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Modern Research Methodology
in the Field of Innovative Small
and Medium-Sized Enterprises (SMEs)

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Author proposes the analysis of modern methodology in investigation of small innovative companies. Investigation based on 7 world journals for the 2006-2010 years. Efforts were placed to identify main research tendencies in the field of small innovative companies. It allows improving our understanding about the dynamics of knowledge extension during the last years. Also it contributes to our understanding of business activity among innovative SMEs in Russia. The results could be useful for academics who are focused on innovative SMEs and for public governors who are responsible for the development of public policy to decrease institutional restrictions and to propound competitive ways to stimulate innovative SMEs' activity.

Keywords: innovative SMEs, small enterprises, methodology, modern tendencies.

Introduction

Our knowledge about small innovative companies significantly increased from the end of 20th century. We have declared small innovative companies as a way to commercialize new ideas or engineering. Small innovative companies have much more potential for growth than traditional enterprises due to the ability to transform markets, develop new niches. As a result small innovative companies are very attractive for investments. But from other side a high level of risk, which is linked with innovative SMEs, is applicable mostly for venture investors. For the owners innovative company is not only an opportunity to create initial capital during the risky and manageable

activity, but also a way for self-realization. For global economy an innovative company is a source of new economy drivers. Innovative SMEs introduce new technologies, create additional jobs, and provide countries' competitiveness.

Development of the knowledge about small innovative companies faces the same restrictions as the field of entrepreneurship at whole. The researches become more narrow and mostly concentrate on the predictors of success; strategies, which provides the firm's growth [15, 233]. The dominance of quantitative methods could become a challenge in the development of the theoretical base [18, 4]. Also the theory of entrepreneurship is a very dynamic field. Sometimes there is no

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single view of an economic problem. For instance, productive and unproductive entrepreneurship: are they a result or just an entrepreneurial behaviour, or both? In that case we could face the challenge in measuring such activity: any illegal activity is unproductive, but in reality, especially in transitional economies, there is a case, when the activity could be legal, but devastating and illegal, but helpful (Welter, 2010).

There are some critic views that the relationship between external environment and internal firm level is not enough investigated. Company could not be investigated out of contextual frames, which include such characteristics of innovation process as technology, industry level and market conditions. Also there are not enough papers about involving innovation in small innovative companies. Instead, the papers about prediction of success are dominating. For the improvement purposes they offer to keep attention on regular management practices (Edwards et al., 2005).

Methodology

In this paper the analysis of modern methodology in research field devoted to innovative SMEs is carried out based on 7 world journals in the field of small innovative companies. The journals have high 5-year

Impact Factor. They were selected with the help of ISI Web of Knowledge. It covers 2006-2010 and the first quarter of 2011. Identification of representative journals is based on searching requests with key words, Boolean operators, and special symbols. Among key words there are such as small innovative enterprise, innovative SME, innovative firm, start-up, new venture. In the majority of requests "Technovation", "Research Policy", "Small Business Economics" are the top journals. The whole sample is represented in Table 1.

To identify representative papers the search request includes the same key words that mentioned above, but "start-up" and "new venture" were excluded. The request was restricted to 7 journals and time period. As a result the sample includes 176 journals (Table 2)

In the sample such journals like "Entrepreneurship and Regional Development", "Journal of Small Business Management", "International Small Business Journal", "Journal of Business Venturing" are the leading ones in the field of entrepreneurship (Edwards et al., 2005). Others: "Technovation", "Small Business Economics", and "Research Policy" are the leading journals in the field of small innovative entrepreneurship, but they are not included in the top 6 journals in the field of entrepreneurship. It

Table 1. Journals included in the sample

№	Journal	ISSN	% of publications	5-year Impact Factor
1	Technovation	0166-4972	8,0321 %	2.126
2	Small Business Economics	0921-898X	5,2209 %	2.112
3	Research Policy	0048-7333	4,0161 %	3.772
4	Entrepreneurship and Regional Development	0898-5626	2,4096 %	1.904
5	Journal of Small Business Management	0047-2778	2,4096 %	1.689
6	International Small Business Journal	0266-2426	2,0080 %	1.661
7	Journal of Business Venturing	0883-9026	2,0080 %	3.741

Table 2. Distribution of papers among journals and years

Journal	2006	2007	2008	2009	2010	2011	Total
Technovation	15	5	10	7	12	1	50
Small Business Economics	5	5	6	7	8	4	35
Research Policy	5	9	9	5	6	0	34
Entrepreneurship and Regional Development	0	3	7	4	2	4	20
Journal of Small Business Management	2	1	1	3	1	2	10
International Small Business Journal	4	3	3	1	3	1	15
Journal of Business Venturing	3	1	2	1	4	1	12
Total	34	27	38	28	36	13	176

means that these journals are exclusive for the research of small innovative entrepreneurship.

To clarify modern tendencies in the methodology development in research the method of M. Xheneti and R. Blackburn was used, when the analysis is focused on identification of the main topic; techniques used in paper; geographical area (Xheneti et al., 2010). Such universal approach allows us to compare the field of small innovative entrepreneurship with traditional small business.

To dispart papers into groups by the main topic the two-steps analysis was used. On the first stage the papers were separated into thematic groups by comparing the abstract with topic and key words. As a result 39 thematic groups were formed. On the second stage the analysis of content according to the thematic group was made. Also deductive and inductive methods were used. As a result the amount of the thematic groups was decreased to 22 groups.

To clarify the type of research approaches and techniques the papers were disparted into concept papers, where the theoretical aspects of innovative SMEs are introduced; and empirical papers that are based on qualitative, quantitative or mixed methods.

To identify the techniques of research the empirical papers were separated by groups:

- Case study, thematic analysis, discourse or narrative analysis for the qualitative papers;
- Descriptive techniques (frequencies, crosstabs, T-tests, ANOVA) and multivariate techniques (MANOVA, regression, time series) for the quantitative papers;
- Combination of the previous techniques for the mixed papers (Xheneti et al., 2010).

Main results

One of the main interesting points in research is distribution of main topics. More than 50 % of papers about innovative SMEs are distributed among 6 first groups:

- Cooperative behavior of the firm
- Innovations and innovation process
- Intellectual property and knowledge transfer
- Strategy and particular drivers of innovations
- Human capital, entrepreneur's motivation
- Adsorptive capacity of the firm

These groups include: firm's growth and development; financing and financial instruments; R&D, interactions in R&D; internationalization

and export ability; geographical localization, clusters; developing countries and transitional economies; management; life cycle: development, surviving, bankruptcy; measurements and classifications; public policy, and others. Cooperative behaviour means interactions with customers, suppliers, firms another size, transnational companies, government. Adsorptive capacity means the ability of the firm to identify, adopt and exploit external knowledge.

In the field of the small entrepreneurship the first 6 groups are shared between:

- challenges of development and performance
- networking and external relations
- public policy and state intervention
- new venture creation/opportunity recognition
- contributions to the economy
- finance and financial management (Xheneti et al., 2010)

So we may conclude that networking, cooperation and different interactions of the firm with external environment are the most demanded areas. The case could be explained by the size of the firm and its limitation in the recourses. It is quite surprising that the public policy is not so popular among small innovative enterprises.

There is no significant difference in the research design among journals. In the majority of the journals that are included in a sample we face quantitative methods. On the second place there are qualitative methods, on the last – mixed and conceptual methods. It is similar to the field of small entrepreneurship. In the quantitative papers multivariate and descriptive techniques are dominating. Qualitative papers are mostly based on the case study techniques. Among mixed methods the thematic analysis and descriptive techniques are more demanded (Table 3). During the 2006-2011 (1Q) period the popularity of descriptive techniques and case

study is decreasing, but the usage of multivariate techniques is increasing.

As for the particular journals, in "Technovation" the descriptive techniques and case study are the most popular techniques. "Small Business Economics" and "Research Policy" are published papers with multivariate and descriptive techniques. Case study is more frequently represented in the "International Small Business Journal".

In the research of cooperative behavior of the firm the quantitative methods are more frequently used (about 50 %). Innovations and the innovation process are investigated by mixed and quantitative methods. Intellectual property and knowledge transfer quantitative and qualitative methods; strategy and particular drivers of innovations, human capital, entrepreneur's motivation, and adsorptive capacity of the firm are described by the quantitative methods. The majority conceptual papers are concentrated among cooperative behavior and human capital research.

The first 5 places in geographical aspect belong to USA, United Kingdom, The Netherlands, Spain, and Canada. Countries' positions are distributed by the geographical residence of the major author. The first five countries share about 57 % in the total amount of papers in a sample. As for the United States and United Kingdom it seems quite predictable. But the position of The Netherlands is quite surprising. If we look at the same distribution in small entrepreneurship field, we will find The Netherlands only in the 8th place. But at the same time USA and UK are keeping the first places, Canada – the 3rd, Spain – the 6th (Xheneti et al., 2010). The position of The Netherlands is also high in the case of cooperation between countries. It took the 2nd place after the United Kingdom; and about 68 % of Dutch papers were written in cooperation with such countries like

Table 3. Papers' distribution among methods and techniques of research.

Techniques/Method	Mixed	Qualitative	Quantitative	Total
Case study	0	28	1	29
Descriptive	0	2	44	46
Descriptive/Thematic	16	2	0	18
Discourse or narrative	2	0	0	2
Multivariate	0	0	49	49
Multivariate/Thematic	7	1	2	10
Thematic	1	9	0	10
Total	26	42	96	164

Belgium, Germany, New Zeeland, USA, Finland, and Switzerland. Among American papers only about 29 % were written in cooperation. But the opposite United Kingdom shares 100 % of papers in a sample that were prepared in cooperation. For the research purposes the American experience is more demanded. After that – Spain, UK, World, The Netherlands, Germany, Europe, etc. These areas share about 50 % of papers, which include geographical area in research.

Conclusion

The main findings of the analysis represent the methods, techniques, topics' focus and the geographical aspect in the field of research of innovative SMEs. The difference between the field of small entrepreneurship and innovative small entrepreneurship declares particular independence in the development of the field. Notwithstanding the fact that the paper is theoretical the results have practical meanings. Worldwide successful experience in development of small innovative companies and its multiplication benefits for the economy became one of main basis in the modern public policy in Russia. Significant efforts were placed into searching and exploring drivers for the Russian national innovation system. Besides academic institutions, world famous consulting companies, such as Mc Kinsey Co, PWC, public organizations "Opora" and "Delovaya Russia" are engaged in this process. The majority of analytical reports and research papers declare challenges for the development of innovative companies: deficit of financial sources, low customer demand (which is really 6 times lower than the same for the European countries), lack of public policy, undeveloped infrastructure. In other words, modern analytical reports or research papers in the field of innovative small and medium-sized enterprises in Russia are based on the problematic approach and mostly involve descriptive statistics. At the same time the investigation of determinants in success of innovative SMEs is criticized for the narrow view towards an innovative company and its descriptive form. In that case the results of this research could be placed into our understanding of modern tendencies of knowledge extension about innovative SMEs. That is one of the ways to improve public policy toward stimulating innovative SMEs.

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Современная методология исследования малого инновационного предпринимательства: анализ публикаций

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Данная работа посвящена изучению современной методологии в исследовании малых инновационных предприятий. Анализ основан на 7 мировых журналах за период 2006-2011 гг. Основное внимание уделено выявлению главных тенденций в исследованиях, посвященных малому инновационному предпринимательству, что позволяет расширить наше понимание о динамике развития области за последние годы, а также способствует большему пониманию деятельности малых и средних инновационных фирм в России. Результаты исследования могут быть использованы исследователями малого и среднего инновационного предпринимательства; государственными служащими, ответственными за проведение экономической политики с целью снижения институциональных ограничений и разрабатывающими меры стимулирования активности малого и среднего инновационного предпринимательства.

Ключевые слова: инновационные малые и средние предприятия, малые предприятия, методология, современные тенденции.