small firm networks: A case of cross industry groups in japan. *Small Business Economics*, 2-3, (27), 181-193.
14. Gabrielsson, M., & Kirpalani, V. H. M. (2012). *Handbook of research on born globals*. Cheltenham: Edward Elgar Publishing. <http://dx.doi.org/10.4337/9780857938046>
15. Gabrielsson, M., Kirpalani, V. H. M., Dimitratos, P., Solberg, C. A., & Zucchella, A. (2008). Born globals: Propositions to help advance the theory. *International Business Review*, 4, (17), 385-401. <http://dx.doi.org/10.1016/j.ibusrev.2008.02.015>
16. Gabrielsson, M., & Pelkonen, T. (2008). Born internationals: Market expansion and business operation mode strategies in the digital media field. *Journal of International Entrepreneurship*, 2, (6), 49-71. <http://dx.doi.org/10.1007/s10843-008-0020-z>
17. Garavaglia, C., & Grieco, D. (2005). Hand in Hand with Entrepreneurship: A Critical Overview from Entrepreneurship to Knowledge-based Entrepreneurship. *Knowledge-Based Entrepreneurship: Innovation, Networks and Systems (KEINS)*. Milan: WP „0“.
18. Gassler, H., & Nones, B. (2008). Internationalisation of R&D and embeddedness: The case of Austria. *Journal of Technology Transfer*, 4, (33), 407-421.
19. Gonzalez-Menorca, L., Fernandez-Ortiz, R., & Clavel San Emeterio, M. (2012). Global Start-up profile from resource and capability approach: application to the spanish wine-producing sector. *International Journal of Management & Marketing Research*, 1, (5), 67-78.
20. Hagedoorn, J., Roijackers, N., & Van Kranenburg, H. (2006). Inter-firm R&D networks: The importance of strategic network capabilities for hightech partnership formation. *British Journal of Management*, 1, (17), 39-53.
21. Halldin, T. (2012). Born global firms – do they perform differently? *Centre of Excellence for Science and Innovation Studies (CESIS) Electronic Working Paper Series*, 269, 2-26.
22. Johansson, M. (2005). Networking the knowledge-based entrepreneurial firm. *Knowledge-Based Entrepreneurship: Innovation, Networks and Systems (KEINS)*. Milan: CESPRI.
23. Jones, M. V., Coviello, N. E., & Tang, Y. K. (2011). International entrepreneurship research (1989–2009): a domain ontology and thematic analysis. *Journal of Business Venturing*, 6, (26), 632–659. <http://dx.doi.org/10.1016/j.jbusvent.2011.04.001>
24. Kanellos, N. S. (2013). *Exploring the characteristics of Knowledge-Based Entrepreneurship in Greek high-technology sectors*. Paper presented in DRUID Academy Conference 2013 for doctoral students in Economics and Management of Innovation, Technology and Organizations, Aalborg.
25. Kriaucioniene, M. (2008). The Dynamics of Technological Innovations in National Innovation Systems: the Perspective of Transformation Countries. *Social Sciences*, 1, (59), 7-20.
26. Kriaucioniene, M., & Ragauskas, A. (2008). *Transition via R&D: emerging forms and strategies of corporate R&D in the catch up countries (Lithuanian case)*. Paper presented in the IV Globelics Conference, Mexico City, September 22-24.
27. Kudina, A., Yip, G. S., & Barkema, H. G. (2008). Born-Global. *Business Strategy Review*, 4, (19), 39-44. <http://dx.doi.org/10.1111/j.1467-8616.2008.00562.x>
28. Lee, T. W. (1999). *Using Qualitative Methods in Organizational Research*. Thousand Oaks, CA: Sage
29. Li, J. T., & Kozhikode, R. K. (2009). Developing new innovation models: Shifts in the innovation landscapes in emerging economies and implications for global R&D management. *Journal of International Management*, 3, (15), 328-339.
30. Love, J. H., & Roper, S. (2001). Outsourcing in the innovation process: locational and strategic determinants. *Papers in Regional Science*, 3, (80), 317-336.
31. Mets, T., & Kelli, A. (2011). Are Hi-Tech 'Born-Global-s' Really Born Global? *Organizacijų vadyba: sisteminiai tyrimai*, 59, 81-94.
32. Mettler, A., & Williams, A. D. (2011). The rise of the micro-multinational: How freelancers and technology-savvy start-ups are driving growth, jobs and innovation. *Lisbon Council Policy Brief*, 3, (5).
33. O'Conner, G. C. (1998). Market learning and radical innovation: A cross case comparison of eight radical innovation projects. *Journal of Product Innovation Management*, 2, (15), 151-166.

34. Olejnik, E., & Swoboda, B. (2012). SMEs' internationalisation patterns: descriptives, dynamics and determinants. *International Marketing Review*, 5, (29), 466 – 495.
35. Petraite, M. (2010). Approaches towards Strategic Innovation Management in R&D Intensive Sectors: Lithuanian Case. *Social Sciences*, 3, (69), 32-38.
36. Renda, A. (2011). *Next generation innovation policy: The future of EU innovation policy to support market growth*. Retrieved January 4, 2013, <http://www.ceps.eu/book/next-generation-innovation-policy-future-eu-innovation-policy-support-market-growth>
37. Rialp A., Rialp J., & Knight G. A. (2005). The phenomenon of early internationalizing firms: what do we know after a decade (1993-2003) of scientific inquiry? *International Business Review*, 2, (14), 147-166. <http://dx.doi.org/10.1016/j.ibusrev.2004.04.006>
38. Schulz, A., Borghoff, T., & Kraus, S. (2009). International entrepreneurship: towards a theory of SME internationalization. *International Journal of Business and Economics*, 1, (9), 1-12.
39. Sullivan Mort, G., Weerawardena, J., & Liesch, P. (2012). Advancing entrepreneurial marketing: Evidence from born global firms. *European Journal of Marketing*, 3, (46), 542 – 561. <http://dx.doi.org/10.1108/03090561211202602>
40. Tanev, S. (2012). Global from the Start: The Characteristics of Born-Global Firms in the Technology Sector. *Technology Innovation Management Review*, 3, 5-8.
41. Taylor, M., & Jack, R. (2012). Understanding the pace, scale and pattern of firm internationalization: An extension of the 'born global' concept. *International Small Business Journal*, 3.
42. Tidd, J. (2001). Innovation management in context: Environment, organization and performance. *International Journal of Management Reviews*, 3, (3), 169-183.
43. Van Beers, C., Berghall, E., & Poot, T. (2008). R&D internationalization, R&D collaboration and public knowledge institutions in small economies: Evidence from Finland and the Netherlands. *Research Policy*, 2, (37), 294- 308.
44. Van De Vrande, V., Lemmens, C. & Vanhaverbeke, W. (2006). Choosing governance modes for external technology sourcing. *R&D Management*, 3, (36), 347-363.
45. Varma, S. (2010). The global starts up from Indian IT – a case study. *Journal of Advanced Research in Management*, 1, (1), 45-55.
46. Vega-Jurado, J., Gutierrez-Gracia, A., & Fernandez-De-Lucio, I. (2009). Does external knowledge sourcing matter for innovation? Evidence from the Spanish manufacturing industry. *Industrial and Corporate Change*, 4, (18), 637-670.
47. Verhaeghe, A., & Kfir, R. (2002). Managing innovation in a knowledge intensive technology organisation. *R&D Management*, 5, (32), 409-417.
48. Weerawardena, J., Sullivan Mort, G., Liesch, P., & Knight, G. (2007). Conceptualizing accelerated internationalization in the born global firm: a dynamic capabilities perspective. *Journal of World Business*, 3, (42), 294-306. <http://dx.doi.org/10.1016/j.jwb.2007.04.004>
49. Williams, C., & Lee, S. H. (2009). Resource allocations, knowledge network characteristics and entrepreneurial orientation of multinational corporations. *Research Policy*, 8, (38), 1376-1387.
50. Witt, U., & Zellner, C. (2005). *Knowledge-based entrepreneurship: The organizational side of technology commercialization*. Lausanne: CEMI.
51. Zhang, J., Baden-Fuller, C., & Mangematin, V. (2007). Technological knowledge base, R&D organization structure and alliance formation: Evidence from the biopharmaceutical industry. *Research Policy*, 4, (36), 515-528.

V. Długoborskytė, M. Petraitė, St. Buse

Antreprenerystės, strateginių ir tinklaveikos kintamųjų sąsajos aiškinant gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimąsi

Santrauka

Šiame straipsnyje analizuojamas gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių fenomenas. Tai - kompanijų žengimas į tarptautinį verslą iš karto ar per kelerius pirmuosius įsikūrimo metus ir naujos vertės kūrimas rinkoje transformuojant unikalias žinias į inovatyvius produktus ar paslaugas, tai yra pasiekiami komercializuojant mokslo tyrimų ir plėtros veiklą. Šiame fenomene sujungiamos dvi mokslinėje literatūroje daug dėmesio sulaukiančios koncepcijos – gimusios globaliomis įmonės ir žinioms imli antreprenerystė. Žinioms imlios antreprenerystės išskirtinumas kyla iš rėmimosi moksliniais tyrimais ir eksperimentine plėtra (MTEP) kaip kertinio veiklos ištekliumi, jos komercializavimu per antreprenerišką veiklą bei MTEP grąžos maksimizavimu per naujų technologijų vystymą. MTEP globalizavimas, technologinio vystymosi sparta, neišvengiamas susidūrimas su labai sudėtingomis sąlygomis ieškant ir stengiantis išnaudoti naujų rinkų galimybes, institucinės ir technologinės galimybės bei būtinybė išnaudoti MTEP išteklius ir jų grąžą globaliu mastu veda prie naujų požiūrių į MTEP grįstą antreprenerystę, kitaip vadinamą gimusiomis globaliomis įmonėmis. Šių įmonių analizė mokslinėje literatūroje yra paremta empiriniais tyrimais ir atvejais iš įvairių institucinių bei technologinių kontekstų, o tai leidžia pagrįstai išskirti jų pagrindinius požymius. Empiriškai išskirtų bendrų gimusių globaliomis įmonių charakteristikų kompozicija parodo, jog šios įmonės nesusiformuoja atsitiktinai, tačiau priešingai – yra globalios nuo įkūrimo. Tokiu būdu jos gali būti apibrėžtos ir paašškintos analizuojant esminius veiksnius, kurie lemia gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimąsi. Atsižvelgiant į šį probleminį kontekstą, straipsnio tikslas yra sukurti sisteminį modelį gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimąsi lemiančių kintamųjų analizei. Straipsnio struktūra susideda iš keturių dalių, kurių pirmojoje pateikiama gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimosi analizės sistema, kurioje konceptualiai siejami antreprenerystės, internacionalizacijos strategijos ir tinklaveika grįsti kintamieji. Pateiktas analitinis modelis orientuojasi į strateginių pasirinkimų analizę antrepreneriškam elgesiui, įmonės strategijai bei tinklaveikos lygiui paašškinti. Antroje dalyje pateikiama atvejo analizės metodologija, o trečiojoje - empiriškai susiejamos antreprenerystės, strateginių ir tinklaveikos kintamųjų apraiškos ir pagrindai gimusiose globaliomis, mokslo ir technologinėms žinioms imliose Lietuvos įmonėse. Išvalgos išgryninamos išvadose.

Pirmiausia autorių atlikta teorinė analizė leido išskleisti gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimosi veiksnius ir juos įvardinti konkrečiau. Taigi išoriniai industrijos/įmonės lygio veiksniai apima globalios rinkos profilį bei rinkos sąlygas, įtakojančias įmonės tapimą gimusia globalia, kliento charakteristikas, konkurentų internacionalizacijos lygį, mažus tarptautinės prekybos barjerus. Vidiniai organizacijos/įmonės lygio veiksniai atspindi produkto charakteristikas, jo tinkamumą tarptautinėms rinkoms ir prekybai, vadovybės įsitraukimą į tarptautinį verslą, efektyvų tarptautinį resursų valdymą, taip pat imlumą žinioms ir tinklaveiką, kaip pagrindinius naują vertę kuriančius procesus. Galiausiai individo/antreprenerio lygio veiksniai išryškina globalią viziją, proaktyvumą, gebėjimą atpažinti užsienio rinkos potencialą, tarptautinius tinklaveikos įgūdžius. Būtent išskirtų veiksnų sisteminė kombinacija lemia gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimąsi, kurios pradeda vystyti tarptautinę veiklą nuo pat įsisteigimo ar per pirmuosius savo veiklos metus bei sukuria naują vertę rinkai, transformuodama unikalias žinias į inovatyvius produktus ar paslaugas, o tai pasiekiami mokslo tyrimų ir plėtros komercializavimu. Formavimąsi sąlygojantys išoriniai veiksniai daugiau kildinami iš internacionalizacijos, globalizacijos ir tinklaveikos teorijų perspektyvų bei žinių ekonomikos. Tuo tarpu vidiniai veiksniai aiškina antreprenerystės ir organizacinės teorijose, akcentuojant dinaminis gebėjimus, tinklaveiką, organizacinę mokymąsi ir žinių valdymą. Šis

kompleksinis požiūris leido atlikti gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių formavimosi empirinę analizę.

Taigi antrajame teorinės analizės žingsnyje sukurtas konceptualus modelis, atsižvelgiant tiek į gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių charakteristikas, tiek į šių įmonių ir jų globalios orientacijos formavimosi veiksnių prielaidas, taip pat įtraukiant Dib, Rocha ir Silva (2010) modelį, kuris jų studijoje buvo sukurtas paaiškinti būtent gimusių globaliomis įmonių atsiradimą. Išoriniai veiksniai buvo atskirti nuo tolimesnės studijos dėl kelių priežasčių: siekiant pagilinti gimusių globaliomis įmonių fenomeno analizę iš vidinės perspektyvos; bei teorinės literatūros analizėje įžvelgtą požymio, jog didžiausia sąsaja yra tarp išorinių veiksnių, lemiančių ankstyvą bei greitą internacionalizacijos sprendimą bei globalių įmonių formavimąsi, yra pagrįsta globalizacijos pasekmėmis. Antrepreneriškos įmonės lygyje globalizacijos įtaka geriausiai atsispindi globaliuose tinkluose, kurie traktuojami kaip esminė ankstyvos internacionalizacijos sąlyga šiame straipsnyje pateiktame konceptualiaame modelyje. Globalizacija sukuria įvairių traukimo ir stūmimo veiksnių, kurie veikia gimusių globaliomis įmonių atsiradimą, taip pat sąlygas ankstyvai įmonės internacionalizacijai, tokias kaip sumažėję prekybos ir investavimo barjerai globaliu mastu, didėjantis homogeniškumas tarp tam tikrų industrijų, globalūs informacijos srautai, didėjantis žmogiškojo kapitalo mobilumas, žinių globalizacija, globalių nišinių rinkų atsiradimas, globalūs tinklai. Visi veiksniai modelyje yra pateikiami iš antrepreneriškos galimybių ieškojimo perspektyvos, bet ne kaip atskiri kintamieji. Apibendrinant teigiama, jog tokių įmonių vystymasis yra nulemtas trijų bendrinių veiksnių – įmonės išskirtinių charakteristikų, naudojamasi tinklais bei antreprenerio savybių, kurie įvardinti kaip antreprenerystės, strateginiai ir tinklaveikos kintamieji, paaiškinantys šių įmonių formavimąsi. Kiekviena kintamųjų grupė modelyje apima visą spektrą ypatybių, įžvelgtų teorinėje analizėje apibrėžiant žinioms imlią antreprenerystę, gimusių globaliomis įmonių fenomeną ir šių sąvokų sąsajas.

Išskirti antreprenerystės kintamieji parodo atskleidžia įvairias antreprenerio savybes, kurios apima: globalią viziją; tarptautinę orientaciją; tarptautinę patirtį nuo pat kompanijos įkūrimo; rizikos toleravimą; proaktyvumą; išskirtinę techninę ar mokslinę praktinę patirtį; asmeninių ar profesinių ryšių bei tinklaveikos naudojimą.

Strateginiai ir organizaciniai kintamieji apima gimusių globaliomis, mokslo ir technologinėms žinioms imlių įmonių charakteristikas, pabrėžtas mokslinėje literatūroje ir stipriai besisiejiančias tarpusavyje. Daugelis iš jų yra laikomos gimusių globaliomis įmonių charakteristikomis. Taigi šie kintamieji yra: svarbių nematerialiųjų išteklių nuosavybė: įmonės reputacija, rinkos ar produkto žinios, techninė ar mokslinė praktinė patirtis; imlumas žinioms ir mokymosi orientacija; inovatyvumas, gebėjimas palaikyti inovacijas; specializacijos/koncentracijos/nišos strategijų naudojimas globalioje rinkoje; produktų diferenciacijos naudojimas konkurenciniam pranašumui įgyti; išskirtinių technologinių pranašumų turėjimas; orientacija į rinką bei klientus; tarptautinė marketingo kompetencija; proaktyvus informacinių ir komunikacinių technologijų naudojimas.

Tinklaveikos kintamieji parodo bendradarbiavimo, užmezgamų ryšių ir partnerystės gausą bei stiprumą, gebėjimą jas išnaudoti tiek didinant užimamos rinkos dalį, tiek valdant ir stiprinant įmonės vidinius procesus ar įgyjant reikiamą išteklių. Šios savybės dabartinėje verslo aplinkoje yra kertinės norint plėsti įmonę panaudojant kuo mažesnius resursus ir stiprinant pozicijas tarptautinėje rinkoje. Taigi tinklaveikos kintamieji yra: intensyvus naudojimas partnerystėmis; gebėjimas formuoti ir vystyti tinklus; tinklaveikos naudojimas plėtrai į užsienio rinkas; tinklaveikos naudojimas kuriant ir vystant verslo modelį; priklausymas tarptautinėms vertės kūrimo grandinėms; priklausymas klasteriui ar industriniams rajonui.

Tiriamasis objektas ir siektini tyrimo rezultatai sąlygojo kokybinio tyrimo pasirinkimą, o konkrečiau – kelių atvejų tyrimą. Jam įgyvendinti pasirinkti šie duomenų rinkimo metodai: antrinių duomenų analizė, apklausa žodžiu – struktūrizuotas eksperto interviu; duomenų analizės metodas – kokybinė turinio analizė. Identifikuoti 5 kriterijai atvejų atrankai: maža arba vidutinė įmonė, imlumas žinioms ir technologijoms, ankstyva internacionalizacija (eksportas per pirmuosius 3 metus nuo įkūrimo), neseniai įkurta įmonė (ne anksčiau nei 1990 m.), globali vizija ir tarptautinė antrepreneriška orientacija, reiškiančios globalią įmonės veiklą nuo pat veiklos pradžios. Tyrimui atrinktos dvi aukštųjų technologijų įmonės, atstovaujančios lazerių ir biomedicinos sektoriams, savo veiklą grindžiančios moksliniais tyrimais ir plėtra, kurios rezultatas yra patentai ir radikaliai inovacijos. Išoriniai antriniai duomenys naudoti aiškinantis bei stengiantis įvairiapusiškai pažinti kiekvienos įmonės atvejį bei vystymosi tendencijas. Jie atskleidė ir tokią kokybinę informaciją kaip svarbius istorijos įvykius bei strateginius sprendimus. Struktūrizuotas eksperto interviu leido surinkti faktinę informaciją, atspindinčią pagrindinius įvykius įmonės istorijoje, taip pat daug svarbesnę kokybinę informaciją apie jos veiklą. Remiantis skirtingais duomenų šaltiniais buvo galima atlikti duomenų trianguliaciją ir gauti visapusišką atvejo vaizdą, o naudojant kokybinę turinio analizę – kaip kategorijas pritaikyti konceptualiaame modelyje išskirtus kintamųjų grupių rodiklius ir sugrupuoti visą informaciją. Galiausiai atvejai pirmaisiai buvo išsamiai aprašyti, o šiame straipsnyje pateiktas jų palyginimas ir sintezės metu išgrynintos įžvalgos, atsižvelgiant į kintamųjų kiekviename atvejyje panašumus ir skirtumus.

Galima teigti, jog teorinėmis įžvalgomis paremtas atvejų tyrimo modelis, kuris išskyrė kintamųjų grupes, lemiančias globalios orientacijos formavimąsi, akivaizdžiai atsispindėjo atvejų tyrime. Tačiau gili atvejų analizė leido šį modelį patikslinti įsigilinant būtent į gimusias globaliomis, mokslo ir technologinėms žinioms imlias antrepreneriškas įmones ir identifikuoti jų formavimąsi lemiančius kintamuosius:

- iš antreprenerio kintamųjų svarbiausi yra globali vizija, rizikos toleravimas, radikalių inovacijų vystymas naujoms globalioms nišoms, išskirtinė techninė ir mokslinė praktinė patirtis bei tarptautinė patirtis kuriant įmonę;
- iš organizacijos kintamųjų – mokymosi orientacija, moksliniai tyrimai ir plėtra grįstas inovacijų palaikymas, produkto diferenciacija, svarbių nematerialiųjų išteklių nuosavybė, orientacija į rinką ir klientus, orientacija į globalias nišas, proaktyvus informacinių ir komunikacinių technologijų naudojimas tinklaveikoje;
- iš tinklaveikos – intensyvus naudojimas tarptautinėmis partnerystėmis visoje produkto vertės kūrimo grandinėje, visų lygių globalių tinklų formavimas, vystymas ir palaikymas, jų naudojimas plėtrai į užsienio rinkas, kuriant ir vystant globalų verslo modelį, formuojant produkto tarptautinę vertės kūrimo grandinę, taip pat priklausymas klasteriui.

Reikšminiai žodžiai: gimusi globalia įmonė, mokslo ir technologinėms žinioms imli įmonė, žinioms imli antreprenerystė, Baltijos regionas.

First received: November, 2014

Accepted for publication: December, 2014

Profiles of case study companies

	Company A	Company B
Core product	Non-invasive intracranial blood pressure measurement device	Laser, laser systems and components
Main client/buyer	Hospitals, clinical testing laboratories	Universities, R&D laboratories, high-tech companies, industrial companies
Year of establishment	2002	1992
Size of the company	Micro enterprise	Medium enterprise
Number of employees	Around 30	Around 100
Cause of the establishment	Invention, ability to attract sources of funding from foreign countries after disconnection from Soviet R&D resources and markets	Disconnection from Soviet markets, lasers invented and produced in a pilot plant
Time before starting international activity	From establishment	1 year
Market orientation (in the moment of establishment)	Western, global	Western, global
Market orientation (nowadays)	Global	Global
Scope of the market	Global niche	Global niche
Sales in international markets, %	100 %	More than 94 %
Access to final customer with original product	YES	YES
Position in technology life cycle	From confirmation about reliability to commercialization	R&D activities and commercialization
Significance of R&D activities in the company	Core of company's activities	Core of company's activities
Finances for R&D	International	Around 10 % from company's income annually, international resources
R&D output	Patents, radical innovation	Patents, radical innovations, technological leadership