



**Master Thesis**

**School of Economics and Management**

**Department of Business administration**

# **Specificity of Innovative Gazelles**

**<Influence of access to finance networking and knowledge base on innovativeness>**

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# Abstract

<b>Title:</b>	<b>Specificity of Innovative Gazelles</b>
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<b>Five key words:</b>	Innovative Gazelles, Innovation, Access to Finance, Networking, Knowledge Base
<b>Purpose:</b>	This study aims to present different factors influencing growth comparing Innovative Gazelles and other average SMEs. In addition, this study will investigate relevance of factors fostering innovation in high-growing SMEs in a cross-country perspective in order to show how Innovative Gazelles differ from SMEs in general.
<b>Methodology:</b>	The study applies qualitative approach of multi case study, which will be conducted on the bases of deductively chosen prepositions. These prepositions will be tested on empirical results found during primary data collection and confronted to secondary data available.
<b>Theoretical Perspectives:</b>	The theories used consist of previous studies on topics of factors influencing innovation and SMEs growth, and surveys on the mentioned. They have served as a base for analyzing empirical results of Innovative Gazelles.
<b>Empirical foundation:</b>	Empirical data has been gathered through questionnaire and semi structured interviews conducted with CEO/founders of SMEs that fulfill requirements of Innovative Gazelles-Yunasko, Teleskin, Calyx and Skipso. The results are presented under three factors set deductively and under inductive findings.
<b>Conclusions:</b>	It was determined that factors chosen for the research show different relevance for Innovative Gazelles than for average SME. Specific nature of Innovative Gazelles was concluded, that also differs due to major focus on export/or digital access, dramatically higher percent of higher educated people, careful mixture of collaborative cooperation and strict subordination inside the company, broad access to finance solutions and flexibility. Cross country multi case research showed that Innovative Gazelles are companies that do not differ on country bases.

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# 1. Introduction

## 1.1. Background

The relevance of innovation has been greatly understood nowadays. European Commission in 2010 states that the core of Europe 2020 strategy is Flagship project Initiative, Innovation Union. In the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions it is stated “our future standard of living depends on our ability to drive innovation in products, services, business and social processes and models” (Europe 2020 Flagship Initiative Innovation Union, 2010).

Starting from the roots of the word, deriving from the Latin language, word *innovation* and noun of action *innovare* means "to renew or change". The gist of innovation therefore relates to renewal or improvement, with novelty being a consequence of this improvement. There are many definitions of Innovation and we will list the ones we regard as most useful.

## 1.2. Definitions of Innovation

As stated in the book Terrence E. Brown, J. M. Ulijn (2004), “Innovation, entrepreneurship and culture: the interaction between technology, progress and economic growth”, **“Innovation is an invention realized on the market, stressing the crucial role of creativity in this process and pointing out the industrial and commercial steps for the development of innovation”**. Therefore, Terrence E. Brown, and J. M. Ulijn have stated the very minimum for defining innovation to be: creation of something new and implementing it successfully at a market.

As invention and innovation are both dependant but are not the same when the relevance of returns is in question, we have selected chronologically definitions from '80, 90' and 00' on the innovation topic, in order to present the shift of focus in some and similarities in others.

"The three stages in the process of innovation: invention, translation and commercialization." (Merrifield, 1986)

"Continuous innovation occurs largely because a few key executives have a broad vision of what their organizations can accomplish for the world and lead their enterprises toward it. They appreciate the role of innovation in achieving their goals and consciously manage their concerns' value systems and atmospheres to support it." (Quinn, 1986)

“Innovation is fostered by information gathered from new connections; from insights gained by journeys into other disciplines or places; from active, collegial networks and fluid, open boundaries. Innovation

arises from ongoing circles of exchange, where information is not just accumulated or stored, but created. Knowledge is generated anew from connections that weren't there before” (Wheatley, 1992)

“Innovation is the creation of something qualitatively new via processes of learning and knowledge building and involves changing competences and capabilities in order to produce qualitatively new performance outcomes.” (Smith, 2005)

Although differences in explaining the concept of innovation are present, the very gist of innovation, depending on creativity and collaboration, being implemented, providing returns on the investment, are present through the years. This means that innovation as a global concept is clear, but has been evolving together with the society. How to determine it in firm’s operations and how to measure the level of innovation has stayed an open question.

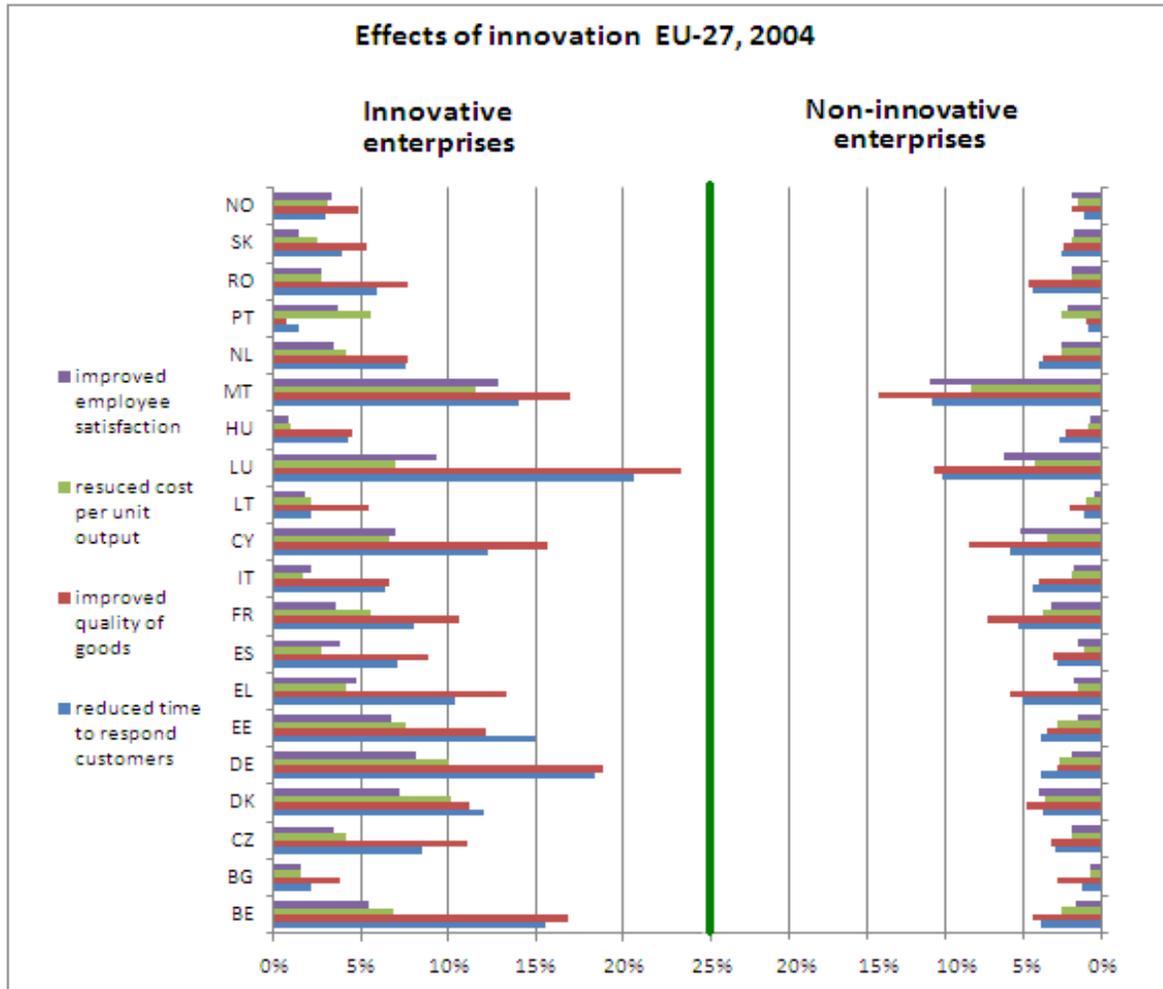
European small and medium sized companies are looking for new ways of customer attraction and satisfaction as a tool to its own prosperity, facing competition not only in revenue generation but also in technical know-how and new service strategies. The globalization in terms of product and service innovations is increasing. Innovation activity appears to be a key factor in a company’s development and competitiveness (Ven, 1986). Both innovative technological products and services create value and provide increasing returns for entrepreneurs, being an essential activity of the firm to be able to reach new markets and maintain high growth performance (Becheikh, 2006). Innovation development is examined on the basis of SMEs’ activity, as these particular companies, their flexibility, simple organizational structure and adaption are the essential characteristics facilitating them to be innovative. Therefore, SMEs across variety of industries are claimed to possess high innovation potential, not fully realized yet (Chaminade, 2006).

Our emphasis on innovation development and assessing factors that foster innovation progress is essential for several reasons. In accordance to Chesbrough (2007) point of view,

1. economic growth benefits dramatically from implementation of scientific excellences in new and existing goods and services with an especial focus on cross-national cooperation.
2. effective implementation of innovative knowledge is exclusively important for underdeveloped countries.
3. considerable learning of prerequisites that impact innovative process creates a base for SME’s innovative policy improvement, understanding key gaps for further elaboration and specialization of companies’ business models to create and capture value.

The role of innovation is widely discussed in scientific literature. Broadening and extending the concept of innovation operations within SME sector in Europe directly supports social and cultural capital of the region. Innovation is not only about introducing new products to the market but also about interaction with society, increasing collective capacities and knowledge excellence moving up from local levels to national and international ones (Nauwelaers C., 2000). It was examined by researches that many valuable innovations have recently come from the cooperation, collective efforts and knowledge exchange between inventors and customers. Often people who take part in inventing process are motivated by their devotion to the idea and working towards common goal of benefiting whole society from innovation, considering success of the project as the best reward (Peter A. Gloor, 2007). Apart from influence on society, innovation for sure has a direct impact on the producers of innovative goods. In the world of digitalized

services, high technology and smart materials competitive environment rapidly transforms, creating potential for innovation greater than ever. Traditional options for lowering margins pressure like cost reduction, reengineering and outsourcing are not always highly effective. Value creation through highly increasing growth is expected to come majorly from innovation (Prahalad C. K., 2003). Forth community innovation survey assessed the effects of innovation that enterprises experience themselves. The major effects of innovation were analyzed in a cross country perspective (see graph 1.2.1).



**Graph 1.2.1**

Source: Eurostat - Community innovation statistics, 2004; Parvan S.V., "Statistics in focus. Science and Technology", 113/2007

The concept of innovation is seen by researchers as a process that involves change in philosophies, techniques, methods and overall business operations. Meaning that, it is explained to be a process of contesting for a market share by uncovering and exploiting opportunities not found before, with the focus on the fundamental change in strategy, but not on tactics only (Davenport, 1992).

### 1.3.Literature review

The scope of the literature concerning SME sector is large and diverse. However, the focus on large companies leading the innovation processes, matching the Schumpeterian hypothesis 'that the presence of some monopoly power and the opportunity to realize some monopoly profits contribute to technical advance, whereas perfect competition now and in the future retards it' is even bigger (Morton I. K., 1982). The point of view is being defended as they are more equipped to invest in their R&D costs developing their innovation and moreover able to exploit their market position (Love, 1997). On the opposite, Acs and Audretsch (1988) claim small firms tend to be more innovation intensive than large firms.

Despite the number of research papers reviewed within limited timeframe, the robust, complete and conclusive answers to the questions raised in this particular paper were not fully lightened up. The first generic problem lies in the comprehensive measurement of innovation efficiency, the linkage of inputs to innovation outputs or impact of innovation activity on firm's performance and growth determinants. The variety of measurement tools were presented and analyzed by researches, mainly discussing issues of R&D and patent usage as a key representatives of innovation activity on the enterprise. The issue of disconnected analysis and dependence of expenses on innovation and outcomes from such action were faced whilst working with empirical resources. Nevertheless, conceptual analyses and empirical researches contributed greatly providing the basis for assessing and measuring the link between innovation and high-growing SME performance. To name a few: Gualandri (2009), Kattel (2010), Edwards (2001), Radosevic (2000), Vrande (2008). But in many analytical papers taken as an empirical background for the particular paper, the proposed ways of measuring innovation creation influence on SMEs' performance was not consistent and comprehensive. No doubt, some good analysis might be found in the papers we were not able to review and examine. Therefore, the purpose of the above mentioned issues was not aimed to downgrade the value and usefulness of scientific researches that do light up innovation aspects on the basis of SMEs operations but were done to move the reader to the other angle of measuring innovation phenomena.

Secondly, the majority of articles and analytical reports presented their research on the basis of more or less developed countries, neglecting less advantageous ones. In accordance to Prahalad's (2003) article, companies operating and competing in mature markets face different challenges and sources of profitability than those who are doing their business on emerging markets. Economies of developing regions grow vigorously, creating broad customer and entrepreneur base and potential for growth. Such economies are seen by researches as engines of global economic growth, promoting prosperity around the world (Prahalad C.K, 2002). It was established that innovative companies operating in developing countries do face strong revenue generation, great operating efficiencies and uncover new sources of innovation (Infosys, 2006).

Finally, narrow focus on high-technology manufacturing SMEs was found. Reviewed literature (for example (Motwani J., 1999) or (M. H. Bala Subrahmanya, 2010)) concerning innovation development of SMEs showed up to be majorly concentrated in its sampling on high-technology manufacturing firms or the less extend information and communication technology provider. It is explainable by the global historically introduced importance of industrial sector development and high employment potential.

According to this analytical works we are now aware of the style that high-tech producers use towards research and development policies and management. Although researches were more oriented on analyzing the prerequisites and outcomes of innovative strategies in technology-based industries and were less concerned about less technology intensive market players, the scope of empirical information present to us and therefore the opportunity for us to investigate and generalize the information was limited.

## 1.4. Problem Discussion

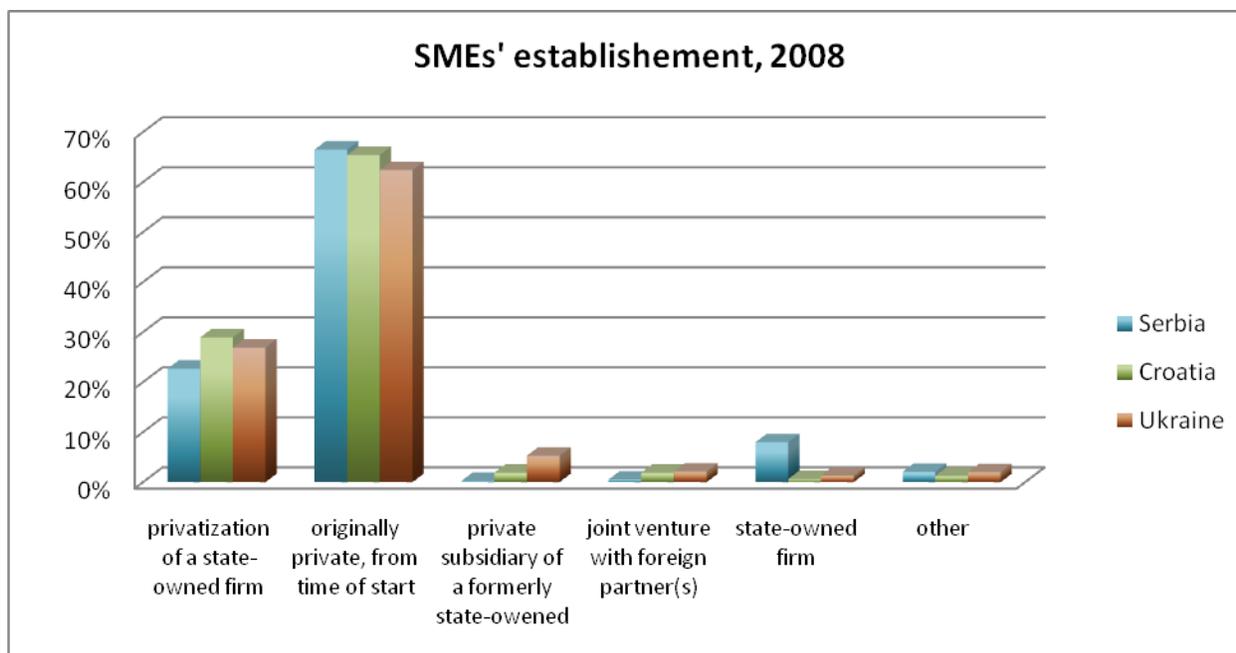
On the contrary of Gibrat's law, sometimes called Gibrat's rule of proportionate growth, stating that the size of a firm and its growth rate are independent, it has been proven differently (Sutton, 1997). The study on Gazelles, done by Europe Innova- The network driving European Innovation, implies that the variance of firms' growth rates is dependent of their size and tends to diminish with it. Moreover, this effect is amplified when datasets with smaller firms are considered.

According to the most recent OECD research, ninety nine percent of all European businesses are SMEs (European SMEs under Pressure, 2009). The role of SMEs in terms of employment creation, maintenance of entrepreneurial development and innovation has been crucial to economical competitiveness, progress and growth. According to the mentioned research, they provide two out of three private sector jobs and contribute to more than half of the total value added created by businesses in the EU. The potential boost to the small business sector can have far-reaching economic and social benefits. Between 2002 and 2007, the number of SMEs in Europe increased by over 2 million, while the number of big businesses increased by a more modest 2000 companies. Over the same period, SMEs were responsible for 84% of new jobs, which is bigger than their share of total private employment, at 67% (2010).

The underlying feature of Eastern Europe countries' is quite different than the rest of the World. In non EU countries the size of the SME sector (as measured by the percentage of total employment) is smaller than in most developed economies (see graph 1.4.1). The SMEs in Eastern Europe are generally small and hire few employees. However, SMEs seem to constitute the most dynamic sector of the Eastern European economies, relative to large firms. In general, the SME sector comprises relatively younger, more highly leveraged, and more profitable and faster growing firms (Victor Sulla, 2002). The difference in their structure and forming is significant. Apart from the companies that were "born naturally", there is a significant part of companies that have been formed through privatization of state owned companies.

Innovative SMEs in Europe have dynamical and flexible characteristics that foster growth. The secret of their success, as they state, is in investing in Research and Development (hereafter called R&D) and innovative activities as their focus is on product/service differentiation (Study on Innovative ICT SMEs in Europe (EU 25), 2007).

The average positive picture OECD research shares is greatly influenced by SMEs called Gazelles, who differ from the general term of SME, but yet again belong within. Gazelles are recognized as a central source of dynamism in modern developed and developing economies (Werner Hözl).



**Graph 1.4.1**

*Source: World Bank Enterprise Survey, 2009*

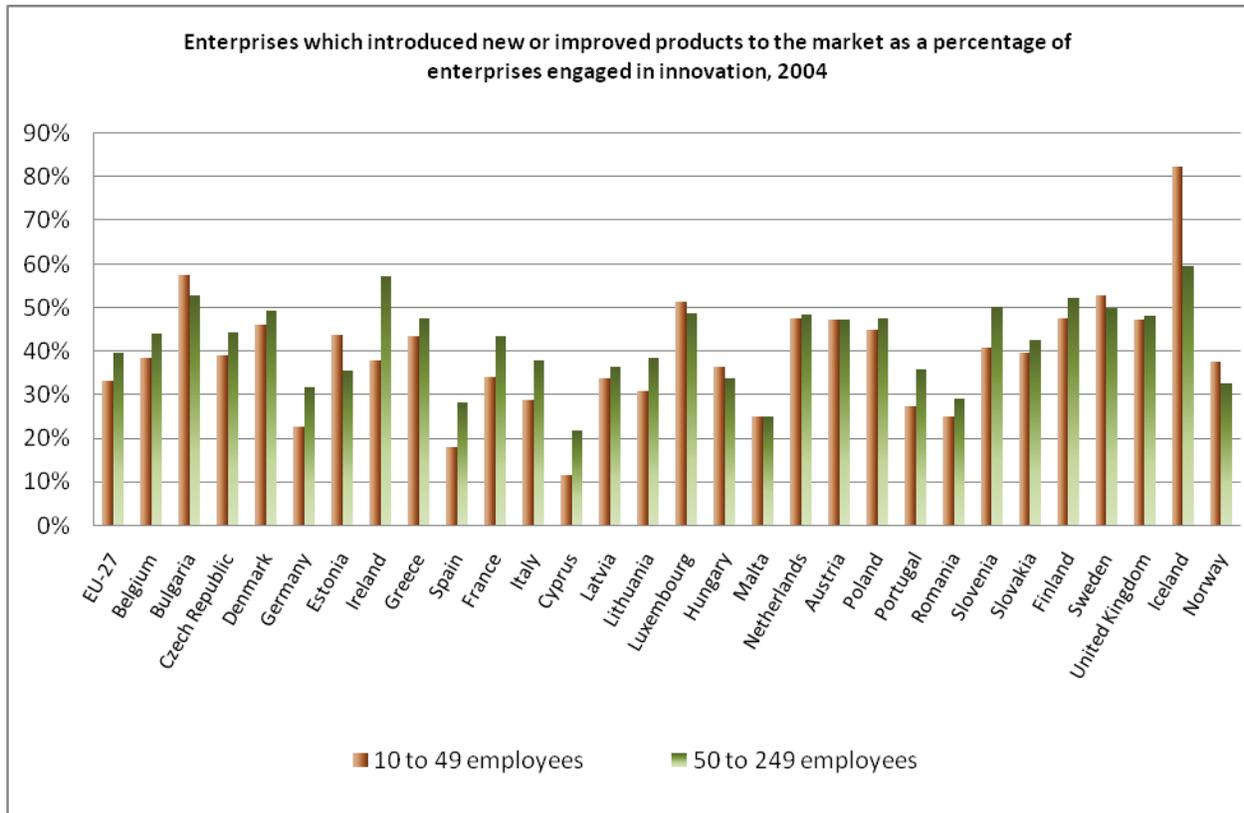
Gazelles have significantly higher than average financial results to show, as they are high growth SMEs. The percentage of the Gazelles that are innovative is unknown (Europe 2020 Flagship Initiative Innovation Union, 2010). Gazelles are innovative and high growing but the fact that they are engaged in innovating activity is not a valid enough reason of their growth. Namely, differences in innovative levels and growth in innovative SMEs number within different countries exists. Therefore, there are some internal and external factors that cause these differences.

Enterprises engaged in innovation do not by default succeed to penetrate a market or develop the innovation to the final phase. The following graph 1.4.2 shows that innovative level of a country does not always confirm the innovative growth.

Gazelles as such have various structures and influence on their economic surrounding. They are valuable rare examples in the numerous lookalike enterprises. Their appearance is always raising interest. Due to their specifics, Gazelles can exist hidden, in a business structure of a country, difficult to reach and acknowledge as bigger players dominate. Moreover, as they are rarely listed, little public information is available, and as their products may be of competitive advantage, not always do they prefer to build it openly (within open business model) but only up to a certain point (Bodreau, 2009). Although their rapid growth is not eternal, characteristics of bright examples within Gazelles can be used for deeper analysis as best practices. The issue here is exploring this part of SMEs, Innovative Gazelles.

The number of Innovative Gazelles is very small in the total population of SMEs and even the exact influence on economic growth of these companies is still unknown<sup>1</sup>, as criteria under which they may be classified is a topic of great debate (see graph 1.4.3).

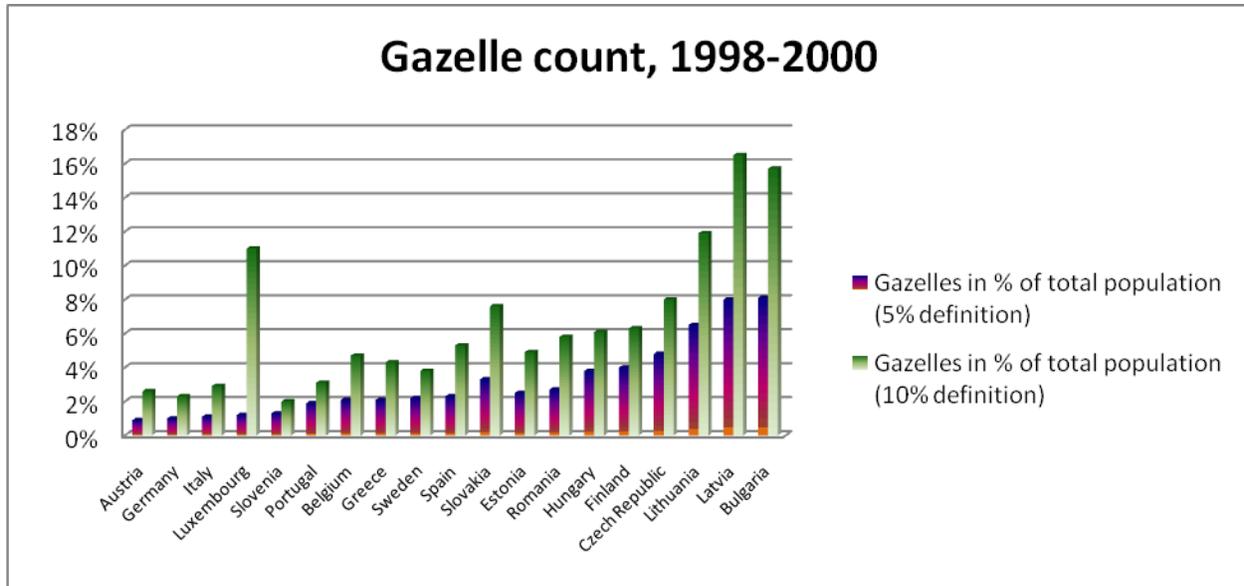
<sup>1</sup> Innovation Union Scoreboard 2010, The Innovation Union's Performance scoreboard, [www.proinno-europe.eu/metrics](http://www.proinno-europe.eu/metrics), 2011



**Graph 1.4.2**

Source: Eurostat - Community innovation statistics, 2004; Parvan S.V., "Statistics in focus. Science and Technology", 61/2007

Their features are vague, and the secret of rapid success is appointed to various different sides of their structure. Such categories are, understandably, parts of soft capital. They are difficult to be identified quantitatively and measured. Moreover, as we are interested in factors that influence innovation development in SMEs, the focus will be done on assessing the nature of factors, bringing new perspective for the research in terms of level soft and hard factors impact innovation development.



**Graph 1.4.3**

Source: Final Sector Report: Gazelles, “Innovation Watch – Systematic”, Werner Hölzl And Klaus Friesenbichler (Wifo)

There are two reasons why the position of investigating Innovative Gazelles in a cross country manner may give interesting findings.

1. First is as mentioned, assumption that innovativeness can be fostered easier in developed countries<sup>2</sup> due to the fact there are differences in the amount of Gazelles and in innovative level within Old Member Country of EU (Werner Hölzl).
2. Secondly, conditions and structure of SMEs in non EU countries may be different as stated in Klapper Sarria-Allende and Sulla “SMEs Enterprise Financing in Eastern Europe”, since forces that promoted the creation and expansion of SMEs are: restructuring and downsizing of large firms and the privatization of public utilities and other large companies, outsourcing of many support services, and vertical fragmentation of production. This differs from European Union data where SMEs are “born naturally” (Leora F. Klapper, 2002).

Due to the mentioned, the countries from which companies that match other requirements will be chosen are Ukraine, Serbia, Croatia and United Kingdom.



<sup>2</sup> Here after called OMC

## **1.5. Research question**

When evaluating researches on the topic of Gazelles, we have not been able to identify those focused on specific differences of Gazelles within the entire structure of SMEs sector. Therefore, specifics that may affect growth of Gazelles and differ from SMEs characteristic should be investigated. Little data is available on investigating the developing countries as platform of innovative growth and enablers of that growth.

This is why we are tackling the question “How do factors that influence growth of Innovative Gazelles differ from their influence on other SMEs?” in our research.

This is why both factors that separate Gazelles from other SMEs and differences through cross country perspective will be analyzed.

## **1.6. Purpose**

The main purpose of the research paper is to present different factors influencing growth, comparing Innovative Gazelles and other average SMEs.

In addition, this study will investigate relevance of factors fostering innovation in high-growing SMEs in a cross-country perspective.

## **1.7. Target Group**

This research is aimed to raise issues which are a base for further research on topic of innovative activities in high growing SMEs. It should find its audience among researchers, professors and students, as well as companies interested in both factors within the soft capital that they can influence and set of external factors that cannot be influenced.

## **1.8. Demarcations**

We are aware that simple correlation of attributes and outcomes can be mistaken for causality, and not willing to fall in that trap, we are analyzing the relation of given prepositions that are believed to have strong affect on innovation development. We are acknowledging that this is only the first phase in forming a theory. Due to the fact we are analyzing theories that already exist; our purpose is not to form a new theory. Instead of concluding on the account of mere observations under which causation cannot be determined, we are stating that this work is the first phase-observing and description of the phenomenon-innovation and growth of innovative SMEs that we refer to as Innovative Gazelles (Raynor 2003).

In addition, this research will be focused merely on internal factors such as access to finance, networking and knowledge base, explained further on, excluding external macro features such as economic risks, political instability, fiscal and monetary policies and alike.

Data availability brought us to the point where consistent comparison of the data for Ukraine, Serbia and Croatia was possible, since it was collected from the same source, World Bank Enterprise Survey. This data regards general information on SMEs. However, the same data for SMEs in United Kingdom was not available and therefore the example of Innovative Gazelle from UK will not be confronted to general data. We understand the predicament but due to valuable primary data collected we have continued the research using Eurostat Community Innovation Statistics instead, which gave us only partial information needed. The conclusions were made mainly on primary data collected.

## **1.9. Thesis outline**

Following the given, Chapter two explains the methodology of this research, based on qualitative approach and data selection.

Chapter three presents theoretical discussions on the topic of three factors influencing innovativeness being analyzed.

Chapter four consists of empirical examples presentation, where examples of Innovative Gazelles are introduced and analyzed.

Finally, Chapter five comprises conclusions and proposals for the future research.

## 2. Methodology

### 2.1. Research logic

As Christensen and Raynor (2003) state, in management research, it can often be seen that academics and consultants make mistakes while building a theory on bases of correlation-based stage, by producing regression analyses that measure correlation of indeed not necessarily related attributes and outcomes. The mere correlation between two factors may be misunderstood. If one changes when another does, it may mislead us to conclude that one is causing the other to change. Actually, this may not be the case, as they can only be in correlation and not in causation. If this is the case, managers who adopt results of such researches can only be lucky if their business plan succeeds. Most likely, it will be unsuccessful due to incorrect assumptions at the first place. In their article “Why hard-nosed Executives should care about Management Theory”, they continue stating that in order to pass the first phase of mere correlation, researchers should actually “dig deeper” inside of companies instead of “crunching the ever more data”.

The very phenomena of Gazelles and moreover Innovative Gazelles, has been somewhat addressed and acknowledged through researches, but they were all focused, up to our knowledge, on the perception of developed countries. The researchers working on this topic believe that the best approach would be qualitative one, as researches are mostly built on qualitative grounding (Huberman, 1994).

Qualitative approach focuses on formulating data out of observations and words collected from discussions and documents. The results depend both on the side that is giving the information and on the side that interprets it. When talking about qualitative research, inductive features are often dominating, that is due to the fact that strict or tight methodology has not been set, which gives freedom to the researcher to determine the model and method. Nonetheless, when dealing with strict deadlines, qualitative research can be deductive as well. It can be “confirmatory” and therefore analyze or test already existing concept (Huberman, 1994). The fact that qualitative approach does not involve or require a strict model to be followed is one of its biggest advantages, because the researcher can on one hand confirm a certain conceptualization, as mentioned, and on the other, be inductive enough observing all that can be relevant of which s/he was not even aware of, instead of only the prerequisite factors.

For our research, as innovation and the processes it entail are vague and difficult to cover all at once, qualitative approach is highly suitable. Moreover, the researchers begin with deductive approach, analyzing the stated prepositions and theories explaining the phenomena, which the researchers tests on the empirical results-companies as examples of Innovative Gazelles (Bell, 2005). The research, however, will end with inductive conclusions, as qualitative approach has as the principal orientation to the role of theory in relation to the research induction, bringing to light all the unforeseen connections born within the process of innovation, while reporting results. This approach is being encouraged due to pragmatic reasons, as descriptive data are phenomena that may provide enormous amount of information (Bell, 2005).

Nonetheless, qualitative explanations can be fulfilled with the quantitative base that contributes to reliability, validity and significance.

## 2.2. Research design

The research will be connected with theoretical aspect on the subject. Within the theoretical framework, although it is debated that case studies and theory cannot always be firmly connected, various conclusions and results of researches have been presented, out of which our focus was determined (Mansor, 2010). Three main factors were chosen with a view to being further developed during the very collection of data, as semi structured approach will always be taken, as the very best way to exploit the benefits of qualitative case study approach. These factors were chosen according to analysis of general EU 15 data available, on hampering factors towards innovativeness, as the most efficient variant due to time limitations. The fact that they include various sub factors that explain them closer, provides the opportunity of deeper analysis. Those factors will be analyzed on four examples of Innovative Gazelles. The collected data of individual cases are to be confronted with the World Bank Enterprise Survey data, for the SMEs.

## 2.3. Case study

Case study can be met in almost any field of research, especially in social ones. As Punch (2005) states, “The basic idea is that one case (or perhaps a small number of cases) will be studied in detail, using whatever methods seem appropriate. While there may be a variety of specific purposes and research questions, the general objective is to develop as full an understanding of that case as possible”(Tight, 2010).

Malcom (2010) further concludes that “The essence of case study is the detailed examination of a small sample of an item of interest, and typically also from a particular perspective” (Tight, 2010)

The research will be conducted in the form of multi case study, which is more preferred when it comes to how robust a research is. (Tight, 2010) It is generally chosen when answers on questions such as “why” or “how” are being raised (Yin, 2003). As Miles and Huberman (1985) observed, multi-case study analysis gives further insight into the problem being researched. “In case studies, there is no relevance in performing a statistical sample logic due to the complexity of the research questions, which often contains many variables which in turn make it almost impossible to conduct a sample test” (Yin 2003). The research is aiming to show differences of Innovative Gazelles and SMEs in the comparison on cross-cultural and cross-national features, and as such Bryman and Bell (2005) encourage multi case study. Therefore, our approach matches the mentioned, and it provides possibility of comparison which is crucial for the structure of our work.

## 2.4. Selection process

When analyzing the phenomena of Gazelles, secondary data used from Europe Innova's research of 20 EU countries up to the year 2000, has showed us that:

- The number of Gazelles is different in the cross country perspective, as can be seen on the graph 1.4.3
- The difference is also dependant on the technological base of a country, influencing directly on the innovation based growth strategies. Moreover, Innovations are more present in Old Member Countries<sup>3</sup> than in new ones (Hölzl, Final Sector Report, Gazelles)
- There is a difference in initial establishment of SMEs in some part of Europe compared to old EU member countries (Klapper Sarria-Allende and Sulla)

Therefore, as pointed in the problem discussion of this work, the researchers believe that focus on Ukraine, Serbia, Croatia and United Kingdom would present a unique point of view on innovation development, as it would acknowledge the macro factors this division entails, but would focus on internal endogenous factors that companies in these countries tackle.

This is why choices of companies chosen for the case study will be based not by the concern of "representativeness" but driven by conceptual questions (Huberman 1994). This is the approach that has as its prime concern the conditions where the case in question is being analyzed.

Our research will set benchmarks of main factors on the country level, and be discussed together with results of individual studies of the companies. Our qualitative data collected will be fulfilled with data from EUROSTAT, Europe Innova and World Bank Group and European Bank for Reconstruction and Development researches. The qualitative data will be confronted with World Bank Enterprise Survey data. Core Module, consisted of answers includes all common questions asked to all establishments from all sectors (manufacturing, services and IT), from which we eliminated large enterprises, leaving SMEs (with less than 250 employees) 7data.

The miscellaneous is that World Bank Enterprise Survey includes countries of focus such as Ukraine Serbia and Croatia but no data for United Kingdom are found. Therefore, as the representative of Old Member Country, average of the EU 27 data from EUROSTAT will be used instead, with a view to extracting all the possible from the data available.

The data on our examples of Innovative Gazelles will be collected through a process of case screening. After a market with the method mentioned above has been chosen, a pool of companies for the in-depth analysis has been created. These SMEs are being examined in order to find the ones that match the criteria.

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<sup>3</sup> Here after called OMC

## 2.5. Selection Criteria

First thing to tackle before the beginning of the actual research is defining aspect of it. Each term is important to define due to the fact we will be led by these definitions when choosing our focus of research and sample.

1. Small and medium enterprises are defined in correlation with most widely used definitions, acknowledging the qualitative features but focusing on quantitative, with the purpose of this work had in mind.

### SMEs

The need of new definition of SMEs has motivated EU to set new thresholds for companies to be classified as SMEs. Apart from their size, or staff headcount, indicators such as annual turnover or annual balance sheet were introduced (Annual Report on EU Small and Medium-Sized Enterprises, 2009).

- **Enterprise category of medium-size to be <250 in** Headcount of Annual Work Unit (AWU); Annual turnover <€50 million (in 1996 € 40 million) or Annual balance sheet total <€43 million (in 1996 € 27 million)
- **Enterprise category of small-size to be <50 in** Headcount of Annual Work Unit (AWU); Annual turnover <€10 million (in 1996 € 7 million) or Annual balance sheet total <€10 million (in 1996 €5 million)

Although we acknowledge the existence of qualitative features that define SMEs, due to the difficulties of determining them easily, only quantitative indicators will be used for determination of SMEs.

2. Gazelles are defined with five characteristics to be fulfilled, in correlation with assumed definitions

### Gazelles

The majority of literature in the area of determining value drivers for companies focuses on large firms while research on high growth small firms is underdeveloped (O'Regan et al., 2006). Nevertheless, our first goal is to identify these SMEs and verify that the main reason of their growth is their focus on innovations. Not all SMEs are the high growing ones. Moreover, not all high growing SMEs continue their growth. On the contrary, the probability of rapid growth declines with the age of firms and the great majority are existing SMEs that were more than five years old (OECD Working party on SMEs and Entrepreneurship, 2010). The ones that actually do have high growth are of special interest. They are called Gazelles.

In defining fast growing SMEs, there are many issues to tackle. In the same light disputes raise on the issue of defining SMEs. SMEs are mainly defined merely by their size (as companies with less than 250 employees), and not by their qualitative features both regarding the better connection and involvement of managers and decreasing usual issues large companies face such as possible agency problems. Therefore,

fast growing SMEs may be defined through their employment growth, turnover growth, and alike indicators.

In the framework of Schumpeter's theory of creative destruction, as the inevitability of innovative change, highlight the significance of innovative SMEs (Spenser, 2006). He identifies high growing SMEs as follows "They combine existing input factors in novel ways and thus produce an innovation that enables them to outperform the market. Similarly, their role in the process of creative destruction seems to be greater than the importance of other firms. If the process of creative destruction works efficiently, fast growing firms can be the bearers of a dynamic reallocation of resources and decisively contribute to job creation" (Henrekson, 2008)

Bearing all the mentioned in mind, we would agree in using

- Innovation as main indicator of Gazelles
- Growth in revenues amounting around 20% within three or more consecutive years (Janczak, 2010)
- focus on export as "born global" SMEs
- collaborative spirit-networking, webs
- expected to have more valuable human than tangible assets

Due to all the above, we will regard Gazelles as Innovative Gazelles, and not only fast growing. It is easily grasped that it is relevant to determine which factors or value drivers cause SMEs to grow rapidly, since although we find these companies in all the countries, the percent of Gazelles varies.

What needs to be acknowledged as well is the fact that, when talking about Gazelles' main feature-growth, we are aware that it can be of temporary character. Namely, many firms during their existence may reach a phase of rapid growth. It is a part of companies' dynamics. Nonetheless, the Gazelles are indeed special as their growth is high above average-20% or more. How they achieve it shows that they must be more flexible and able to adopt faster in order to exploit opportunities and reacting to new markets (Rigby, 2006).

### 3. Measures of innovation are discussed and defined

## 2.6. Measuring innovation

Factors that determine or define innovations need to be established. The analysis of innovation and innovative activity requires data other than conventional economic data: in addition to the usual economic quantities, data on types of innovation, inventions, technologies, arrangements among firms and between firms and research institutions such as universities are needed. (Rosenberg, 2009)

Innovation as such can be regarded from a qualitative aspect. Measuring innovation has raised great amount of issues and debates. Firstly, due to the fact that under innovation we refer to something new and incomparable makes it hard to determine and therefore measure as well (Smith, 2005). The main issue is

the fact that Innovation success does not equal innovation input or output. Therefore, a tight correlation between returns and R&D activity can not be established (e.g. Ahn 2002). The explanation may be that firms have specific capabilities most certainly soft capital, which complement their R&D activities but are difficult to measure.

With a need to connect qualitative to quantitative aspect, research and development costs are understandably considered, as a mean which would reflect the investment which later on resulted in innovation. Nevertheless, mere usage of R&D has been criticized, for example, Rosenberg has raised the multi layered issue of innovation being developed through different processes, with research being its initial and basic one, but not the only one. As basic aspects of innovation he states chain-link model of innovation (Rosenberg, 1986). The significance of his research is in the fact that not only R&D costs represent the innovative activity, but different activities such as design activities, engineering developments and experimentation, training, exploration of markets for new products ext.

Critic of R&D as measurement of innovation are also mentioned early works of Pavitt (1987) as on the example of 4378 significant innovations, it has been shown that firms with fewer than 1000 employees have had returns in a much larger share than is indicated by their share of R&D costs. (Pavitt, 1987)

Other way usually suggested as an indicator of innovative activity is for patents to be used. Patents data bases gather detailed information about new technologies into a protracted public record. Of course, patents actually present inventions which need to be accepted and moreover there is a certain amount of time required for an invention to become innovation, which can be expected to provide returns. European Patent office has a great number of patents established and recognized annually. That is where the patent base is created. The R&D performing firms are expected to use this base in order to further develop their innovative approach. Nonetheless, European Patent Office reported that only 14% of innovative SMEs actually use this base (Merit, 1998). Cohen et al (2000) point that patent protection is far from perfect and that there are benefits to imitation (losing the R&D race and not getting the patent but acting as a mere follower) as well as innovation (winning the R&D race) (Cohen, 2000).

Despite all the issues regarding R&D being a measure of innovation, due to easy manipulation of this data, thanks to many aggregate countries' and industries' R&D databases, this indicator is widely used both in terms of comparing historically and with each other. This possibility often leads to opaque conclusions referring to R&Ds as the only source of innovation.

Patents are as well often given too much of importance in innovation measurement despite the drawbacks stated. In this work they will not be regarded as valuable indicator

- Due to the poor usage of patents data base
- and due to costs of establishing a patent which differ among countries, and therefore mislead conclusions regarding annual increase in number of patents registered

For our research, as discussed above, measurement of innovation within a company will be done with indicators as:

Quantitative approach

- R&D through a time horizon, as the percentage of total expenditures is used (Fraskati Mnuual, 2002)
  1. Investments as R&D expenditures
  2. R&D as investment in personnel

Qualitative approach

Likert scale will be used in order to define and measure innovative activities of companies. With this approach, companies would grade themselves on the scale from 1 to 5 according to the level of innovative activities they perceive they have.

## 2.7. Target group

The issue is how companies with clear specifics such as Innovative Gazelles have, are to be found in abundance of SMEs.

Bearing in mind that no rule or system exists explaining the appearance of Gazelles, they can be found in every sector. The assumption that they are only found in high tech industries is not valid. They exist independently of the industry. Therefore, the phenomenon of Gazelles will be regarded as an economic one, and not a technological one (Hölzl, Final Report, Gazelles). If companies fulfill Innovative Gazelle description, they will be regarded as comparable and used in this research, regardless of the industry they belong to.

## 2.8. Data collection

As the best way to come to valid results is to bring observation to the level of assertion, the qualitative research in this work has been somewhat constructed, focusing on three main factors influencing innovativeness, that would provide good knowledge base for researchers and lead assertion while interpreting the information to the high quality results. (Stake, 1995)

After identifying the SMEs of interest, this study will use two ways of collecting data.

1. Questioner, enclosing both descriptive information and numerical information requests.
2. Interview with the representative of Innovative Gazelle is being set.

Investigations that are related to innovations have been dominated by structured questioners and quantitative analyses (Romano, 1990). The questioner covers basic introduction of companies, data justifying their categorization as innovative and factors we believe are most relevant for continuous innovative activity and growth. The questioner itself is of qualitative character with minor essential quantitative questions.<sup>4</sup> It has been built in correlation with World Bank Enterprise Survey and OECD

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<sup>4</sup> Appendix 6

survey adjusted for the needs of this research. It has been tested before the usage on the actual companies, on an unbiased independent SMEs not included in the research, for the purpose of improvement and clarification.

The testing has been repeated on different companies until the positive feedback was received on regarding understanding and clearness of questions. Eighty eight companies that fit our requirements were contacted, initially via e mail and those who showed interest were afterwards contacted via phone. As our research structure demands full dedication and openness in order to derive to qualitative conclusions, only companies who were ready for cooperation and did not have any legal issues or time management problems were included in the survey.

Completed interviews	Incomplete interviews	Refusals	Total
4	12	72	88
4%	14%	82%	100%

Nevertheless, our work has showed us how often companies are reluctant to cooperate and answer questions related to their business model. It has served as one more confirmation why such topics can be best analyzed through case study, since it allows a direct approach, via interviewing, that can overcome the restrictions imposed by lack of response on questioners (Romano, 1990). Our main tool apart from questioner will be interview, focused on the principal research issues. As the typical critic of qualitative research is possibility of the researcher being biased, and not pragmatic due to the abundance of descriptive information, there is a necessity of semi structured interview. On the other hand, the quality of information gained by an interview in great respect depends on the interviewee. The cooperation and qualification to answer given questions or discuss certain topic greatly influences the level of validity of the collected data. This is why our interviews focus on the direct contact with managers/owners/ CEOs.

## 2.9.Data quality control

This study is being done in three stages to ensure validity and reliability.

Institutions, organizations and universities of each country were contacted with a view to providing a valid base for the case pool.

1. Collection of secondary data through web sites of companies, documents, and literature.
2. Primary data is being collected through the questioner that is sent to the companies in advanced.
3. Semi structured interview is used as a follow up for the purpose of validating the collected information (Bell, 2005)

Unlike the issues of external validity and reliability that quantitative researches face, such a three step approach is used in qualitative research to assure validity. This is the triangular approach where as Bryman&Bell (2005) state “attempts are made to cancel out the limitations of one method by the use of another in order to cross check the findings”.

## 3. Theoretical Framework

### 3.1. Theoretical discussion

There have been discussions on the topic of the role of theory in qualitative inquiry process within social science researches, ending in an unclear position of researchers regarding the relevance of the theory and the place it should take. As Mehdi and Mansor (2010) state, “a deep comprehension of a phenomenon, event or experience in real-life cannot always or necessarily be based on theory, yet the significant role of theory in literature review is an undeniable fact”.

SMEs are faced with much bigger issues when it comes to their development, starting with access to financing, organization, recruitment abilities, both in terms of extrinsic and intrinsic requirements, competitive advantages, market share, and all the possible aspects a mature, stable, large company does not need to face. On the other hand, we see SMEs that grow and develop in a rapid speed.

Having said this, increasing returns, the aspect we are interested in as it reflects Gazelles, are according to Arthur, typical for knowledge based industries and are explained with multiple equilibria. He states that “if a several similar size firms entered a market at the same time, small, unexpected events would help determine which ones achieve early sales, and, over time, which one dominates”(Arthur, 1994). These random uncorrelated events he explains in the Path dependence framework, stating that the very effect of these random events actually sets the future of the whole industry, influencing it greatly in a period of time.

As stated in the Europe Innova research, “the determinants for growth seem to be at least partly independent of each other; economists tend to consider firm growth to be a random process, because it is largely independent of firm characteristics like size”. Nonetheless, there is abundant number of companies that are stagnating, as well as there are companies that are very successfully reaching high revenue growth. With a view to setting the path dependence with its randomness in order, we are investigating on the most relevant factors that influence growth of Gazelles that are innovative and their difference in comparison to average SMEs features (Shilling, 1999).

As empirically proven, even in similar surrounding and alike conditions influencing the business, some SMEs do continue to develop, with Gazelles attracting most of the attention, and some do not. Raising therefore importance of two theories, Industrial Organization Paradigm and Resource Based View, it is implied that influence on the business is multi factorial (Malm, 2001). First one states that market position and favorable industrial characteristics can explain competitive advantage. Later theory states that from Wernerfelt's (1984) focus on resource dependence to Barney's (2001) relevance of resource, internal features such as organization and resource heterogeneity influence the business (Malm, 2001).

As raised by Gianmario Verona and Davide Ravasi, there has been a noticeable shift within companies, from the focus on products and market featured to internal focuses on: customers, management processes and business projects (Verona, 2003).

The reasons of growth of Innovative Gazelles, compared with other SMEs, are various. Analyzing theories chronologically, Ratz' research from 1985 conducted in six countries, focused on Technological Innovation in Industry, through a workshop on the Financing of Entrepreneurial Ventures and Innovation in SMEs. First aspect examined was Financial resources, followed by Products, Characteristics of founders and Distribution Channels (Ritz, 1985).

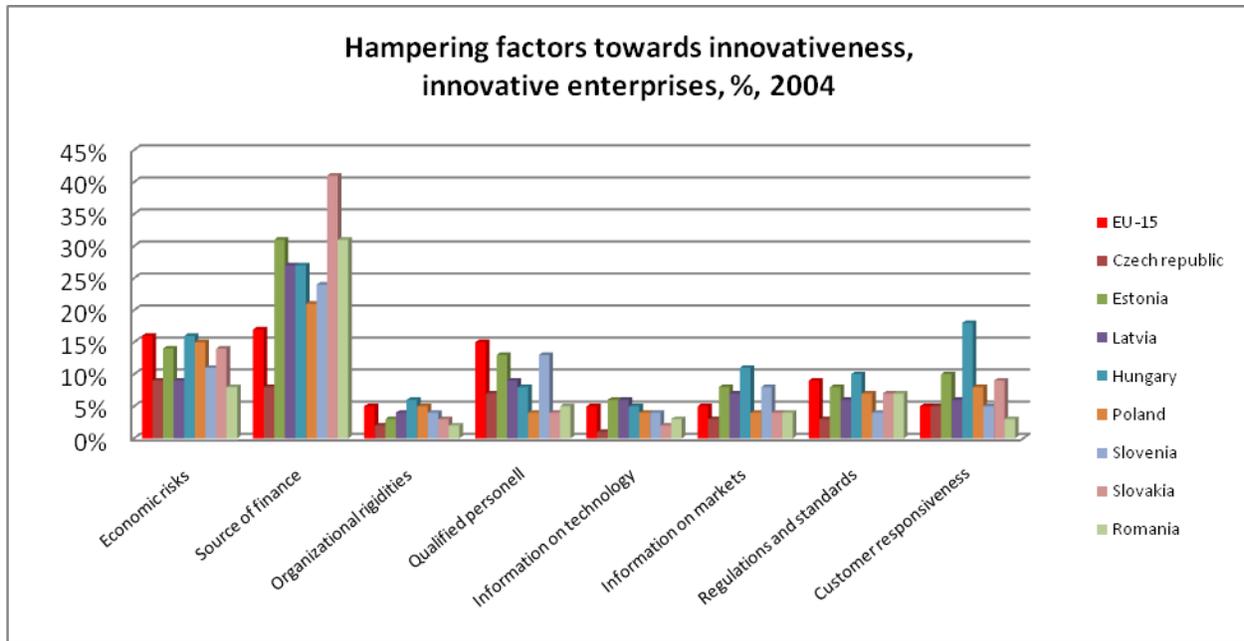
Sylvie Feindt et al defines seven factors of growth of SMEs, divided in two groups, explaining either factors on an industry level or factors that influence each company individually. Those are stated to be Community and Price sensitivity for industries and Brand image, Commitment, Partnership, Process improvement and Integration, for individual companies (Chapell, 2002)

Nicholas O'Regan et al (2006), determines drivers of growth, to be Innovation, Ownership, Organizational Capabilities, Strategic orientation, Operating environment and E commerce.

Vision, Innovation, HR practices, Customer focus, Ties with territory Dynamic Capabilities, on the other hand, are pointed out by the research of Sergio Janczak and Franck Bares (2010), on high growth SMEs. The research conducted by Europe Innova regarded Knowledge as significant factor, either produced in house or acquired.

It is noticeable that factors analyzed through the years, adopt and change in regard to innovation. Namely, with the introduction of internet and digital services, many "traditional" obstacles became obsolete as products of today depend on the World Wide Web, and not only products but processes around them as well. Moreover, the soft capital plays an important role in the shift of relevant factors, as for instance Shilling (1999) points out that various obstacles can be reduced by the human capital experience of the entrepreneur and through learning curve.

There are conditions that need to be fulfilled in order for an innovation to be created and sustained. As the collection of descriptive data, as mentioned earlier, has no strict structure, it can be overwhelming in its size and therefore determines that researcher would be pragmatic. The research of most often barriers of SMEs and point of view of Mr Roman Zinchenko, one of the experts on the topic of innovation in Ukraine and network coordinator of Greencubator, Kiev, greatly coincide. From both mentioned, it is concluded that **Innovation is born at the crossroad of rich intellectual capital base, wide access to funding the business and highly efficient international market collaboration.**



**Graph 3.1.1**

Source: Eurostat - Community innovation statistics, 2004; Crowley P., "Statistics in focus. Science and Technology", 13/2004

The obstacles stated are sources of finance, which is interpreted as access to finance; Information on markets and customer responsiveness which is interpreted as networking and qualified personell which is understood as knowledge base (see graph 2.10.1).

This is being used for our prime prepositions that is to be proven right or wrong and to what extent in comparison to average SMEs. This is why, prior to the data collection, our focus was narrowed done on couple of critical points-those being

1. access to finance as most often mentioned barrier for SMEs
2. knowledge base in the light of importance of Intellectual Capital
3. networking with importance of collaborative and not only competitive model

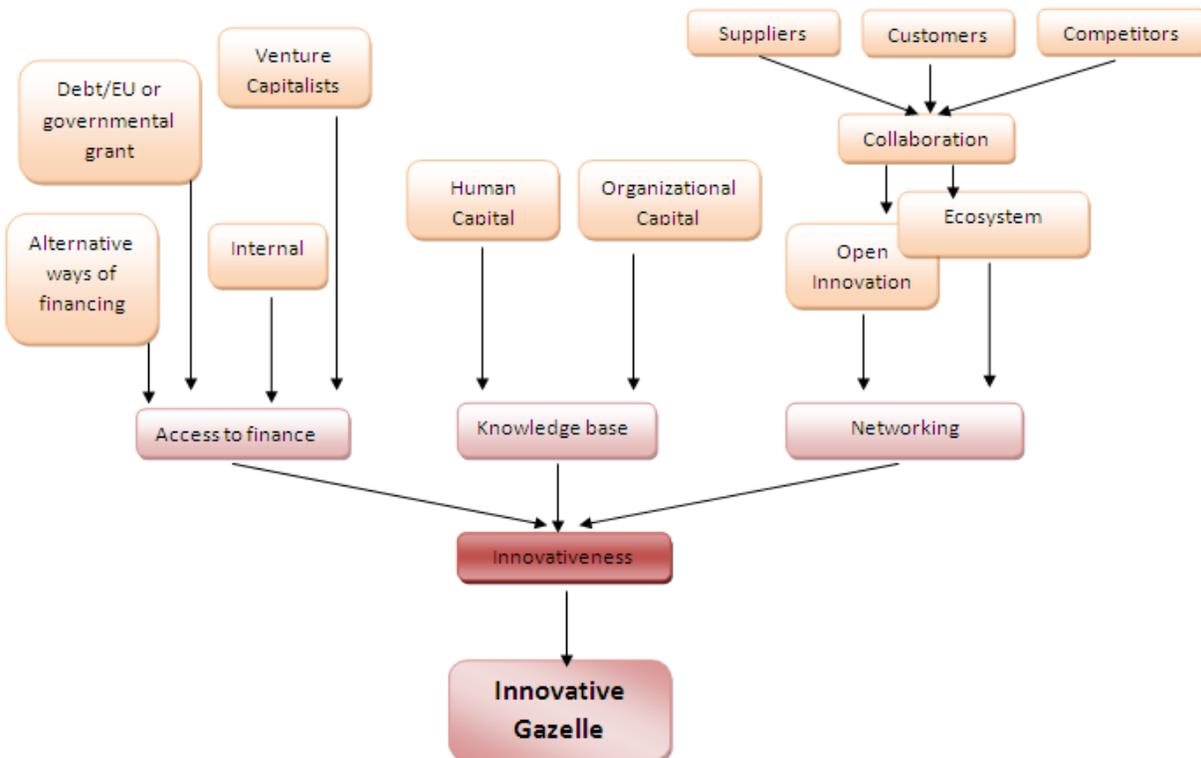
### 3.2. Factors influencing Innovative Gazelles

A term Innovativeness is being used to present development of innovation, reflecting a dynamic process instead of static phenomenon as innovation. The researchers of this study see Key driver of Gazelles growth to be Innovativeness. Holzl (2009) states that R&D and innovation are generally considered to be key drivers of firm's performance.

As explained earlier in the work, Innovation has a great influence on SMEs growth. Freel's (2000)research, reflecting on the original research of Geroski and Machin (1992) states, on the results of

228 innovative SMEs and their growth in revenues, employees and profit, that there is “likelihood of growing” which increases with product innovation (Freel, 2000).

Therefore, its Innovativeness and not only Innovations that provides competitive advantage and growth. The factors that affect Innovativeness that will be deeper analyzed are Access to finance, Knowledge base and Networking.



**Figure 3.2.1:** Model of factors influencing growth of Innovative Gazelles

### 3.2.1. Proposition 1: Access to finance is a one of the main factors influencing Innovativeness of SME

SMEs are considered to be the most dynamic in terms of development firms and the ones most likely to challenge competitive environment with a high value added, though they often face economic obstacles. The barriers often include limited access to liquidity, long-term loans, and high transaction costs. Among other constraints of innovation in SMEs, like access to competences and access to markets, need for financing is one of top important factors. Without adequate financing opportunities, the potential growth and the overall power of business is claimed to be jeopardized. A firm with no access or limited access to

external sources of finance is considered to be seriously constrained in its ability to provide an effective investment policy, with might lead to limited options for growth and development (Rahaman, 2010).

Previous studies found out that since companies on early stages of their development are not able to provide sufficient cash flows in order to support internally its business they rely on outside financing (Muller, 2009). Innovative SME's financing, whether it is in form of debt or equity, despite other barriers, plays a major role in the firms' development. However, the financing patterns of SME's across countries require detailed analysis in terms of relevance of above mentioned finance tools. The difficulties that SMEs face can come up as of several reasons. More and more economists increasingly light up the idea of agency issues and information asymmetry that leads to finance suppliers being more positive in offering wide range of financial services to large and more established companies, leaving potential SMEs out of the board. Difficulties with accessing financial assistance are even more sufficient for certain types of SMEs, such as start-ups or young firms that simply lack liquidity, or companies whose activities are innovative for the market and suggest high returns but at a relatively high risk of loss (Sulla, 2002).

In our paper we develop a conceptual framework for assessing relevance of different financing tools for innovative SMEs. Additionally, alternative sources of finance for innovative enterprises will be examined.

### **Internal financing**

When examining capital structure of high-growing SMEs, Myers's (1984) pecking order theory provides sufficient insight, by stating that the company considers internal financing utilization first before going to financial markets for external support. Paul et al (2007) explains the relevance of pecking order theory by the fact that SMEs in comparison to large firms are able to provide less historical data on their performance for investors acknowledgement. Moreover, entrepreneurs are also mentally more reluctant to raise equity than debt, motivated by holding ownership of the enterprise. The question of availability of external funds is the other side of this issue and will be examined further on.

Yet, pecking order theory in terms of high-growing SMEs financing found little support in empirical literature. Helwege and Liang (1996) come up with the conclusion that firms do not follow exact steps of pecking order structure, but otherwise use equity support than debt, motivated by less constrained access. Paul et al(2007) put a stress on possible management support or expertise, not requiring any collateral, which is especially valuable for enterprises based on intellectual property.

### **Bootstrapping**

The other alternative of financing its growth for start-up is commonly known as bootstrapping. The concept of bootstrapping suggests companies to be self-sufficient and rely on internal cash-flows from customers. The company's growth in this case depends on customers and market reaction on products entrepreneur might introduce (Auken, 1996). World leaders like Microsoft, Dell, Oracle, Cisco, survived on its early stages of development without any external capital funding but relied on its own generated revenues.

This technique should be carefully examined by entrepreneurs, as it might make or suddenly break company's growth. The major indicators that should be considered are:

- **Internal funding growth in correlation with market growth rate.** Internal funding should grow at the same rate or faster to catch necessary market share, not to lose it.
- **Confidence in revenue generation.** Customer behavior in the sector of economy where company's business operates should be predictable and assessed by the company.
- **Influence of economic cycles on growth.** It matters what product company is producing and if it is welcomed by the market in the particular period of time or not.

With the regard to benefits bootstrapping offers, one should bear in mind it is not available for any fast-growing company. The type of SME we are examining in this paper, particularly innovative gazelles, generally require immediate finance assistance as they might not have few years to foster their growth with internal funds. The business is generally capital intensive and risky, which appears to be crucial when relying only on its revenues.

### Banking and credit

In general start-ups and innovators have limited access to debt financings, as banks are reluctant to giving long-term loans under high possibility of risk. High level of interest rates also behaves against SME's incentives. It has a direct influence on liquidity, significantly shortening the maturity of the loan. SMEs are hampered moreover by the fact that they are exposed to higher interest rates than their large competitors on the particular market; mostly because of credit risks exposed to the banks appear to be too high (Pissarides, 1999).

Previous empirical studies have examined SME's ways of financing and had come up with a conclusion that SME's have different from large firms structure, in terms of resources of finance. The question of no availability of debt-financing was as well considered in the previous studies. For example, Bakker et al. defined that small and young firms are often discriminated against when applying for bank financing, mostly because of firms inability to cover the required collateral. Furthermore, Peel and Wilson (1996) came up with the conclusion that SME's have high barriers in access to debt-finance as of information asymmetry exposed towards debtors.

The way of financing small and medium-sized enterprises varies across countries. It is greatly influenced by variety of factors, like the stage of transition of the country, economic growth, access to international financial markets, and the structure of the SMEs sector itself. Previous research when assessing SMEs challenges of access and barriers to debt-financing defined that country-specific internal factors that monitor creditors' rights and legal frameworks affect SME's capital structure. The studies suggests that creditors should be willing to provide long-term loans to small and risky firms in the countries where creditors rights are tracked in a highly responsible manner, for example providing an option of secured creditors priority in case on firms insolvency.

### EU/Governmental loan

Under the condition of cross-country differences in terms of debt availability, it is necessary to mention governmental seed capital and subsidy programs. Recent study by Cumming (2007) reflects on this issue.

In the form of a case study he assessed the performance of governmental programs support of start-ups' financing in terms of "propensity to take on risk by investing in early stage and high-tech investments, propensity to monitor and add value to investees through staging, syndication, and portfolio size per fund manager; and the exit success". The outcomes of the survey showed that in both statistical and economical way that government facilitates investment in young firms as well as "provision of monitoring and value-adding advice to investees". A number of studies also questioned if governmental subsidiaries lead to increased innovation result by financing by financing firm's R&D needs. For example Hall (2005), came up with conclusion that firms are not greatly affected by such type of financing, explaining it in the way that R&D expenses increase not more that size of the loan (Hall, 2005). So, over the examined literature we may stated that governmental support and subsidy programs only partly influence development of SMEs.

### Risk capital

Bank financing as a system is regarded to be the most important source of funding for developed and more established SMEs, but there are issues worth considering when it comes to special categories of SMEs, particularly Innovative SMEs – high growth and high-risk firms. Providing finance support to this particular category of SMEs is a challenge for a wide range of countries. Considering bankers' reluctance to investing in such a risky business sector, companies rely on capital provided through equity inflow, passing several stages according to their needs and milestones in development (Pissarides, 1999).

The seed stage is generally supported by personal financing or professional acquaintances. When passing to an early stage the role of business angels come on the stage, increasingly considered to be a vital link in financing chain but as well themselves using a chance to rip off high returns to their investments in any positive case. Venture capitalists, which are often introduced on the later stages, are considered to be the key players in the firm development as they provide a link between an SME and public capital (OECD, 2010).

Venture capitalists investments are considered to be the most effective way of financing innovative and high-technology enterprises, helping these firms overcome debt-financing constraints, and thus be in the first place for innovative SME in terms of capital structure. Venture capital industry is a base for technological innovations to be introduced and commercialized, being a vital aspect that influences every country's development and prosperity (Hellman, 2000). This means that an increasing number of venture-financed firms benefit from an opportunity to extend its business and go public, with an advantageous effect on the Europe's stock market escalation. As venture capitalists in turn profit back on their investments through firms' entering to a stock market, this may have triggered innovations creative progress in the markets with developed venture financing policy.

Since innovative enterprises are seen as highly risky projects for investors, previous studies showed that "soft" aspects of venture capital play a distinctive role when defining company's capital structure. Business management skills of many entrepreneurs usually are guided by venture capitalists supervising decisions, in the way to lead the company to settled milestones completion and reduce venture investors' risk and dependence on firm's performance (Gorman, 1989).

A number of recent research papers define that non-financial factors have even more important influence on corporate behavior and performance of investee. Venture-supported companies are suggested to be

leaders in introducing new products to the market and their faster development. That is an important aspect especially for innovative enterprises, as timing in this case is vital for reaching sufficient market position. This proves that venture capitalists support companies not only in the money matter but in the perspective of monitoring firm's strategic decisions. Companies that have venture capitalists as their key investors are found to be more active and progressive in terms of innovative policies and development (Hellman, 2000). The non-financial support implies not only monitoring financial performance of the firm but also suggests advisory role in terms of setting management team, defining key strategies of development internally and externally. Venture capitalists experience has a significant impact on the course of going public. Under their professional guidance firms define best timing for IPOs in order not to face under-pricing issues and lose market share against its competitors (Megginson, 1991).

The importance of finance and non-finance factors combination arises, when comparing outcomes of debt injuries to firms' capital to venture investments influence. The key reason for such a discussion is innovative enterprises' special requirements on their starting point. Innovative start-ups are majorly founded by entrepreneurs with a full knowledge of manufacturing process or any technical characteristics, but often with lack of managerial skills. This makes a tricky issue for initiators of an enterprise to evaluate its present and future performance since it might be influenced by variety of external factors. Under these conditions the responsibility for controlling main strategic and financial decisions arises to be more important for innovators' successful business.

It was empirically proven that cooperation between innovators and venture capitalists brings significantly more benefits for particular business than might be expected if using debt-financing. Financial support of start-ups is made in form of convertibles so as to motivate entrepreneurs and direct their incentive towards effective functioning, otherwise allowing venture capitalists to take control of business (Silverman, 2004). A start-up as an organization entity provides base for effective and legally managed consolidation of entrepreneurs' business ideas and venture capitalists' professional mentoring. On the contrary, the possibility of information asymmetry arises when assessing debt-financing option.

With understanding of all the benefits venture financing might bring to small businesses over the short-term, one should consider the possible loss of major control over the business and relatively high costs over the long term. The threat of ownership dilution might appear to be a strong reason for start-up to embark on a strategy of finding alternative financing tools (Berglof, 1994).

## **Alternative sources of financing**

### **SME stock exchange**

The lack of liquidity of SME sector led to emerging of alternative ways of financing the enterprises and their establishment in EU-countries. The alternative is presented towards typical process of starting points with personal investments, lead by venture capitalists' or business angels' investments, and introduced by private equity funds and stock exchange market. Substitute for the traditional path for each SME is SME stock exchange.

## **Reasons for setting up SME stock exchange**

- platform for trading
- raising funds at relative cheaper way
- transparency of organization performance regarding the way they generate profit
- contribution to GDP through SME high growth and development

The bright example of SME stock exchange that was recently implemented is Warsaw Stock Exchange, particularly NewConnect base for start-ups and innovative SMEs, which means they have limited access to debt financings, as banks are reluctant to giving long-term loans under high possibility of risk. The interview with Mr Piotr Borowski, Deputy Director of Market Development Department at WSE, lightened up the main motives of innovative SMEs to be traded on this financial platform.

Firstly, it is beneficial for the company to be publicly traded on the starting points as it mitigates conflict in company valuation, as private equity funds are interested in valuing firm's assets as low as possible, squeezing all possible returns.

Secondly, SMEs stock exchange provides an opportunity for risk diversification both for the companies and for investors. The key benefit for the company is avoiding absolute dependency on the investor, mitigating the risk of being manipulated or totally controlled. On the contrary, investors are exposed to the risk of not getting full control over the business and not cashing out predicted returns as of moral hazards from the company's side. But as it was explained by the WST representative, in case of not obtaining major part of ownership, special contractual agreement with other owners is signed as of to enable investors to monitor firms' performance and take part in main strategic decisions. Therefore, such a system works for both sides, as SMEs are aware of private equity funds strategy of getting full control and exiting in few years and investors returns are protected legally.

Essentially to mention that SMEs stock exchange appears to be vital source of financing for less developed countries through easier access to financial markets. The single-passport rule works for companies of non-EU companies in a highly effective manner. Setting up an SPV is the way to any company from non-EU countries to be listed in EU stock exchange, apart from local law systems in any country.

Apart from all of the above described benefits that SME Stock exchanges brings, there are few issues that require mentioning. Firstly, with the regard to firms' assets and its market capitalization in the early phases of its development, companies might not be able to meet listing requirements. Many SMEs even after putting its shares for trade on initial public offering will lack liquidity, required by stock exchange standards.

Secondly, entrepreneurs are reasonably reluctant to sell its stock to public investors under the possibility of losing its ownership and management control. It is a burning subject for start-ups especially, as the company's management might lack knowledge in the field on ownership anti-dilutive techniques.

### **Innovation incubators**

When it comes to the question of alternative fund sources screening, one the utmost important possibilities for innovative SMEs are innovation incubators. The goal of such institutions is to offer a wide range of assistance and resources to the companies at the early phase of generating their revenues, meaning pre-market, pre-money and pre-employee stage. It is essential to mention that in many cases companies are too small to establish strong relationships with venture capitalists, banks or even business angels without cash flow pressure or scarifying its ownership to rich high growth. Besides and essential financial assistance with raising seed capital, innovation incubators are created to support start-ups with establishing a customer base, developing networks of professional cooperation and supervising recruitment process (Lalkaka, 2002).

### **Crowd funding**

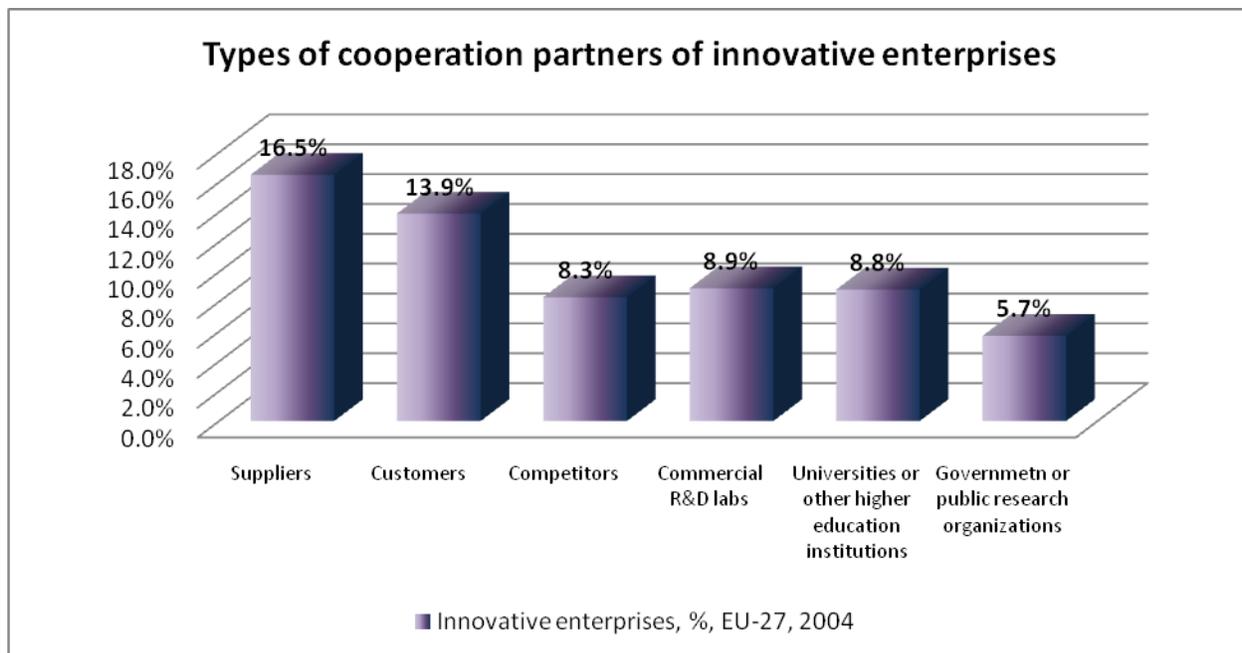
The concept of crowd funding is explained by scientists as a technique companies use to obtain needed investments, in major cases using social networks. This appears to be a substitute to finance flows from a group of sophisticated investors by obtaining it publicly from a large audience. The concept of crowd funding takes its roots from a broader theory of crowd sourcing, when companies use “crowd” in order to find new ideas or solutions to their business. The crowd funding is a relatively new term in academic sources and new trend in business reality. The research paper by Belleflamme (2011) is the first study that assessed crowd funding as a new phenomenon in economy.

The idea of crowd funding works in the way of an open cooperation, majorly through Internet, as an exchange between financial inflows and any kind of reward, as interest returns or voting rights. It by now has been mostly used by entertainment industries, but nevertheless a few industries has recently introduced crowd funding to their operations, such as journalism (Spot.Us), beer (Beer-Bankroll), software (Blender Foundation, Trampoline Systems) and fashion (Cameesa). (Belleflamme 2011)

With the regard to the few industries-used of this source of finance, the benefits and opportunities crowd funding might bring should now be undertaken. As it was defined by Brabham the development of social networks has a critical influence on entrepreneurship’s development as it provides platform for collaboration and interaction between investors, consumers and other parties (Brabham, 2008).

### **3.2.2. Proposition 2: Networking is one of the main factors influencing Innovativeness of SME**

In accordance to Roper et al, networks were regarded as collaborative low or no contractual contracting relationships among the actors involved in either business or in innovation (Love, 1999)



**Graph 3.2.2.1**

Source: Eurostat - Community innovation statistics, 2004; Parvan S.V., "Statistics in focus. Science and Technology", 81/2007

Rich literature discovers and discusses considerable effect of networking factor. Cross-country interaction and partnerships plays an important role on stimulating social capital development and taking advantages out of it in terms of experience and other entrepreneurs' background (Kocker, 2007). As Freeman (1991) noted: "...both empirical and theoretical research has demonstrated long ago the importance of both external and internal networks of information and collaboration [for innovation]"

Freel and Jong call attention to the constant encouragement on the focus on core competence merely, leading the company to the state where it is not able to differentiate on its own. Not only does it jeopardize its present situation due to the competitors and market threats but it also diminishes the possibility of its future innovative development. In other words, a company becomes dependant on others in order to gain complementary competence. It can of course happen that a company or few of them are capable to innovate independently, but as Freel and Jong state: "Innovations are increasingly viewed as the product of networks of firms" (Freel, 2009).

It is understood that innovation can be fostered through a more or less intensive network, which entails different level of knowledge sharing, resource sharing, specificity and alike. The common assumption the more networks the merrier, imposed even by the CIS, European Community Innovation Survey, unjustifiably ignores the affect of differences of innovation on the amount of networks needed (Freel, 2009). Namely, it is assumed that more complex and modular innovations need more networks than less demanding ones (Shilling, 1999).

In addition, there is always a choice whether a company may decide to develop within the competitive market organization or adopt the collaborative communities' organization (Bourdreau, 2009). The later one has a prerequisite that the company agrees with basic open model innovation understandings. Within

the open model, companies are aware of their limits, and are ready to build their innovation from invention to commercialization not by themselves but with contribution of at least one more company (Chesbrough, 2007). It is understandable that companies might be reluctant to grasp the sharing of their Intellectual Capital with others, but when returns increase and there is a “bigger pie” to be divided, investment becomes logical. To be focused on collaborative communities, the innovation needs to be of a certain type, not established clearly yet both from the producer’s and customer’s side. It also needs to derive from motivated individuals of the community which interestingly not always is extrinsic-financial return. Next, it involves existence of a platform, through which the innovation is accessible to others (Bourdreau, 2009).

Once an innovation has been developed, the dependence of the surrounding emerges. This is due to the existence of Ecosystems. As Adner states, supporting infrastructure became a prerequisite for innovation growth. These Ecosystems which are explained as collaborative arrangements, through which firms combine their individual offerings into a coherent, customer-facing solution, when they work, may create value for the company that no individual company would succeed on its own (Adner, 2006). Such systems entail coping with initial risk of the project, interdependence risk of intermediaries and complementors and integration risk.

All the mentioned highlights the importance of collaboration among companies where knowledge, information and ideas can be exchanged quickly and smoothly. C. Annique Un, Alvaro Cuervo-Cazurra, and Kazuhiro Asakawa investigated collaboration where the impact of collaborations with universities, suppliers, customers, and competitors have on product innovation of research and development (R&D) was studied. It argues that the affect of the mentioned groups differs in dependence of the level of new knowledge and access to it. The study conducted on 782 firms between 1998 and 2002, showed that “R&D collaborations with suppliers have the highest positive impact on product innovation, followed by collaborations with universities, which is sustained over the long term. Surprisingly, R&D collaborations with customers do not appear to affect product innovation but its negative affect is short” (C. Annique Un, 2010).

The collaboration can spill over on other competitor companies and other countries. It puts an accent on export<sup>5</sup> as the feature of Innovative Gazelles and as such are expected to be growing faster, as found by Bennet and Robson (2000).

As the result, various platforms have emerged tackling the problem of connecting different actors in open innovation problems through fragmented markets (for instance Tech Crunch).

The above sheds a light on multilayer affects that intervene with innovation emergence and its development. This is brought over with understanding networking as a process of establishing a mutually beneficial relationship with surrounding stakeholders such as customers, suppliers, competitors and alike.

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<sup>5</sup> Europe Innova research came to the conclusion Gazelles should be characterized by higher export growth than other firms.

### 3.2.3. Proposition 3: Knowledge base is one of the main factors influencing Innovativeness of SME

Since SMEs are viewed as the growth engines of the new knowledge based economy, we would like to show the interdependence between growth of knowledge base and SMEs (Gibso, 2000).

*“In contemporary economy building in of knowledge into products and services (but also in all other business activities) is a vital activity, which makes innovation a basic requirement for market survival. Continuous innovation is nothing else but implementation of new knowledge in order to ensure continuous growth of value added”*(Pulic, 2008).

Having quoted professor Ante Pulic, on the topic of Intellectual Capital and its influence on innovation, it is necessary to mention the relevance of adequate resources in order to achieve the mentioned.

The relevance of knowledge in the Knowledge Era we belong to, will be emphasized with a few quotes. Words of Professors Syed Z. and Shariq:” Society is entering into an era where the future essentially will be determined by people's ability to wisely use knowledge, a precious global resource that is the embodiment of human intellectual capital and technology” (Shriq, 1997). As Professor Ante Pulic states:”As value of the products/services was once determined by the quantity of raw materials and physical work, nowadays it is mainly determined by knowledge content incorporated into goods/services” (Pulic, 2008). This can be easily proved with the fact that each of us continuously buys products with the same basic usage and purpose but with slight improvements, enabling us to use the knowledge that was embedded in them.

The key of SMEs development and its competitive advantage lies in its ability to generate new ideas. Moreover, nurturing and managing the flow of knowledge and continuously developing it, may be the most distinctive competence of the decade. <sup>6</sup>

There are attempts to measure the mentioned-“Intellectual assets are intangible. After all, so is value. Let’s make the link between the two more “visible”(Stefano, 2006). This is done with a view of motivating skeptical managers who focus myopically on the returns, to invest. (Clayton, 2008)

#### Knowledge base

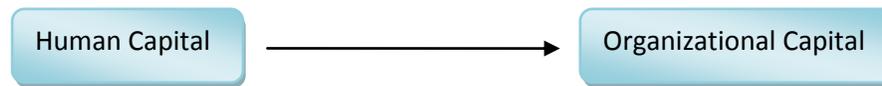
Knowledge base will be understood as multilayered concept, consisted of

- Human Capital and
- Knowledge networking within Organizational Capital

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<sup>6</sup> See [www.entovation.com/innovation/knowinno.htm](http://www.entovation.com/innovation/knowinno.htm)

This is a result of reviewing the research of prof Karl-Erik Sveiby who apart from Human and Organizational Capital analyzed Relation Capital as well. However, this part will be analyzed in the networking framework of our work (Edvinsson, 2008).



## Human Capital

When it comes to Human capital, Knowledge or Intellectual Capital, such so called soft capital is a category that separates itself as one of the most valuable for companies value adding. IC can be defined in three ways; through a time line, as a shift of focus from past earning to future earnings capabilities, as a graphic category within which Intellectual Capital is roots and Financial Capital is fruits, and as derived insight of capital value. As prof Leif Edvinsson states: "IC can be measured as a multiple of Human Capital and Structural Capital."<sup>7</sup>

Knowledge Innovation is defined as the "creation, evolution, exchange and application of new ideas into marketable goods and services for the success of an enterprise, vitality of nation's economy and advancement of society" (Debra Amidon). It is being positioned as

- a value system, not a chain, differentiating the linear category and stating the importance of dynamics
- strategic business network, not a unit,

with a view to highlighting significance of interdependence and mutual influences as factors of innovative growth.

## Organizational Capital or Knowledge Management

The relevance of how Human Capital is being organized may create difference between successful and unsuccessful examples of companies. Knowledge management or Organizational Capital is being defined as "the systematic, explicit, and deliberate building, renewal, and application of knowledge to maximize an enterprise's knowledge-related effectiveness and returns from its knowledge assets" (Wiig, 1993)

Human Capital's development can be greatly influenced by existence of Knowledge Networks which are allowed in collaborative cooperation surrounding, or by strict subordination.

Gianmario Verona and Davide Ravasi (2003) raised importance of dynamic capabilities, talking of which highlights knowledge creation, and its dependence on organizational structure of the company (Oticon in their example). They stress significance of flexibility of a company, enabling it to be not focused on hierarchy divisions, but on the opposite, being collaborative. This kind of company was later called Spaghetti organization, a term invented to reflect its flexible nature, by OTICON CEO Lars Kolind. (Foss. 2003) It was believed that this structure encourages innovative ideas and productive atmosphere by

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<sup>7</sup> Lecture on Intellectual Capital, Leif Edvinsson, Lund University, February 2011

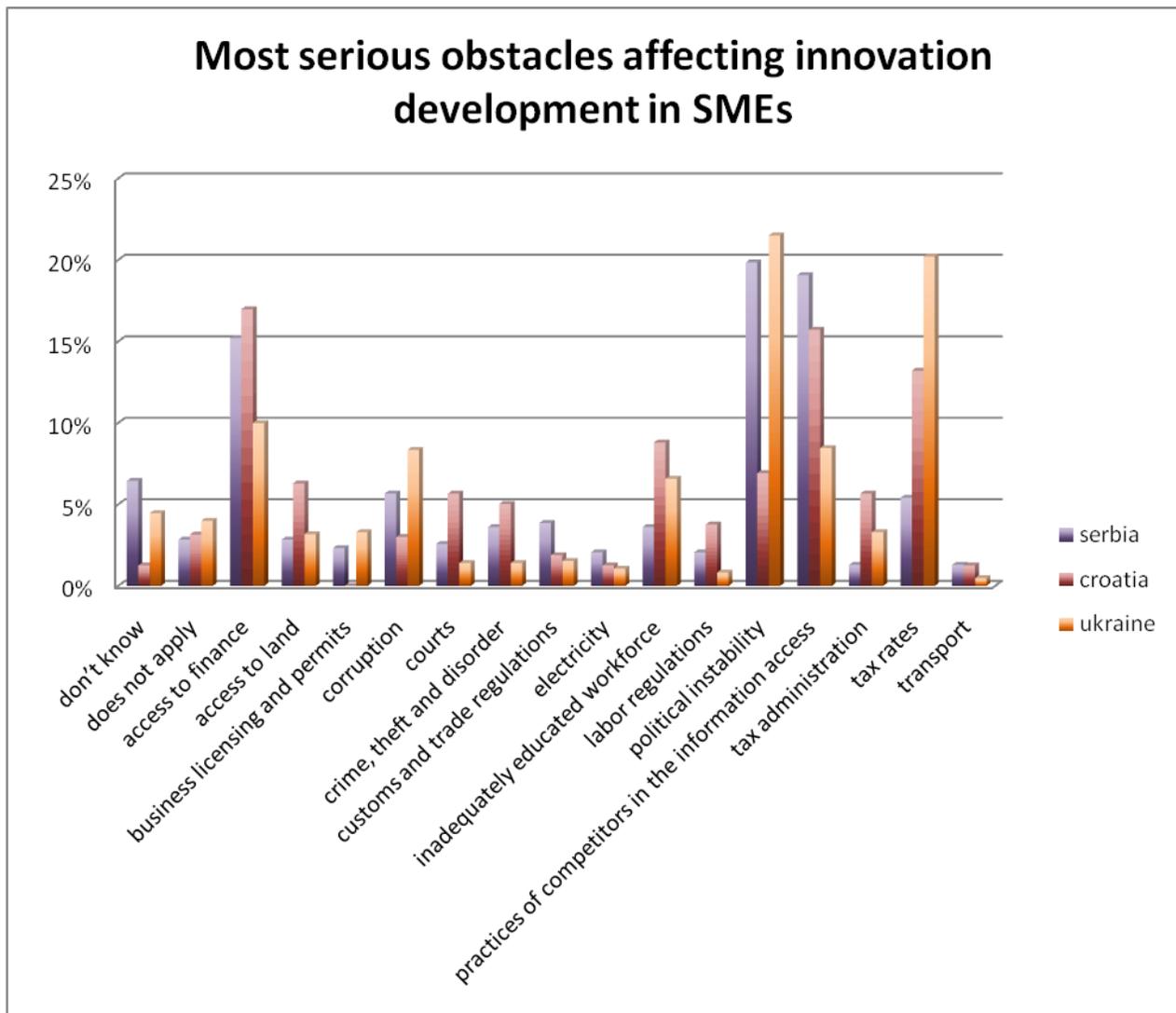
lowering boundaries and firm procedures (Verona, 2003). He have had a radical approach of reforming the company, and minimizing any kind of strict hierarchy which was believed to contribute to the exchange and proliferation of ideas leading to innovation. Nonetheless, the opposite of this structure is matrix organizations. This organization of HC is based on the pooling of people with similar skills and knowledge. The two are being confronted and challenged as one is thought to contribute more to innovative activity than the other, due to its flexible structure.

Knowledge networks address importance of collaborative advantage instead of competitive advantage. Significance of the network is highlighted in the Seufferets' article, which served as an example to many articles on this topic- "We are convinced that in order to make effective use of knowledge, a network-emphasizing the number of the people cooperating together, must be built up in which the knowledge and experience of employees are available. What is of prime importance is that creation- and sharing-processes are encouraged, not just the accumulation of data as in a data-warehouse."(Seufert, 2000)

Nevertheless, knowledge networks should be understood not only as networks within the company but including external enablers in terms of networks outside of the company itself creating knowledge webs based on Generative Relations among actors. It presents blending of both explorative and exploitative features of knowledge and balance between novel and confirmatory knowledge relation. Importance of transcending visions outside of their own company has been raised, justifying why companies engage in open innovation models. Moreover, Complementary of competencies as relevance of each actors' contribution increases individual values as well as their unified value (Malm, 2001).

## 4. Empirical Results and Analysis

Prior to introducing our Innovative Gazelles, the three factors confirmed by EU15 opinion were confronted with responses given by SMEs in Ukraine, Serbia and Croatia. The graphic 4.1 shows how access to finance is considered to be a major obstacle only by 10% 15% 17% of SMEs respectively. On the other hand, apart from political instability and tax rates which will not be regarded in this research, access to finance dominates among other factors. In addition, practices of competitors in the information access-considered in the framework of network due to the competitors influence were regarded as significant obstacle by 8% 19% and 16% of SMEs respectively. Only 5% of SMEs according to EU 15 marked this as an obstacle for innovative development. Relevance of educated workforce was marked with 7% 4% and 9% unlike EU 15 where 15% of SMEs pointed out this obstacle.



**Graph 4.1**

Source: World Bank Enterprise Survey, 2009

## 4.1. Case Study: “Yunasko”, Ukraine

As the first stage of data control, process of choosing companies will be introduced. In cooperation with Roman Zinchenko, founder of Ukrainian energy innovation support network “Greencubator” and Alexander Shnaydruk – Business Development Director of dynamic portal engine and content management system producer “Yunasko”, we’ve been provided with the opportunity to study prerequisites and obstacles for innovation creation in Ukraine.

### “Yunasko” About the company

“Yunasko” is a high-tech startup developing advanced energy storage devices called ultracapacitors. The commercialization team and inventors joined together in order to start a new company in 2009. Their main product – ultracapacitor – is superior energy storage devices providing the highest power available among the different battery technologies with the safe operations and long life-cycle.” Ultracapacitors exclusive performance characteristics, which differentiate them from traditional batteries, are presented by extending market share from a \$208 million market in 2008 to a \$877 million market by 2014, a CAGR of 27%. This leads us to the conclusion that the start up has a forecast of a rapid revenue growth.<sup>8</sup>

Our interlocutor Mr. Alexander Shnaydruk, Business Development Director is a professional with 7 years of experience in hi-tech business. Mr. Shnaydruk is responsible for management of clients, new business opportunities development, including business and manufacturing partnership.

According to the World Bank data 49% of SMEs in Ukraine are privately held and the case study company “Yanasko” does fit this frame. Among 56,64% on SMEs in Ukraine that kept the policy of introducing new products to the market and 76,5% that implemented an upgrade, “Yunasko” founds itself fitting such statistics.

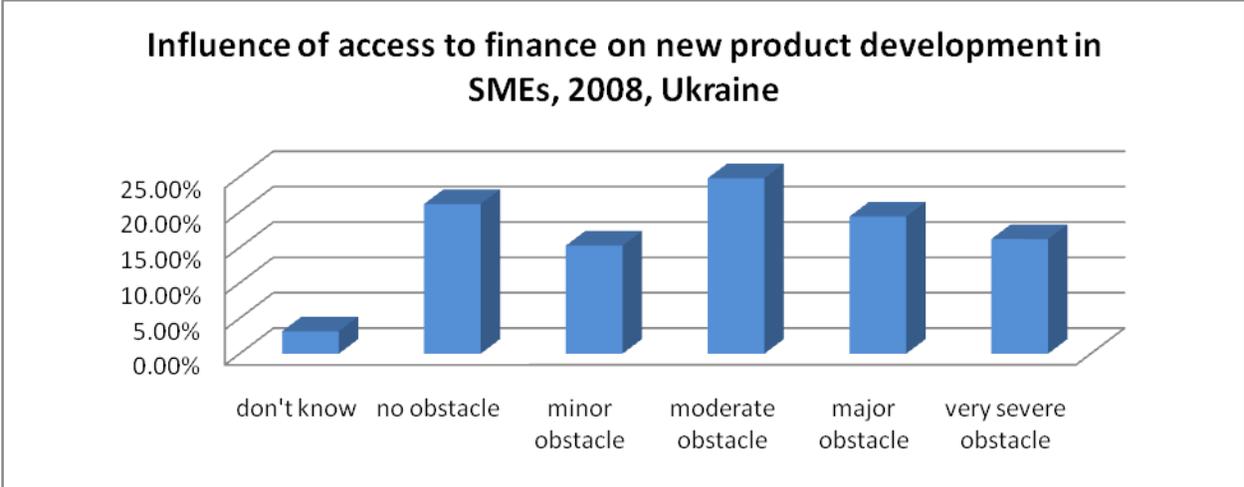
“Yunasko” is innovative gazelle with 80% of R&D investment on the contrast to 80,4% of total SMEs in Ukraine that do not invest in R&D at all. Such a difference in numbers is provided by the nature of “Yunasko” business, as technology of eco-energy industry requires both large R&D expenses on materials and R&D investments in education and significant investments through trainings for personnel.

### Access to finance

According to the World Bank data 21,15% of SMEs in Ukraine consider access to finance as no obstacle (see graph 4.1.1).

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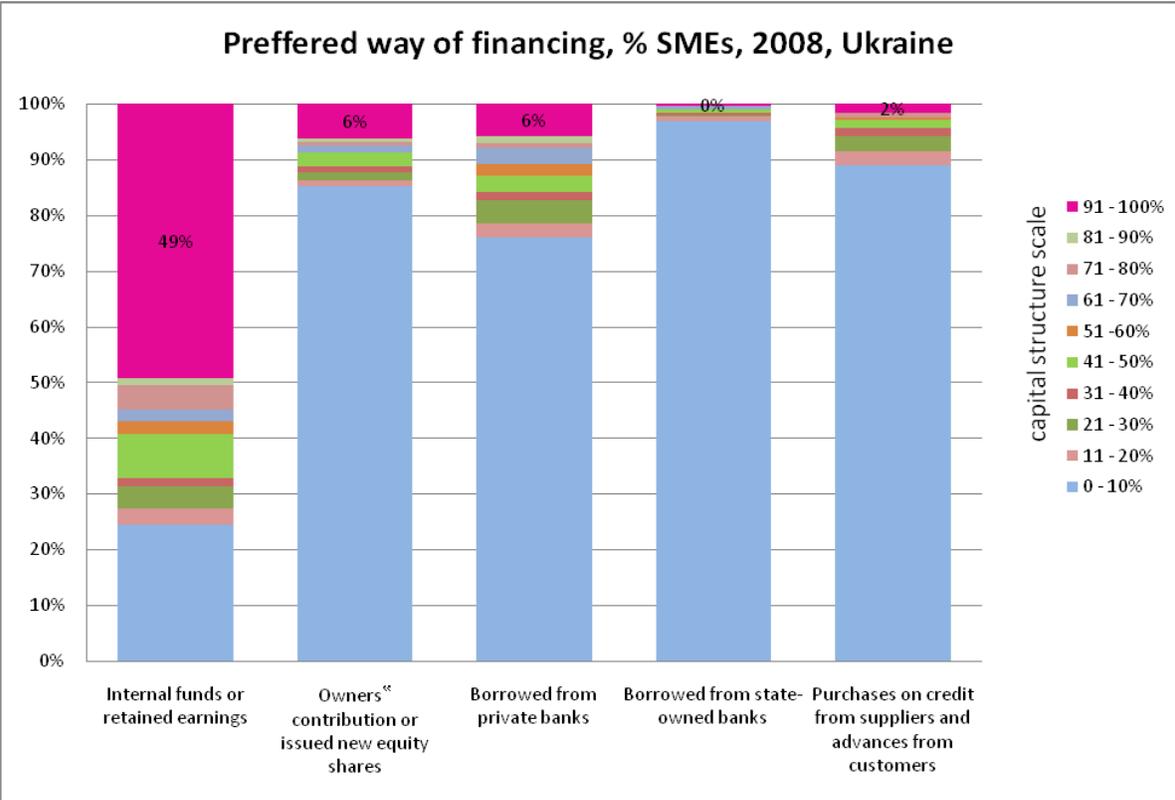
<sup>8</sup> <http://yunasko.com>



**Graph 4.1.1**

Source: World Bank Enterprise Survey, 2009

That doesn't reflect the easy access to external financing in the country, as only 33,49% of SMEs in Ukraine were reported to obtained a credit line or a loan from a financial institution. Additionally, equity inflows as a major source of capital – 90-100% in firms' capital structure – are welcomed only by 6% of enterprises. Considering the numbers above described and the graph 4.1.2, internal financing is seen to be the most preferable way of funding SMEs in Ukraine choose.



**Graph 4.1.2**

Source: World Bank Enterprise Survey, 2009

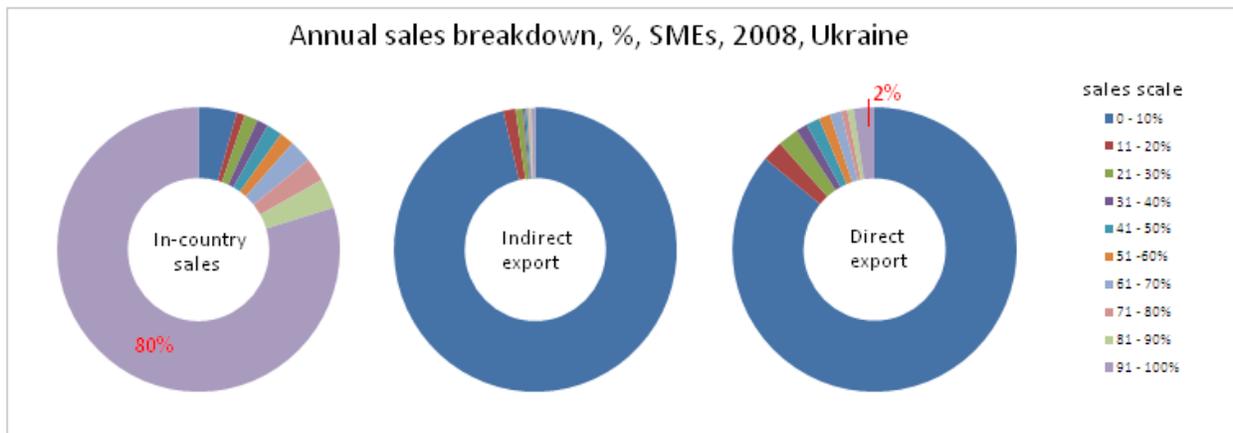
On the contrast to the statistics, the case with “Yunasko” company gave us the insight on specific role of venture capital as a source of third party equity. The company is majorly financed by venture capitalists, following the traditional ways of financing the start-up, described by Bottazzi and Rin (2002), who found that venture capitalists investments are considered to be the most effective way of financing innovative and high-technology enterprises.

A broad literature suggests that the role of venture capitalists financing goes far beyond simply money injection, but take a broader part in firms’ establishment, professionalization not only with the direct funding but also with management guidance (Hellman, 2002). Therefore, in addition to financing function, “Yunasko” also exercises a number of value-added services, venture capitalists provide. The key point company sees is in venture capitalists’ reputation of the market and in extensive network of strategic partners worldwide used to accelerate their innovative product development. Moreover, they consider strategic, operational and financial management assistance as benefits they experience from, but not as an obstacle in form of control limits.

Furthermore, “Yunasko” has started cooperation with EU institutions on the issue of receiving financial support in terms of 7th EU Framework project. As the key point of the grant is to support young innovative companies, it additionally proves the nature of “Yunasko” business as being progressive innovative gazelle. According to World Bank data only 7,47% of SMEs in Ukraine received subsidies from national, regional or local governments or European Union sources over 2005-2008 time period, directing it to the point that SMEs in Ukraine do face barriers in external support. As it was discovered through interview, “Yunasko”, with regards to the innovative nature of their business, didn’t face problems with inquiring external funds, neither do they consider it as an obstacle to creating its core technology.

## Networking

World Bank Enterprise Survey in question of competitors’ pressure on new product development shows that most of SMEs in Ukraine are more threatened by domestic competition than from outdoors market players. Up to 85% of Ukrainian SMEs are concerned about domestic competitors influence, with 30% seeing it as very important one. Nonetheless, the industry “Yunasko” operates in was described as the one that lacks initiatives to adopt new technology, which leads to high risk competition with companies on both - domestic and foreign markets - that offer traditional mature substitutes to this technology. Their business is focused on export, due to the fact that developed ecosystem is needed in order to change the traditional way of energy supplying. Such an ecosystem is very little developed on the domestic market. That is why company keeps up to 100% export policy to countries in Europe, North America and Asia in terms of annual sales generation.



**Graph 4.1.3**

Source: World Bank Enterprise Survey, 2009

According to World Bank Enterprise Survey major part of SMEs in Ukraine is operating on domestic market, showing 60% of companies to have 91-100% of their revenues generated in-house (see graph 4.1.3). Such a mismatch of overall country SMEs data with the particular company data detects the nature of innovative gazelle and its specific characteristics out of all small and medium enterprises in Ukraine.

In accordance to Adner (2006), "Yunasko" is interdependent on both their intermediaries and complementors. On the contrary to majority of SMEs in Ukraine that generate their sales in country and are influenced by domestic competitors (see graph 4.1.4), "Yunasko" is focused on foreign market and experience foreign competitors pressure on a high scale.



**Graph 4.1.4**

Source: World Bank Enterprise Survey, 2009

Company's management outlines the importance of finding right customers to their products, as most of the SMEs in Ukraine do (see graph 4.1.5) With the worlds' increasing need for energy efficiency together

with environmental regard, “Yunasko” introduces new energy storage device on the contrary to traditional batteries as a standalone system. According to Business Development Director Alexander Shnaydruk, ultracapacitors the company provides require a build up eco-system with the strong ties with suppliers and high demand from customers, which is supported by Adner’s idea of benefits from eco-system involvement. New technology developers like “Yunasko” find supporting infrastructure an essential prerequisite so that to be able to create value through innovative production. That is why the basis of success in the development strategy company sees in continuous market monitoring, looking for new opportunities and partnerships.



**Graph 4.1.5**

*Source: World Bank Enterprise Survey, 2009*

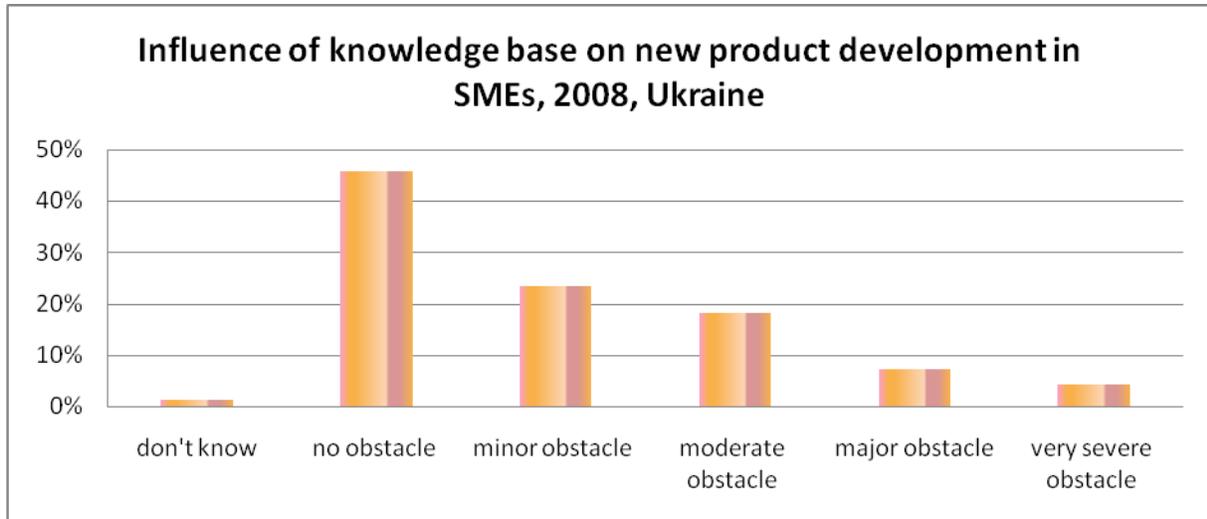
Access to information and analytical overviews from scientific organizations and conferences was highly ranked in the scale of influence on innovation development level. The company main benefits in terms of technology upgrade opportunities come from cooperation with Institute of Sorption and Problems of Endoecology - NASU, E.O.Paton Electric Welding Institute (PEWI) - NASU, V. Bakul Institute for Superhard Materials - NASU.<sup>9</sup>

Among another parties, cooperation with companies in the same industry was defined as not less important source of information on technology improvement. Yunasko cooperates with different investment and technological companies, official organizations and institutes in different countries and regions (CIS, European Union, USA, Japan). , although as the business of the firm is based on their innovative technology’s competitive advantage on the market, it does not support Chesbrough concept of open innovation with sharing information process.

### Knowledgebase

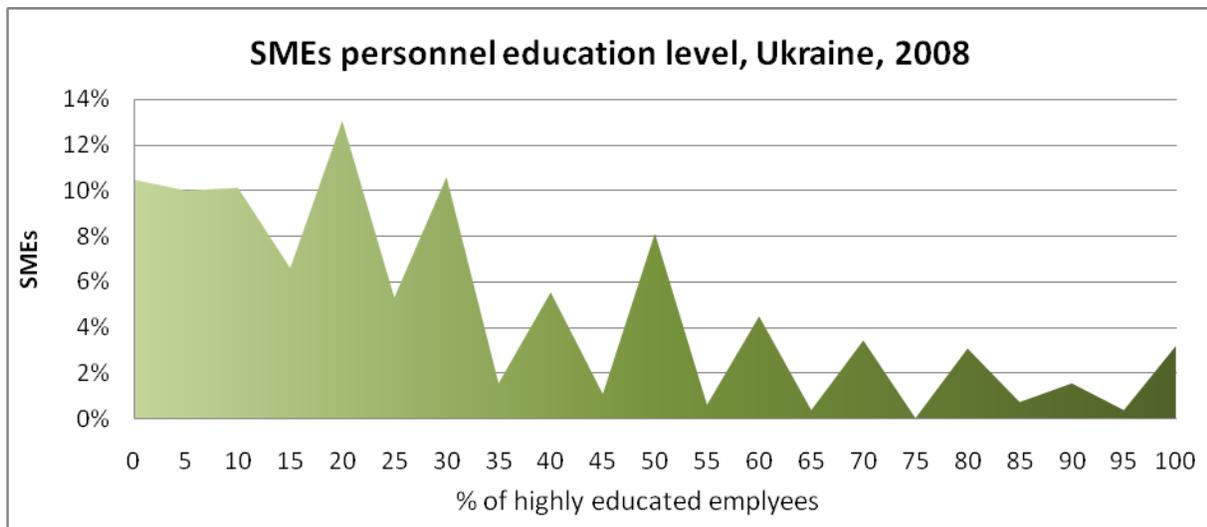
The average data shows that SMEs in Ukraine value knowledge from their personnel and potential employees as very important in terms of innovation development and 53% of companies find it as an obstacle to developing and implementing new products, providing the fact that only 2,8% of companies have 100% of employees with higher university degree (see graphs 4.1.6-7).

<sup>9</sup> [www.yunasko.com](http://www.yunasko.com)



**Graph 4.1.6**

*Source: World Bank Enterprise Survey, 2009*



**Graph 4.1.7**

*Source: World Bank Enterprise Survey, 2009*

“Yunasko” is the team of 50 employees in different departments: R&D, Design and Engineering, Pilot Plant and Administrative. Company’s management is claimed to have a large experience in starting different technical projects on the international level, together with a large part of employees of 80% engaged in research and development activity. Out of all factors that are highly important for operation towards innovations creation on the high-tech market, “Yunasko” sees knowledgebase impact as the most relevant. Company now operates with personnel, 75% percent of which has university degree and addresses high importance in the professionalisms and education level needed for an innovation creation. The core of progress and development is seen in employees with the specific knowledge in the technology company produces or in the related field of science. The key R&D team members started the research in

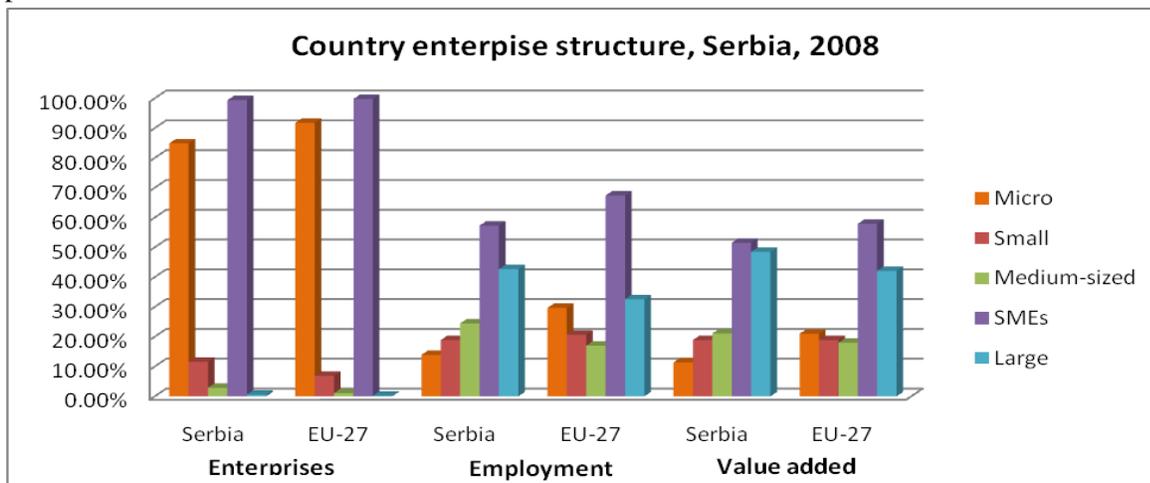
ultracapacitors invention before establishing “Yanasko” in 2009. Considering high professionalism of the team, company claims “hiring right people to get the highest results” to have the most important impact on their business development.

According to the company’s values system, human capital plays a key role in developing and implementation innovations and experiencing overall value creation. Company’s top strategy is improving level of professionalism by implementation training programs, participation in conferences and out-doors researches, continuous monitoring market in order to find “new brains”.

On the contrast to Seufferets’ (2000) article, who emphasized significant impact of sharing-process and creative collaboration inside the company in order to make an effective use of knowledge, “Yunasko” management in fact values strict subordination to be of prime importance. The structure of the company is modeled in the way that separates inventors from the major decision-making duties, segregating here creation process from implementation.

## 4.2. Case Study: “Teleskin” Serbia

Serbia is regarded as Modest Innovator in the non member states group.<sup>10</sup> According to the graph, country structure of SMEs resembles the structure in EU 27. As the graph 4.2.1 shows, relevance of SMEs is significant due to all three major indicators, being number, size and value adding. Additionally, World Bank research shows that 62% of SMEs have introduced new product or a service in the three year period, and 75.26% answered positively on the issue that they have upgraded their existing products/services.



**Graph 4.2.1**

Source: European Commission/Enterprise and Industry, Annual Report, 2009, Serbia

There is a great number of obstacles SMEs face in this country, varying in their influence, but the interesting thing is to see how Innovative Gazelles, as a subgroup of SMEs behave in this surrounding.

<sup>10</sup> Innovation Union Scoreboard 2010, The Innovation Union's Performance scoreboard, [www.proinno-europe.eu/metrics](http://www.proinno-europe.eu/metrics), 2011

## «Teleskin» Company

In cooperation with researcher and Prof Jelena Borocki from Department of Industrial Engineering and Management, Faculty of Engineering, at the University of Novi Sad, and Milica Miskovic, from the forum of business leaders in Serbia, we have been introduced to the innovative market of Serbia. Next step taken was contact with Incubator of Technological faculty in Belgrade.<sup>11</sup> Through the Incubator, we have come in contact with the company «Teleskin». As seen on 4.2.1, in all three categories SMEs are leading in number, size and value added, both in Serbia and in EU.

The company is an innovative SME using a revolutionary technology for melanoma diagnostics. The firm's main area of activity in terms of annual sales is Hardware and Software Systems development for the early diagnosis of Melanoma and Skin Cancer. These systems include medical practitioners and leverage highly accurate analysis for determining skin health. These systems are targeted both for public and private locations. The technology has been developed within the Belgrade University research center and the company. It is based on a new principle of measuring skin characteristics using light. The technology is revolutionary as the interaction of light and physical tissue provides information for analysis and early diagnostic of melanoma.

«Teleskin» has been founded in 2008, and acknowledging the existence of 22.68% of SMEs created through privatization of state owned firms, «Teleskin» belongs to the 66,49% of those established originally as private. Since 2008, it has had growth in revenues of 172% and 38% in 2009 and 2010 respectively.<sup>12</sup> The fact we state this company fulfills the Innovative Gazelle's description is that we believe they are on the beginning of their positive high revenue stream, and as a young SME, the three year positive growth of revenues is yet to be shown.

Our interlocutor was Mr Sava Marinkovic, CEO and founder of Teleskin

When talking about their core technology innovation, they emphasize both on relevance of finding the right market whose needs have not yet been met, and their innovative technology. Although it is revolutionary, its value is regarded precautionary. This is due to the fact it can be imitated and overtaken. This puts the light on irrelevance of patents as well, as they may be in possession and used, but do not promise growth of Innovative Gazelles. This is due to the fact they may not be used in an adequate way or may not be focused on the correct target group of customers. Cohen's et al (2000) point of view together with empirical results shows that only 14% of innovative SMEs actually use this base..

Therefore, technology is just a part of the success story, with market innovation seen as the main advantage together with strategic options.

*“In order to be competitive in the times of rapid technology development and fierce market conditions, the company must continuously address the development of leading technology”.*

According to data from 2007, 66.75% of SMEs in Serbia have answered that they have not made investments in research and development activities, neither in house nor through outsourcing. On the

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<sup>11</sup> See [www.bitf.rs](http://www.bitf.rs)

<sup>12</sup> Agency for Business Registers in Serbia, see [/pretraga.apr.gov.rs/RepsisPublicSite/Search/GeneralEnterpriseSearch.aspx](http://pretraga.apr.gov.rs/RepsisPublicSite/Search/GeneralEnterpriseSearch.aspx)

other hand, as «Teleskin» is new and young but focused on R&D, 50% of costs are R&D costs. The technology is new and expansive and requires great investments. As Frascati manual also states, R&D costs should never be looked at solely when assumptions are being made on their influence on innovation. Nonetheless, this data disregards critics of correlating R&D to innovativeness as Ahn (2002), Rosenberg (1986), Pavitt (1987) mentioned earlier in this work state, since the country's data has shown a global decline of Business R&D costs and investment of 50% of R&D discloses a significant deference. The R&D costs were majorly embodied in new machinery and equipment, followed by hiring the key personnel/consultants with the technological expertise with majority of technology being developed within the firm. Together with their growth results we may conclude that in such a business R&D costs do present an indicator of innovativeness.

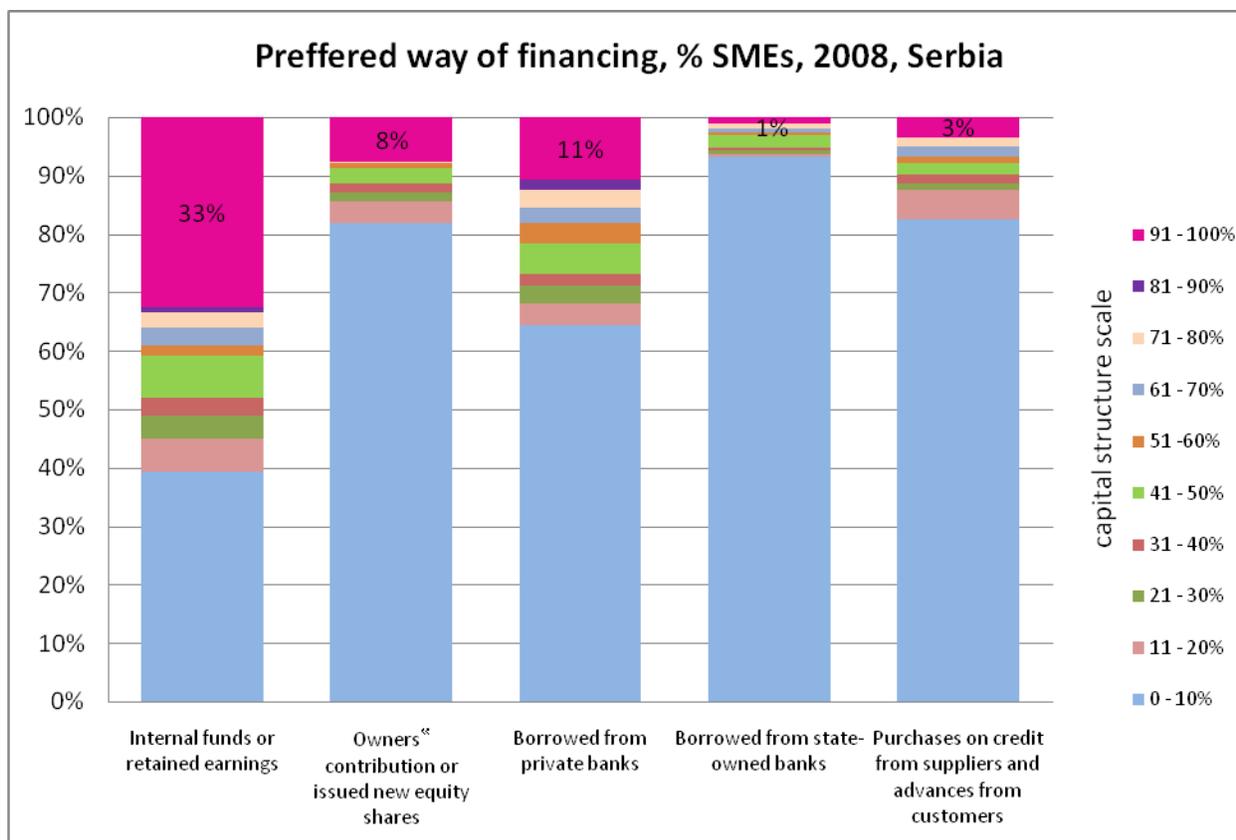
### Access to finance



**Graph 4.2.2**

*Source: World Bank Enterprise Survey, 2009*

The World Bank Enterprise Survey has shown that majority of SMEs regard access to finance as an obstacle, with only 25.5% stating it has no influence on innovativeness (see graph 4.2.2). The preferred way of financing matches Myers' pecking order theory expected for the SMEs, being funded initially from the internal funds or retained earnings, which is supported with numerous theories regarding SMEs financing (Paul et al (2007)).



**Graph 4.2.3**

*Source: World Bank Enterprise Survey, 2009*

The fact 91.75% of SMEs do not have any EU or governmental loans, and 68.56% answered they do not have any loan or line of credit from financial institutions, shows the focus on internal financing. «Teleskin» on the other hand is in 8.25% of those SMEs who did receive government support.

Addressing the Cressy and Olofsson theory and inability of startups to finance themselves through debt due to lack of collateral and high risk, the high percentage of positive answers on the debt financing question may reflect on maturity of those SMEs. Theoretically, as Helwege and Liang (1997) show, firms do not necessarily follow the packing order theory, but, as the graph above shows, SMEs in Serbia are indeed majorly internally financed.

The obstacle for SMEs as access to finance as well as cost of financing «Teleskin» regarded as minor. The company is financed internally, as the majority of SMEs in Serbia (see graph 4.2.3), that aligns with Paul et al (2007) theory on companies financing in packing order theory.

Reflecting on the future planes of the company, Mr. Marinkovic sees public funding for bridging innovation research. Unlike 91.75% of SMEs who answered that they have not received any subsidies from national or regional government, «Teleskin» has received governmental subvention amounting in 5% - grant from the Serbian ministry of Science, for immediate expenses and technology development.

Early startups have the highest degree of risk and regular investors will not pay for research because of follow-on dilution during commercialization. The lack of interest in loans he explained similarly as

*“...in a high risk venture, you do not want to gather debt on an investment. This places incorrect liability on the existing shareholders which is no commensurate with the risk/returns”.*

“Teleskin” sees the biggest issues of external financing in conservative nature of financial markets and small loan amounts. The issue of asymmetric information with raising agency costs in the framework of agency theory (Myers 1984) has been raised, as one of the reasons for the external financial gap. This observation matches Back and Demircug-Kunt claim that “agency problems between outside investors and corporate insiders keep firms smaller in countries with weak legal and financial systems” reflecting the lack of financing (Beck 2006).

The alternative way of financing as SMEs stock exchange was assessed as highly not suitable. According to him, although reporting requirements in some SMEs stock exchanges are not as high as in others (according to our research AIM compared to NewConnect), the fact that it is a necessity, creates an additional overhead for start ups in terms of additional accounting and level of transparency, which they might not be equipped for. The reluctance towards this mean of financing in short may be put as:” No one, especially start ups, needs additional issues on valuation in the future”.

Moreover, those investors participating in the SMEs stock exchange might be exploited due to low transparency and low requirements in comparison to Securities and Exchange Commission’s (SEC) requirements on measures of Accredited Investor.

However, Kickstarter and Rocket launch systems were regarded with great interest, although the cultural setting of the investment was highlighted. It is a funding platform for creative projects in the world<sup>13</sup> and a project must reach its funding goal in a determined amount of time or funding changes hands. This is done with a view to protecting all sides involved. Also, there is no influence on ownership as 100% stays unchanged by this source of financing.

Mr. Marinkovic addressed the issue of Venture Capitalists’ financing in great doubt, due to the fact that, as he states,

*“Serbian market is not developed yet for equity investments”,*

and «Teleskin» is not interested in this way of financing.

To sum up, interestingly enough, although European data show that access to finance presents the biggest obstacle for innovative companies, Serbian data of SMEs opinion notes that access to finance is regarded vastly as no or moderate obstacle. According to the graph 4.2.3 we see that more than 90% of companies actually has 30% of capital structure from internal sources, and that there is a minority of those choosing significant level of all possible ways of financing. It is the concentration on internal, with adding smaller amounts from other sources that we see most often.

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<sup>13</sup> [/www.kickstarter.com/start](http://www.kickstarter.com/start)

This leads us to a conclusion that Innovative Gazelles, due to their specific characteristics actually do not face problem with financing unlike common belief. Mr. Marinkovic points out:

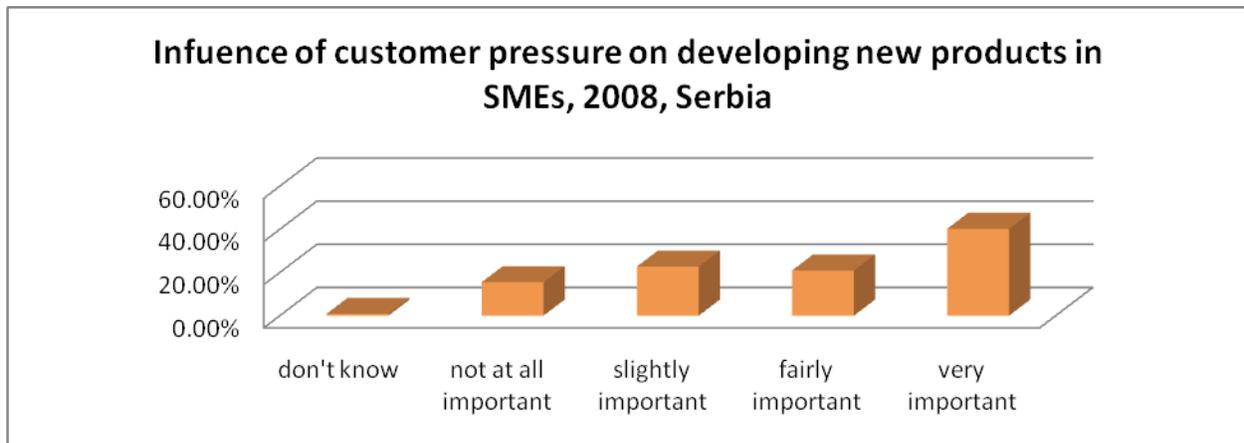
*”Financing is not a problem, if you have a good idea, money will come”.*

## Networking

The relevance of networking is being investigated from different sides such as collaboration with stakeholders such as customers, suppliers, and competitors and alike. «Teleskin» cooperates with different institutions, as their initiation was done through the Technology University Incubator, which is organizing administrative issues and providing assistance at the beginning.

Collaboration is one of the prime aspects when networking is investigated. Interested in confirming Freeman’s point on the relevance of internal and external networks on innovation development, we’ve investigated how development of technology was influenced by networks. It is interestingly done mostly in house, followed by development in cooperation with customers, with suppliers, obtained from universities or public institutions, and obtained from a business or industry association, ordered by «Teleskin» according to relevance.

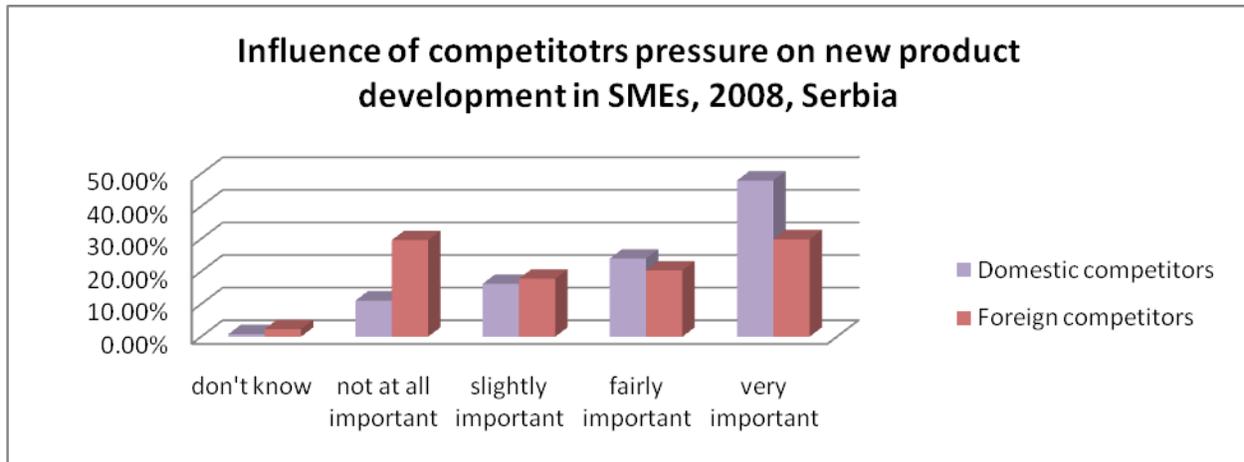
Influence of customers on developing the new product was measured as very important when World Bank Enterprise Survey data base was analyzed. Network with customers was marked as the most important one for «Teleskin». This is due to the fact stress is not put on the very technology and the need to keep it as competitive advantage, but on the market research and the importance of fulfilling the right needs.



**Graph 4.2.4**

*Source: World Bank Enterprise Survey, 2009*

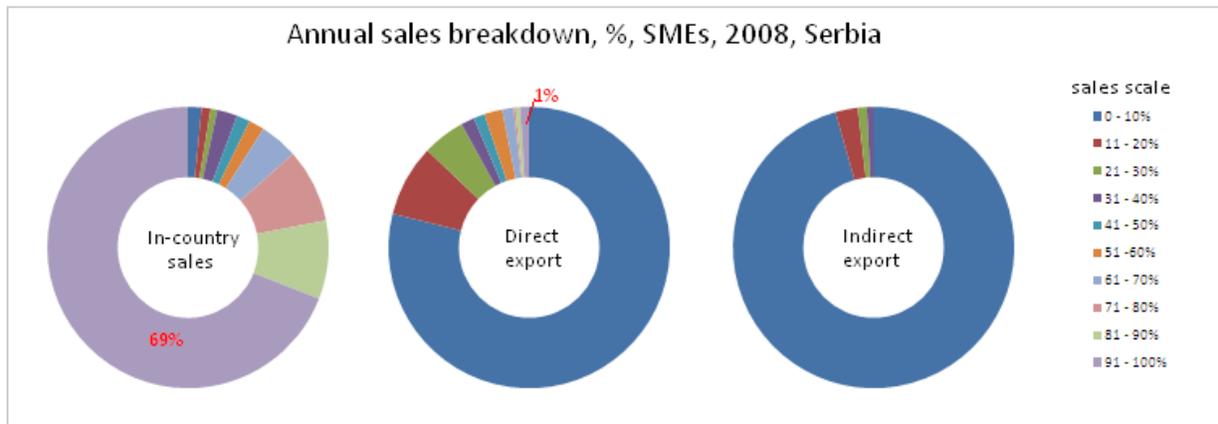
Acknowledging the benefits of open innovation model, and realizing that this model raises the question whether the value will be captured by «Teleskin», they prefer the business model that is closed. They however emphasize market monitoring constantly, as the technology can be overtaken.



**Graph 4.2.5**

Source: World Bank Enterprise Survey, 2009

On the contrary to Serbian SMEs that in average focus on in-country sales «Teleskin» has, on the other hand, 80% of their sales from export (see graph 4.2.6). Therefore, their focus is more oriented on foreign competitors performance. It once again outlines the prerequisites of exporting towards bigger growth, suggested by Robson and Bennet (2000).



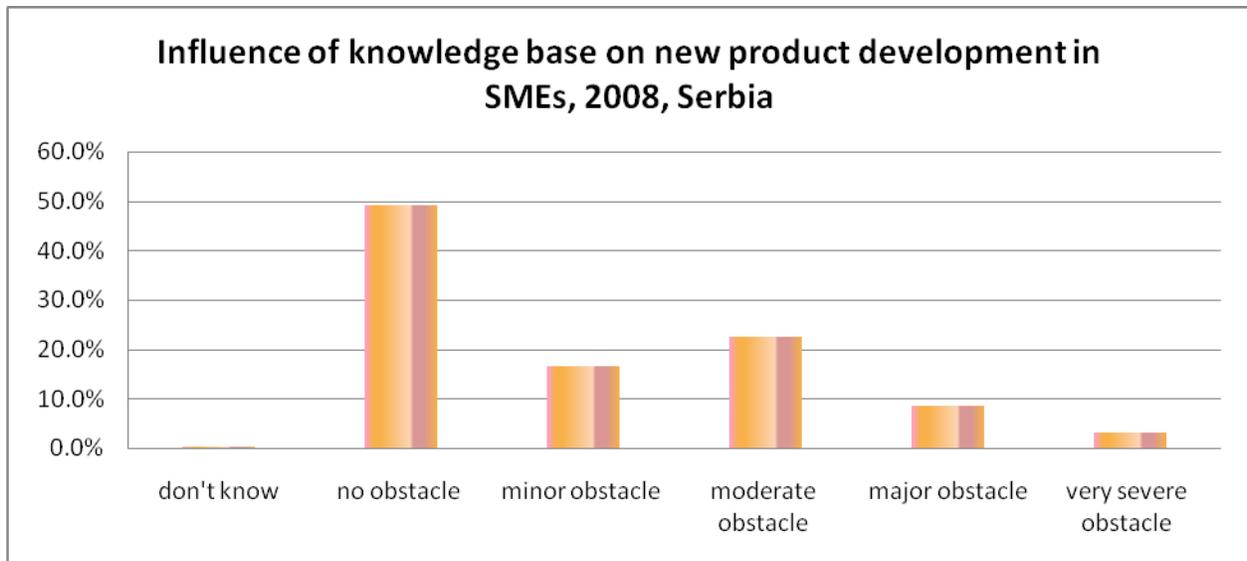
**Graph 4.2.6**

Source: World Bank Enterprise Survey, 2009

«Teleskin» states scientific organizations and university collaboration have a major influence on innovation creation, correlating to Annique Un, Cuervo-Cazurra, and Asakawa stating biggest influence on innovation development and the long lasting ones are from suppliers and university collaboration.

### Knowledge base

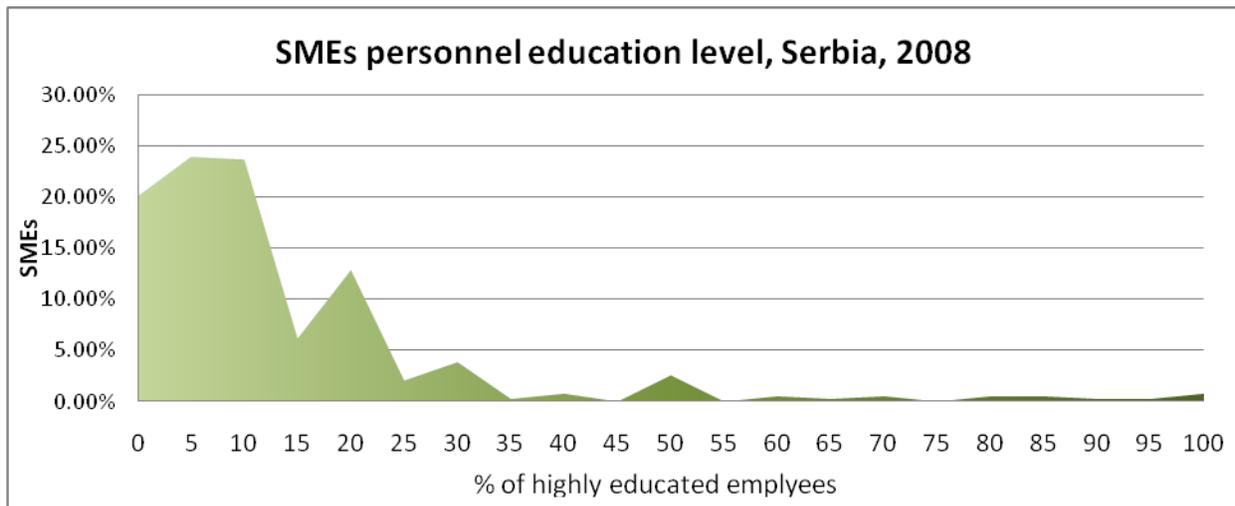
Average SMEs data for Serbia shows that knowledge base is not regarded with much of attention and does not present a significant source by half of the SME population.



**Graph 4.2.7**

Source: World Bank Enterprise Survey, 2009

Under this evaluation it is necessary to mention that only 1.26% of SMEs have 100% of highly educated people (see graph 4.2.8).



**Graph 4.2.8**

Source: World Bank Enterprise Survey, 2009

On the other hand, «Teleskin» has 100% of highly educated employees with great attention to the quality of workers with the parole “every person matters”. Only highly specialized employees match company’s criteria for employment, due to the industry it belongs to. In addition, as a significant issue, labor regulations in Europe and Serbia were raised, as firing people, in general, is difficult and strictly regulated even if they are underperforming. This, according to our interlocutor, sets an additional burden towards innovation development. This is in our opinion caused by the need for the organization to be effective,

“lean and mean”. Addressing Mintzberg (2002), this may cause wedge of discontinuity. The issue is that “mean” in terms of firing underperformers and sustaining the level of earnings (which usually is stated to be the reason) is wrongly interpreted as a virtue, when actually it may cause feelings of betrayal and lack of loyalty among the employees (Mintzberg, 2002).

Our area of interest was not only level of education employees have but type of experience and knowledge as well-factor that Romano et al (1990) point out in his research of factors. The owner and founder, Mr. Sava Marinkovich, a graduate of Harvard business school, recently received OSCE Person of the Year award for fostering innovative entrepreneurship and for providing coaching to graduates from technological faculties in Serbia. He has wide experience in developing and driving go-to-go market strategies for new and innovative technology offerings. Reflecting on Romano et al (1990) we believe his experience greatly influences the development of «Teleskin».

Next is the organization analysis, focused on its influence on innovativeness. Innovation is forested within the company with creative dialogue through iterative processes.. A certain level of flexibility would multiply benefits of dialect processes on which «Teleskin» develops innovation. However, he expresses the following:

*“No one needs too many generalists-they cannot bring decisions”*

Although creative collaboration is more valued, any company with more than 5 employees, according to our interlocutor, requires certain level of hierarchy.

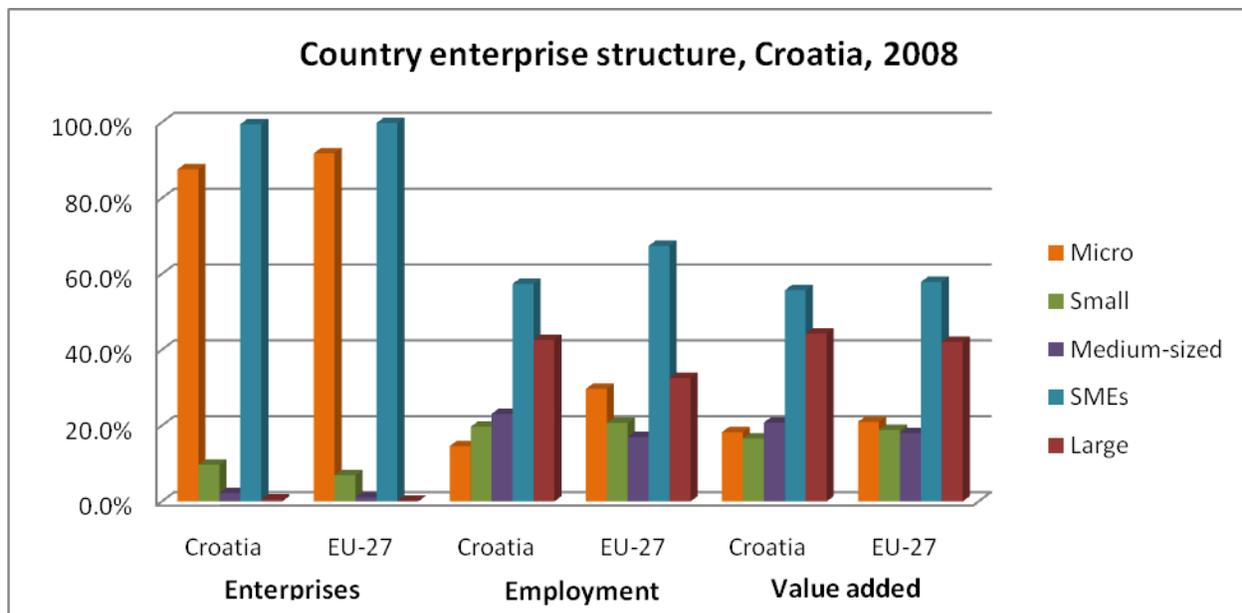
### **4.3. Case Study: “Calyx” Croatia**

Croatia is regarded as Moderate Innovator<sup>14</sup> with better indicators measured compared to Modest Innovator as Serbia. This conclusion will be analyzed with other source of data in order to compare the behavior of Innovative Gazelles in this environment.

Innovation level in Croatian SME sector was assessed by World Bank Enterprise Survey that showed 65,4% of all enterprises being involved new products development. Additionally, 76,1% of SMEs in Croatia introduced some kind of upgrade to their core products or services.

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<sup>14</sup> Innovation Union Scoreboard 2010, The Innovation Union's Performance scoreboard, [www.proinno-europe.eu/metrics](http://www.proinno-europe.eu/metrics), 2011



**Graph 4.3.1**

*Source: European Commission/Enterprise and Industry, Annual Report, 2009, Croatia*

Reflecting on numbers on overall innovation development in country's SMEs sector, we will evaluate major factors that influence innovation fostering on the case of Croatian company "Calyx". The source of information about innovation companies in Croatia was CrunchBase platform, which was originated in order to provide a free platform for technology companies, customers, and investors.

### "Calyx" About the company

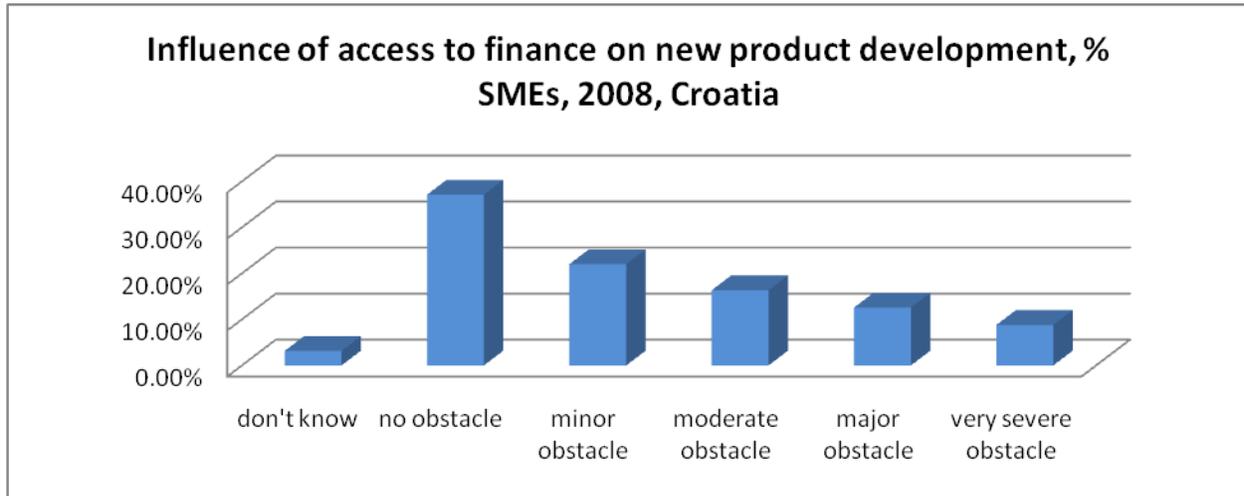
Calyx is a software development company founded in 2007 with the core business of providing IT solutions to pharma-companies. As such, they produce customized products focused on niche market. "Cassie" is their main product, the key focus of which is directed on collecting and analyzing data from laboratories and workstations, making it easy to interpret. It is a high-growing start-up that preformed with 234%, 210%, 46% growth in the last three years respectively. World Bank data shows that 51,5% of SMEs in Croatia are focused in its business strategy on investing in R&D, where "Calyx" appears to be one of those companies. The issue needed to be emphasized on here is that "Calyx's" R&D are stated to be significantly less than 50%. That is explained by the nature of innovative product they provide. "Calyx's" software does not require high investment in its technology but in the knowledge base. Key part of R&D expenses is directed on improving knowledge base of the company's human capital, needed to succeed in specific software provided to pharmaceutical firms.

Our interlocutor was Mr. Velimir Gasparovic, founder and CEO of "Calyx" Innovative Gazelle

### Access to finance

When it comes to the question of financing its business, general SMEs necessity in capital formation is majorly assessed by the Croatian companies as a barrier to producing new goods. Although, among all the

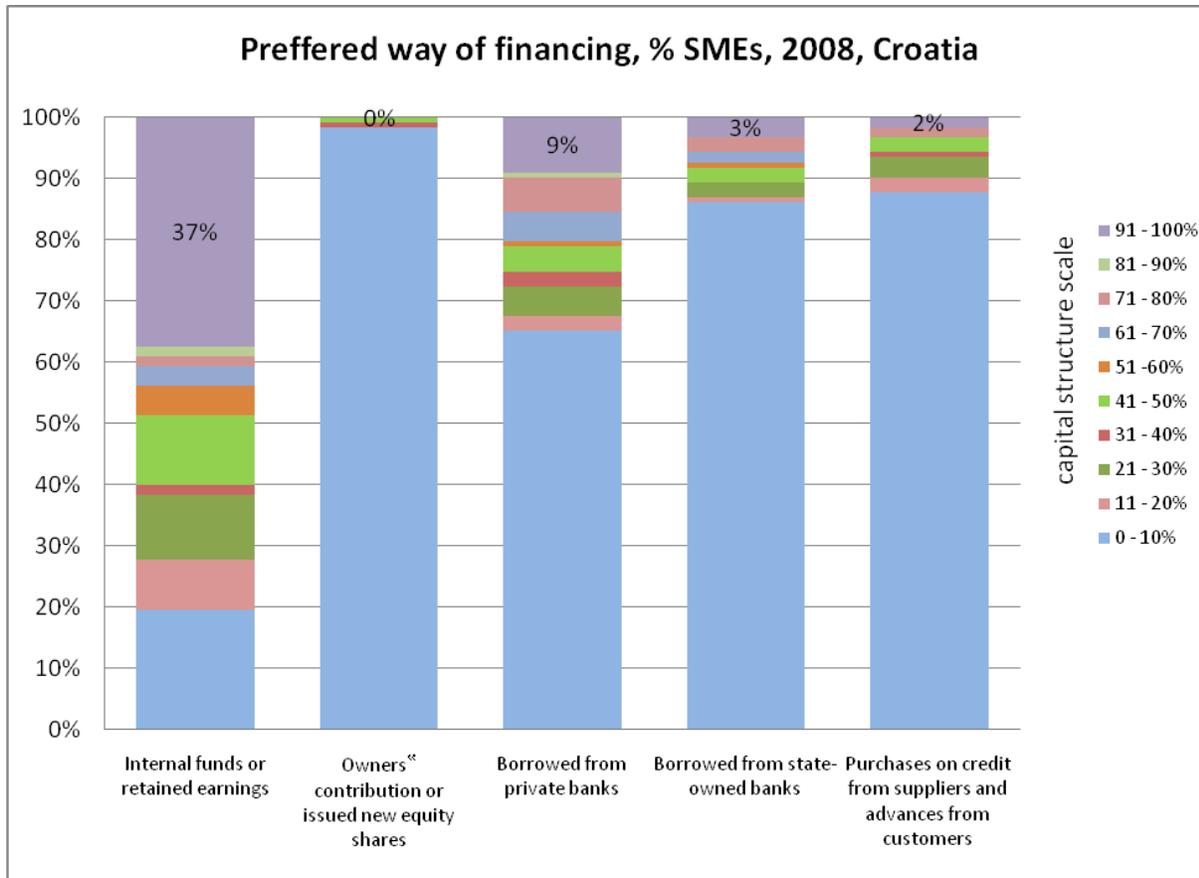
enterprises there is comparably high number of 37,1% of SMEs that doesn't consider access to finance as an obstacle for innovation progress.



**Graph 4.3.2**

*Source: World Bank Enterprise Survey, 2009*

Mr. Gasparovic outlined that “Calyx” is not fitting the major group of firms that do not consider access to finance as a problem. Although the firms is said to be 100% internally financed, as the majority of SMEs in Croatia are (see graph 4.3.3), he emphasizes the potential expenditure of the firm in the future. Mr. Gasparovic outlined desirable cooperation with venture capitalists in the future, providing such an option would be available for them on the market. He defined that access to venture capitalists is limited due to undeveloped financial market in the country and lack of potential investors outdoors as well. When firm is on the way of expending its business it faces many risks that might hamper venture capitalists chance to rip off high returns to their investments in high rates (OECD,2010)

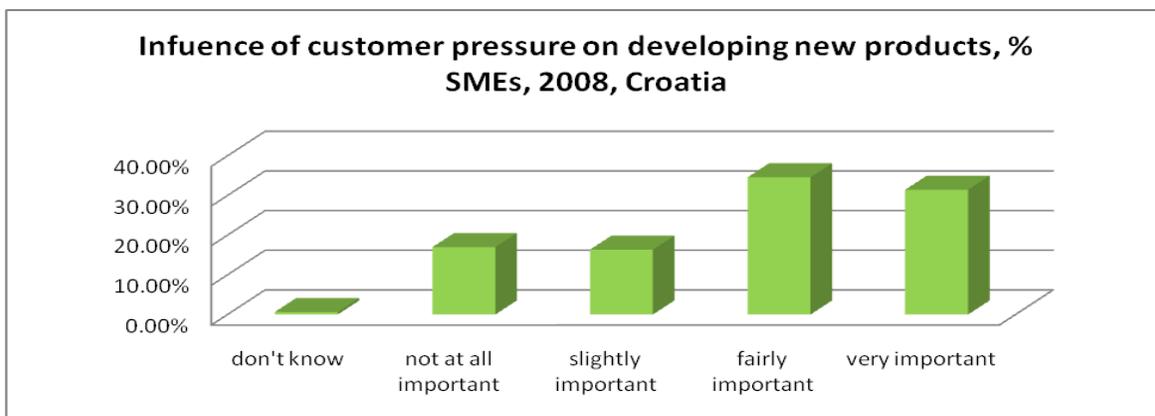


**Graph 4.3.3**

Source: World Bank Enterprise Survey, 2009

### Networking

As the majority of SMEs in the country according to World Bank data, “Calyx” agrees on the importance of customer feedback and cooperation for further growth and development.

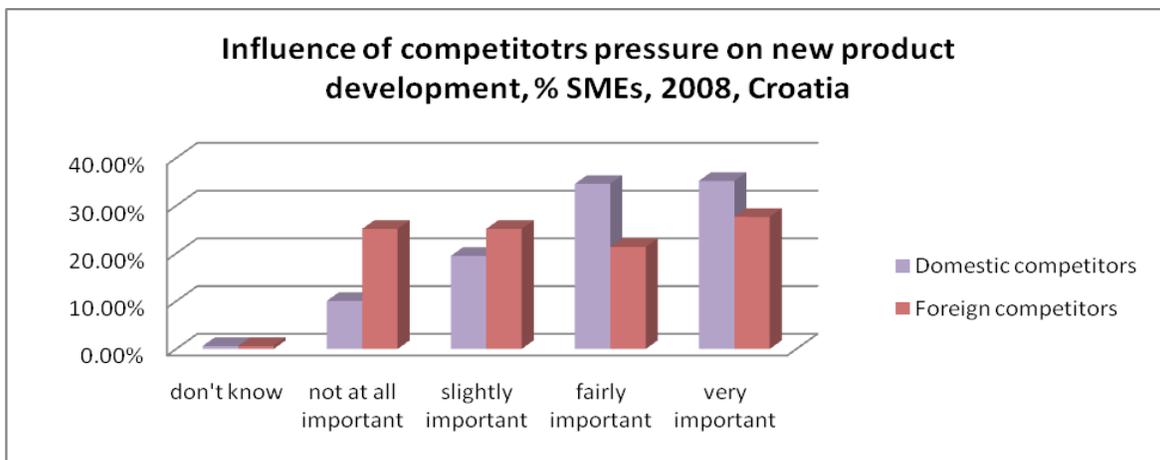


**Graph 4.3.4**

Source: World Bank Enterprise Survey, 2009

“Calyx” develops software for a specific group of customers, and his business is based on niche knowledge. Customizing the software for the needs of every customer is why it is highly important for their business to create a network system around themselves. Due to the specific software and “Calyx’ ” operating with the targeted group of customers, it is hard for their competitors to imitate the product, to some level. They are benefiting from their competitive advantage with other market players, but they do not operate in terms of sharing of information and open innovation principle, as it was offered by Prahalad (2003).

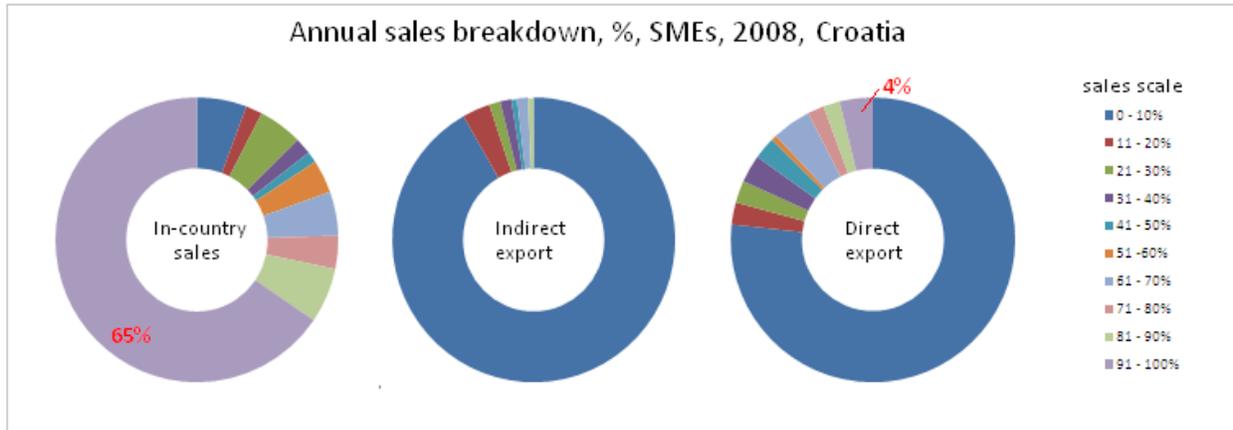
As the biggest obstacle, access to the market and pressure from domestic competitors was outlined by Mr. Gasparovic in the interview. As far as 70% of SMEs, they are influenced by pressure from domestic competitors; “Calyx” appears to be one out of this group (see graph 4.3.5).



**Graph 4.3.5**

*Source: World Bank Enterprise Survey, 2009*

“Calyx” works for exports of 50% of its product, mainly to Slovenia, Austria, Germany and Slovakia with the ganaral performance of 65% of population in SMEs selling 90-100% of their products on domestic markets. It once again outlines the prerequisites of exporting towards bigger growth, suggested by Robson and Bennet (2000).



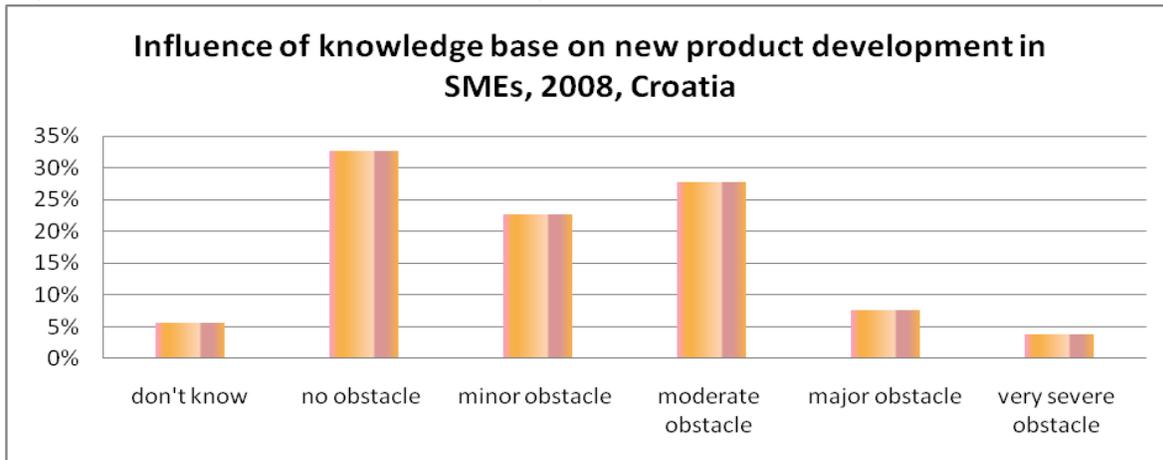
**Graph 4.3.6**

Source: World Bank Enterprise Survey, 2009

### Knowledgebase

Knowledge generation in the company was defined by Mr. Gasparovic as one of the most important factors that influence their overall business development. 100% (8 people) of highly educated personnel in the company prove its importance and company’s policy towards looking for new “brains” with obligatory high education degree. Disclosing once again efficiency of Pulic (2008) and Shariq (1997) view on knowledge management as a key determinant towards fostering innovation.

The information we received primarily from the innovative company in Croatia does not correspond wholly to the overall data on SMEs in the country.

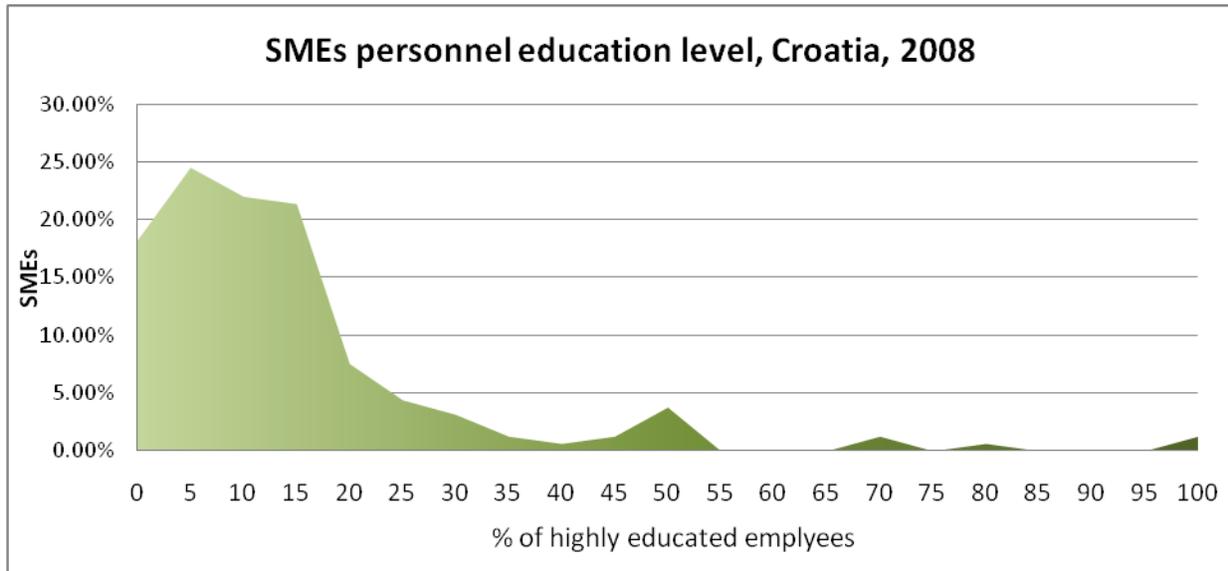


**Graph 4.3.7**

Source: World Bank Enterprise Survey, 2009

Although 67% of the firms consider lack of education as an obstacle to their business development, 64% of all enterprise operates with 0-20% educated people inside the company and only 1,26% of SMEs have around 90-100% of highly educated people. It supports the idea of difference between innovation creators

and other SMEs in the sector, especially their needs and requirement for a successful growth, where on top of those needs knowledgebase is placed.



**Graph 4.3.8**

*Source: World Bank Enterprise Survey, 2009*

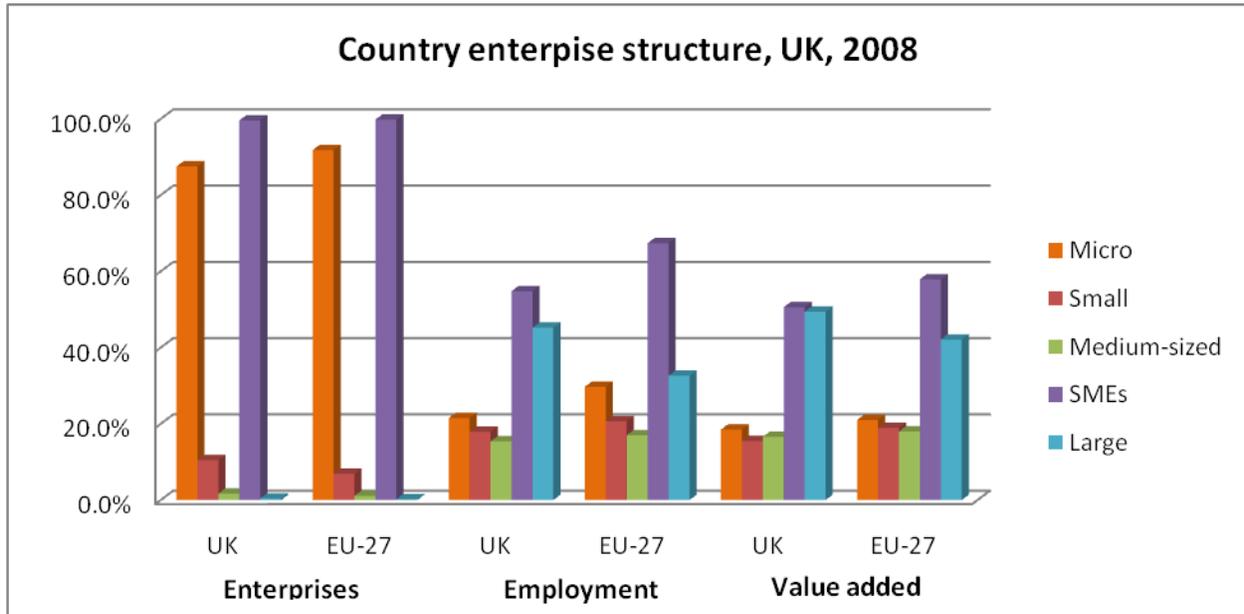
On this matter, “Calyx” management sets up good ties with technical university in Croatia - University of Zagreb. Top management of the company directly takes part in hiring new people, new “brains”, as they themselves hold lectures in the University and from the very beginning work with their potential employees, exercising the chance to choose the brightest candidates. The key accent is put on broad knowledge in the field students possess, as creative collaboration is preferable in the inside firm structure. As collaborative surrounding with low barriers and high level of knowledge transfer is valued as crucial for providing this flow, no strict subordination exists within “Calyx” personnel.

#### 4.4. Case Study: “Skipso” United Kingdom

United Kingdom is the leader in the group of “Innovative followers” defined by Innovation Union Scoreboard, according to its summed up innovative performance. UK has above the average performance compared to EU27 data.<sup>15</sup> The research, due to the lack of data and time limitation, will be constructed from EUROSTAT data, with information on only innovative SMEs unlike World Bank data, showing information of all SMEs. Unfortunately, the analysis is affected by the fact that EUROSTAT is missing some of the data required regarding UK, explained by the fact that EUROSTAT excludes missing, confidential or unreliable data.

<sup>15</sup> Innovation Union Scoreboard 2010, The Innovation Union's performance scoreboard for Research and Innovation, 2011

Reflecting on the graph 3.1.1, the three factors that were decided upon will be observed on the sample company.



**Graph 4.4.1**

Source: European Commission/Enterprise and Industry, Annual Report, 2009, UK

### «Skipso» Company

The company was contacted in cooperation with Venture Lab of Lund University that directed our research to CrunchBase<sup>16</sup> search. We've got introduced to European Union Innovation market and have selected «Skipso» as a company that matches our requirements.

«Skipso» is a company that has developed software forming a new web based platform focused on Clean tech<sup>17</sup> market. This software enables connection for young clean tech companies with the most needed resources for them in form of capital providers, experts, partners and promotion. Besides software development «Skipso» provides new kind of service in form of interactive, connective, digital online ecosystem. They provide an opportunity for academics, researchers, entrepreneurs and innovators to interconnect and fund their projects, collaborate on development of new ones, and get access to new channels to buy and sell their products. Their software has been developed in house, by their developers, initiating the appearance of «Skipso» company in 2008.

Our interview was conducted with Skipso CEO and cofounder Carlo Soresina. In the interview, our interlocutor stated the following:

The main focus is divided in two parts,

<sup>16</sup> See [/www.crunchbase.com/](http://www.crunchbase.com/)

<sup>17</sup> The term is often misinterpreted with Green tech technology, which is usually focuses only on “end of the pipe” results. Clean tech tackles the ecological problems forming productivity based purchasing, as the focus is on business model and returns through performance improvements. (Clean technology—an introduction, Roland Clift, 2004)

1. Software development that provides connection of any vertical technology,
2. Transactional element in terms of ecosystems building.

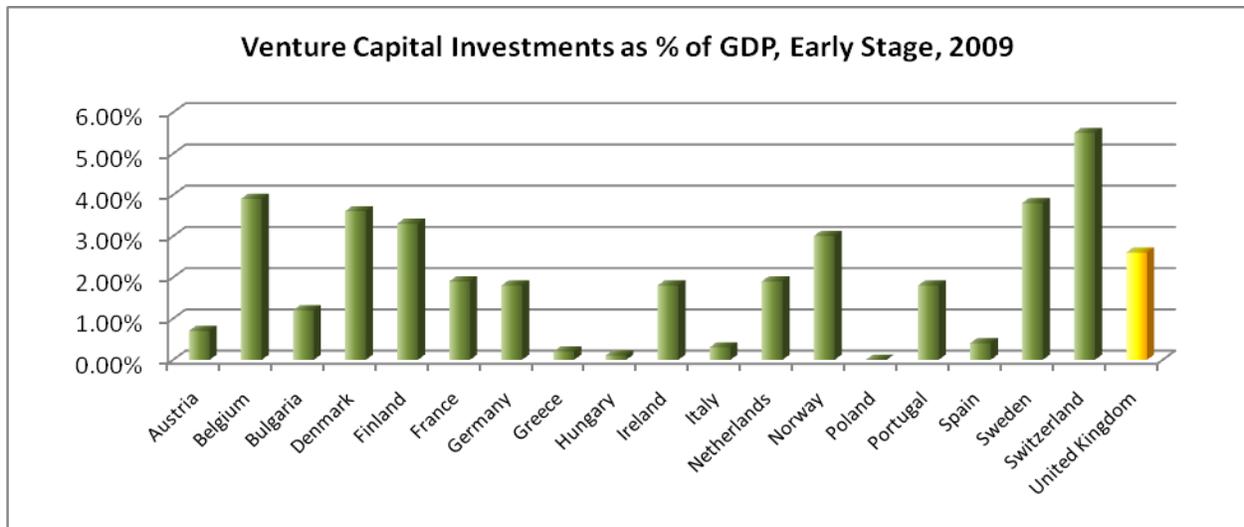
A company such as «Skipso» does not need significant amount of R&D investments in equipment and tangibles, as they greatly depend on their knowledge base. Their R&D expenditures are minor, due to the nature of their industry, and are mainly focused on personnel training. At the beginning, they were focused 95% on their platform and its development, but now when it is “up and running” the focus shifted on 60% market research, 40% platform focus.

Their main advantage is “*quick to adopt, quick to change*” emphasizing the relevance of resilience, confirmed by Hamel and Valinkangas (2003).

### Access to finance

The issue of financing was not a major one, regarded as not an obstacle influencing innovation. The company is financed internally (bootstrapping), coinciding with Auken, L Neeley explanation of bootstrapping existence within start ups. As bootstrapping greatly depends on companies’ ability to provide revenues and therefore increases its dependence on the market, it jeopardizes their market growth since it is influenced by internal funding growth. Our interlocutor states that financing themselves internally provides them ability to “focus on right things” and so far they managed to grow without external financial support. Nonetheless, the company does understand that other ways of financing for the future terms should be analyzed.

Having worked on the business plan in the incubator in Silicon Valley, funding question was elaborated. The relevance of “right people influencing the business” Venture Capitalists are favored as the source of financing. This point is implied by Laura Bottazzi, Marco Da Rin (2002), as it is stated that VCs take the first place when it comes to financing new innovative SMEs. Although the importance of “being independent in the business decisions” was raised by the company, as VCs financing may cause loss of major control within the company and business decisions (Begrof (1994)). Nonetheless, VCs are the only other way of finances that they would consider using, believing in opportunities VCs give, in terms of networking reflecting on development.



**Graph 4.4.2**

Source: World Bank Enterprise Survey, 2009

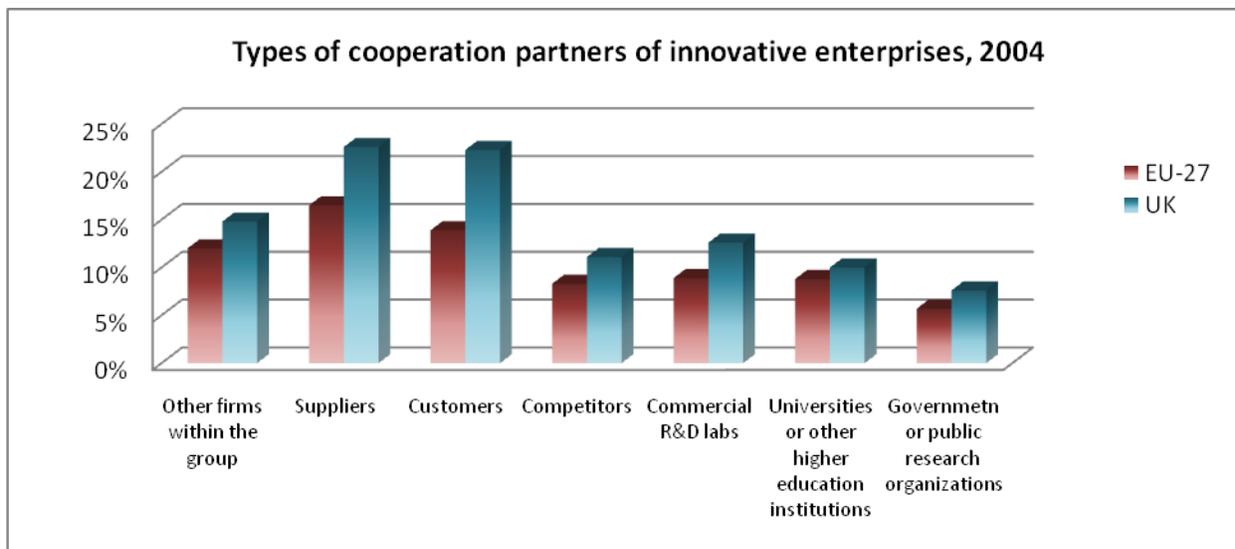
As shown, compared to other EU27 countries, UK market of startups financing by VCs is on quite a moderate level (see graph 4.4.2).

### Networking

When talking about resource issue, our interlocutor stresses the significance of collaboration more than issues with financing

*“..as a company finding itself on the crossroad of business and technology”.*

Such policy coincides with the point of view on networking partners’ relevance of UK’s general innovative enterprises population.



**Graph 4.4.3**

Source: World Bank Enterprise Survey, 200

Major accent has been put on collaboration with Universities and scientific organizations. Understanding the relevance of collaboration with universities as the source for their knowledge base, they provide internships in the company. Moreover, they participate in annual business plan competition in energy space organized by MIT University, powering this platform. The same is done in Europe, in cooperation with London Business School.

Other kinds of collaboration were not regarded as the ones that provide significant influence on innovation creation. As seen on the graph 4.4.3, other innovative SMEs do stress this importance however. This can be explained reflecting on their position as the platform provider. They are not dependant on resource planning or competitors' performance, but they themselves appear to be a source of solutions for clean tech innovative companies, in application of the global software and assistance.

“«Skipso»” develop their software in-house with scientific organizations' and universities' support. This type of model is not depended on country boundaries as being digital online ecosystem (Karakas, 2009). The market of their operation is 50% US based, 40% Europe based and 10% covering the rest of the World.

### Knowledge base

During our interview, Mr. Soresina emphasized:

*“Talented people are the priority, no matter which educational background they have”.*

This statement highlights the relevance of knowledge base for «Skipso». Disclosing once again Romano et al (1990) opinion on the affect type of experience has on innovative company , a perfect balance is achieved with Soresino's and his partner Padilla's background. Namely, the two mentioned complement each other with their mixture of business and technological knowledge.

As for their employees, company consists of five people. 40% of employees hold the MBA degree,40% are professionals with postgraduate degrees, and 20% are researchers. 100% are high educated. This sets high criteria for future employees. The biggest challenge is in finding qualified experts and developers. This risk is hedged with the mentioned collaborations with universities.

The relevance of collaborative atmosphere is a priority when organization capital is in question. The free flow of information among all the employees is allowed, creating high level of flexibility. This, as Gianmario Verona and Davide Ravasi (2003) have stated as well, may positively affect their resilience, which is already stressed as their prime advantage. Strict hierarchy structure is not an option for this software developing enterprise.

## 5. Conclusion

As the answer on the research question “How do factors that influence growth of Innovative Gazelles differ from their influence on other SMEs?” the main purpose of the research paper is to present different factors influencing growth, comparing Innovative Gazelles and other average SMEs.

Investigating on three main factors influencing innovativeness in Gazelles, many mismatches in comparison to SMEs data were met. This in our opinion emphasizes the uniqueness of Innovative Gazelles, and reveals some of possible features causing their success.

Before explaining influence of three factors primarily regarded in this paper, the question of measurement of innovativeness should be disclosed. As often disputed on the topic of R&D being a reliable measure of innovativeness, our research comes up with a conclusion that standing alone it is not a sufficient indicator. Firstly, World Bank data showed that 80%, 67% and 49% of examined SME population in Ukraine, Serbia and Croatia respectively are not investing in R&D, but 57%, 62% and 65% respectively did state to introduce new product to the market. Secondly, our research showed that Innovative Gazelles examples differ from this group as they have an accent on R&D investments. But the importance of the industry they belong appears to be a significant factor, as percentage of R&D costs may pass 50% for technology and product developing industries where <Teleskin> and <Yunesco> belong to, and less than 50% for software developers as <Calyx> and <Skipso>.

### Access to finance

Both EU15 data and SMEs data from sample countries, stress access to finance as a major obstacle. Indeed, the analysis of our example of four Innovative Gazelles showed the contrast in positioning access to finance as an obstacle. Interestingly, Innovative Gazelles do not consider access to finance as a hampering factor towards innovation creation.

Our primary data shows that Yunasko (Ukraine) is venture backed and awaiting EU loan. Teleskin (Serbia) is internally financed with the help of governmental loan, interested in VCs financing. Calyx(Croatia) is entirely internally financed, and Skipso(UK) uses bootstrapping. Worth mentioning that World Bank Enterprise Survey shows internal financing as major source for SMEs funding in general, followed by debt support in significant number of enterprises, which might be explained with maturity of SMEs (see table 5.1, UK N/A). As our sample was constructed of start ups none of the examined companies reported to be able to get debt financing. Additionally, no company out of four would consider going public.

<b>Table 5.1</b>			
<b>SMEs preferred way of financing (share &gt; 50%)</b>			
	Serbia, % of SMEs	Croatia, % of SMEs	Ukraine, % of SMEs
Internal funds or retained earnings	41%	49%	59%
Owners' contribution or issued new equity shares	9%	0%	9%
Borrowings from private banks	22%	21%	13%
Borrowings from state-owned banks	3%	8%	1%
Purchases on credit from suppliers and advances from customers	8%	3%	3%

*Source: World Bank Enterprise Survey, 2009*

## Networking

Networking was marked as more important factor compared to access to finance.

Types of cooperation innovative SMEs appreciate the most according the EU 27 data, in order of relevance are suppliers, customers, commercial R&D labs, Universities, competitors and governmental research organizations (see graph 3.1.2.1). On the contrary, our examples of Innovative Gazelles differ from mentioned innovative SMEs rating. Namely, they value University relations as the most important one together with their focus on customers. Cooperation with Universities is put on the first place as it enables them to both derive knowledge flow and human resources. Customers are next in line as the relevance of answering on market needs is crucial, since Innovative Gazelles' resilience is what differentiates them from traditional SMEs. Innovative SMEs follow the market changes attentively and tend to answer and adjust quickly.

As for their competitors, Innovative Gazelles are focused only on foreign ones, unlike other SMEs that address majorly their domestic competitors. We explain this with the characteristic that Innovative Gazelles have - being "born global". They are all from 80% to 100% export oriented (accept Croatia that is 50% export oriented). This is not the case with other SMEs as 82%, 63% and 66% of SMEs from Ukraine Serbia and Croatia respectively do not generate their sales through exporting. The general data for UK SMEs is missing but single case study of UK Innovative Gazelle showed that the company is as well oriented on operating globally.

Some of Innovative Gazelles, due to the digital business model have no geographical barriers whatsoever (Croatia Calyx and UK Skipso), but some depend on their ecosystem (Serbia Teleskin and Ukrainian Yunesco). The innovative characteristic may cause them to be highly dependent on their ecosystems. We came to the conclusion that the interdependent or integration risk however can be hedged by both kinds of Innovative Gazelles, regardless to the industry they are in. With the focus on software development or digitalized performance, the very fact that no geographical limits or low barriers to the markets exist, allows innovators to reach their customers easier and build a strong network. As for Innovative Gazelles with the other nature of innovation, the fact they are 80-100% export focused gives them opportunity to connect to broader opportunities and secure their ecosystem.

Most importantly, it was inductively concluded that not only export but in today's World 2.0 world, digitally allowed access to different markets provide Innovative Gazelles great opportunity for growth. In case of Skipso, their digital platform creating ecosystem provides even greater affect of cross country cooperation, than other kinds of innovative technologies have.

We have concluded that our Innovative Gazelles are not building products within open innovation model. This can be explained first with the fact our research covered only startups and secondly with the fact decision on the open innovation highly depends on the nature of the innovation and business model. Companies may have innovations that are easily imitated or turned into commodities and therefore may be able to create value but may have problems to capture the value. In this case the very nature of the innovation influences the decision how to develop the mentioned. On the other hand, the innovation may be considered to be a competitive advantage, and therefore not developed within the Open innovation model as the value is in the ability of the company to sustain privacy and develop it as leading technology.

### **Knowledge base**

Knowledge base has been regarded as the most important factor for fostering innovativeness in all four Innovative Gazelles examples.

Due to their innovative focus, need of constant improvement and development focus Innovative Gazelles on this factor. In general, only approximately half of SMEs in Ukraine Serbia and Croatia regard knowledge base as an obstacle toward innovation development.

Unlike general SMEs that are divided according to their opinion on this factor's influence, Innovative Gazelles that greatly acknowledge its relevance have more than 80% of highly educated employees, making significant difference in comparison to average SMEs employees in sample countries (UK N/A). This data differs greatly since less than 3% of SMEs have 90-100% of highly educated employees.

The relevance of creative collaboration in Innovative Gazelles was raised, although in some industries a level of strict subordination is required (Teleskin and Yunesco). We have come to the conclusion that theoretical position on innovation growth in collaborative surrounding matches the empirical result, although inductively we understood that innovativeness can be dependent on industries characteristics and therefore require some level of hierarchy structure as well. This is connected to the kind of knowledge the industry requires. If it is broad knowledge and experience, collaborative organization is necessary. If on the other hand nature of knowledge required is specific, strict subordination is required next to collaboration. Additionally, effective knowledge exploitation in enterprises strategies requires access to external information. The key accent is made on managers' previous international experience that would stimulate faster growth and development.

Apart from inductive conclusion on the need of strict subordination that was empirically proven, two more factors we have not deductively analyzed were shown through the research.

First is the importance of flexibility of organization in terms of resilience and ability to quickly adjust and react was raised as one of the crucial factors, tightly connected to the knowledge base and networks the Innovative Gazelle has.

Secondly, in the framework of knowledge base importance, Innovative Gazelles may face a problem due to labor regulations on one side and their need to have top of the class people in their team which sometimes requires firing underperformers. The significance of flexibility and being adoptive is once again emphasized with the need of the flow of employees in R&D company. Reflecting on the theory, that loyalty may be influenced with this “wedge of discontinuity” explained by Mintzberg, Innovative Gazelles believe flow of employees would in fact bring more benefits as “every person counts” than jeopardizing loyalty would bring costs.

With regards to all above described, the major findings of research are:

- **Relevance of factors.**

Consequently, we came to the conclusion Innovative Gazelles experience different influence of defined factors than average SMEs do. The most impact on innovation development is provided by knowledge base, followed by network and access to finance.

- **Difference in structure.**

Specific structure is explained by major focus on export/or digital access, dramatically higher percent of higher educated people, careful mixture of collaborative cooperation and strict subordination inside the company, broad access to finance solutions and flexibility.

- **Cross country perspective.**

Our cross country multi case research showed that Innovative Gazelles are companies that do not differ on country bases. This is due to the fact that Innovative Gazelles

1. Produce goods/services that are innovative and have their target group which is secured/hedged by their orientation on global access via digitalized business model or export
2. Have or are able to build a strong network both through collaboration or digital focus.

## **Recommendation for future research**

Apart from factors we are investigating in this research, significant influence of administrative costs and taxes has been raised by analyzed companies. This, however, was not further examined and, as various macro factors that were not regarded, is left as a base for other researches on monetary, fiscal, economic or political influences on innovativeness.

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## Appendix 1: Research questioner

**Name of respondent:**

**Company name:**

**Legal status:**

**Address of company:**

**Number of employees:**

**Average turnover in EUR:**

**Where are the headquarters of the firm located?**

--

**Please describe your firm's main area of activity in terms of annual sales**

--

**Please define sales growth in % with in 2005-2010 time period:**

2005	2006	2007	2008	2009	2010

**Please state the influence of factors below on fostering innovation activity (please, mark 1 out of 4):**

	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle
<b>Access to financing</b>				
<b>Cost of financing (e.g., interest rates and charges)</b>				
<b>Tax rates</b>				
<b>Tax administration</b>				
<b>Business licensing and permits</b>				
<b>Labor regulations</b>				
<b>Skills and education of available workers</b>				
<b>Networking with customers and suppliers</b>				
<b>Collaboration with partners</b>				

## Access to finance

**What proportion of your firm's working capital and new fixed investment has been financed from each of the following sources, over the last 5 years?**

	Working capital (i.e. inventories, accounts receivable, cash)	New investments (i.e. new land, buildings, machinery, equipment)
<b>Internal funds/Retained earnings</b>		
<b>Equity (i.e. issue new shares)</b>		
<b>Borrowing from foreign banks</b>		
<b>Borrowing from state-owned banks, including state development banks</b>		
<b>Loans from family/friends</b>		
<b>Business angels financing</b>		
<b>Venture capitalists financing</b>		
<b>Trade credit from suppliers</b>		
<b>Trade credit from customers</b>		
<b>The government (other than state-owned banks)</b>		

**Do you feel there is lack of external funds? If yes, in what form of financing?**

--

**Reasons for the external financing gap (if present): (multiple choice available)**

<b>Asymmetric information</b>	
<b>Lack of trust between entrepreneurs and investors</b>	
<b>Lack of management skills and poor business plan</b>	
<b>Lack of a track record and collateral</b>	
<b>Small loan amounts</b>	
<b>Conservative nature of financial markets</b>	

**If your firm did not apply for a loan, what were the main reasons? (multiple choice available)**

<b>Does not need a loan</b>	
<b>Application procedures for bank loans are too burdensome</b>	
<b>Collateral requirements for bank loans are too strict</b>	
<b>Interest rates are too high</b>	
<b>Did not think it would be approved</b>	
<b>Other (please specify)</b>	

**If your firm did not cooperate with venture capitalists, what were the reasons? (multiple choice available)**

<b>Does not need it</b>	
<b>Risk of ownership dilution</b>	
<b>Tough requirements to obtain</b>	
<b>Unavailable source of financing</b>	
<b>Other (please specify)</b>	

## Knowledge base

**Please provide the number for each category of company's personnel:**

<b>Managers</b>	...%
<b>Professionals (e.g., accountants, engineers, scientists)</b>	...%
<b>Skilled workers</b>	...%
<b>Unskilled workers</b>	...%
<b>Non-production workers</b>	...%

**Please classify education level of company's personnel. What is the number of employees with highest education completed?**

<b>primary school</b>	...%
<b>vocational qualification</b>	...%
<b>secondary school qualification</b>	...%
<b>university education</b>	...%

**Does your firm offer formal training to your employees? If yes, what percent of employees in each category received training over the last 5 years?**

<b>Managers</b>	...%
<b>professionals</b>	...%
<b>skilled workers</b>	...%
<b>unskilled workers</b>	...%
<b>non-production workers</b>	...%

**According to recruitment policy of your company, please define mainstream characteristic of personnel, as the percentage of total employees:**

<b>Approved candidates with broad knowledge and experience</b>	...%
<b>Approved candidates, highly specialized in specific fields of knowledge</b>	...%

**How would you describe internal organization of employees in terms of duties segregation? (please assess in scale from 1 to 5, where 1 –rarely followed, 5- highly preferable)**

<b>Strict subordination</b>	
<b>Creative collaboration</b>	

# Networking

Does your firm cooperate with counterparties from other countries? Please name countries.

--

Does your firm currently sell its products or services directly to customers outside the country?  
(choose one)

Yes	
No	

What percentage of your firm's sales is exported? ...%

--	--

What is the percentage of international suppliers in the supply chain? ...%

--	--

Over the last 5 years has your firm received any subsidies from the national government, EU sources regional/local governments or any other sources? If yes, on average, what was the amount of these subsidies as a percent of the average sales during this period?

--

Please identify influence of defined factors on innovation creation

	1 No influence	2 Minor influence	3 Modest influence	4 Major influence
Scientific organizations				
Participation in conferences related to the field of innovation production				

University assistance				
Membership in professional partnerships				
Networks with suppliers				
Networks with customers				

Could you please define how much did your firm spend in 2005-2010 on each of the following, as a percentage of total cost spend (EUR):

	2005	2006	2007	2008	2009	2010
<b>New buildings, machinery and equipment</b>						
<b>Research and development</b>						
<i>Including:</i>						
<i>wages and salaries of R&amp;D personnel</i>						
<i>R&amp;D materials</i>						
<i>R&amp;D related education and R&amp;D training costs</i>						

What was the most important way your firm acquired this new technology, choosing from the list below?

(please arrange in scale from 1 to 10, 10 being the most important, each number use once)

<b>Embodied in new machinery and equipment</b>	
<b>Hired key personnel/consultants with the technological expertise</b>	
<b>New license or turnkey operations from international sources</b>	
<b>New licensing or turnkey operations from domestic sources</b>	
<b>Developed or adapted within the firm</b>	
<b>Transferred from the parent company</b>	
<b>Developed in cooperation with customers</b>	
<b>Developed in cooperation with suppliers</b>	
<b>Obtained from a business or industry association</b>	
<b>Obtained from universities or public institutions</b>	

## Appendix 2: Semi structured Interview

1. Do you consider company's core business to be innovative? Why/why not?
2. What is the nature of innovative product/service?
3. Please share details on its development –in house-outsourced?
4. What are the R&D costs/expenses and personnel investments?
5. Who are major owners of the company?
6. How was the company established?
7. Did innovation efforts of the organization have an influence on cost savings policy? How did innovation development influence spending in the last 5 years?
8. What is company's capital structure? How is the capital structure in terms of internal/external funds influencing innovation development?
9. Did you apply for the informal ways of financing (Business angels, Friends, Family)? Why/ why not?
10. Is the management of your company aware of alternative financing opportunities? What are the reasons for being traded/not being traded on a SME Stock Exchange/using crowd funding?
11. Does the access to open market/networks affect innovation production growth in your company? If yes, how?
12. Does the organization have operations outside home country? Does international market have more benefit to the innovation creativity than home country market? Why/why not?
13. Innovation is very much about ecosystems with several partners. Small companies often take the back seat in such setups. Is this a problem? Are there things small companies can do to level the playing field in such relationships?
14. How effected is the company by its ecosystem?
15. How do you think what bears more effect on innovation creation – open model collaboration (ideas shearing) or information privacy (taking the position of pioneer)?
16. Do you think that quality of intellectual capital has an effect on company's core business? Why/why not?
17. What is the profile of your CEO? What is the type of experience s/he has?
18. To what level R&D team depends on specific knowledge and expertise?
19. How would you define influence of scientific organizations and university cooperation on your main activity?
20. Do you know about SMEs incubators? How does it affect your company development in terms of access to information?
21. What is the organizational structure of your company? Strict or flexible?
22. What do you regard as your companies biggest advantage?
23. What would you state as the biggest obstacle for development?
24. How do you see the future of your company?
25. What is your strategy/objective/mission?

### Appendix 3. Contacted companies

Country	Company	Industry	Web	Source for contact info
Austria	Polytechnik	biotechnology	<a href="http://www.polytechnik.com">http://www.polytechnik.com</a>	VATech Finance GmbH rec
Poland	Fluid S.A.	biotechnology	<a href="http://www.fluid.pl/">http://www.fluid.pl/</a>	NewConnect SE
Poland	atlantis-energy	eco-energy	<a href="http://www.atlantis-energy.pl/">http://www.atlantis-energy.pl/</a>	NewConnect SE
Poland	FON S.A.	eco-energy	<a href="http://www.fon-sa.pl/pl/">http://www.fon-sa.pl/pl/</a>	NewConnect SE
Poland	MEW SA	eco-energy	<a href="http://mewsa.pl/">http://mewsa.pl/</a>	NewConnect SE
Serbia	DMS	eco-energy	<a href="http://www.dmsgroup.rs/">http://www.dmsgroup.rs/</a>	Jelena Borocki, Ph.D.
Serbia	Tajfun	IT		Jelena Borocki, Ph.D.
Romania	Levi 9	IT	<a href="http://www.levi9.com/en-US/Pages/Home.aspx">http://www.levi9.com/en-US/Pages/Home.aspx</a>	Jelena Borocki, Ph.D.
Serbia	Microtech international	eco-energy	<a href="http://www.microtech.com.pl/index.dhtml">http://www.microtech.com.pl/index.dhtml</a>	NewConnect SE
Check Republic	geoinvent	eco-energy	<a href="http://www.geoinvest-cy.org/">http://www.geoinvest-cy.org/</a>	NewConnect SE
Poland	inteliwise	IT	<a href="http://www.inteliwise.com/en/">http://www.inteliwise.com/en/</a>	NewConnect SE
Poland	bioerg	biotechnology	<a href="http://www.bioerg.pl">http://www.bioerg.pl</a>	NewConnect SE
Poland	ezo-recycling	recycling	<a href="http://www.ezo-recycling.p">www.ezo-recycling.p</a>	NewConnect SE
UK	rapstrap	plastic/rubber producer	<a href="http://www.rapstrap.com/">http://www.rapstrap.com/</a>	NewConnect SE
Sweden	TAT: The Astonishing Tribe	design/IT	<a href="http://www.tat.se/">http://www.tat.se/</a>	Thomson Reuters
norway	Telio	communication applications	<a href="http://www.telio.ch/no/">http://www.telio.ch/no/</a>	Thomson Reuters
Sweden	Elverket	eco-energy	<a href="http://www.elverket.se/">http://www.elverket.se/</a>	Thomson Reuters
UK	Packetfront	broadband	<a href="http://www.packetfront.com/">http://www.packetfront.com/</a>	crunchbase.com
Sweden	Franson Technology AB	software	<a href="http://www.franson.com">http://www.franson.com</a>	crunchbase.com
UK	videoplaza	broadband	<a href="http://www.videoplaza.com">http://www.videoplaza.com</a>	crunchbase.com
Germany	Netsize	communication applications	<a href="http://www.netsize.com">http://www.netsize.com</a>	crunchbase.com
Sweden	Gislen Software	software	<a href="http://www.gislen.com">http://www.gislen.com</a>	crunchbase.com

UK	Soft Aim Innovations	software	<a href="http://www.softaiminnovation.com">http://www.softaiminnovation.com</a>	crunchbase.com
Sweden	Rebtel	communication applications	<a href="http://www.rebtel.com">http://www.rebtel.com</a>	crunchbase.com
Germany	Skobbler	software	<a href="http://www.beta.skobbler.com">http://www.beta.skobbler.com</a>	crunchbase.com
Germany	Organica Feinchemie GmbH Wolfen	pharmaceutical and electronic industry	<a href="http://www.organica.de">http://www.organica.de</a>	crunchbase.com
UK	G2 Systems	software	<a href="http://www.g2systemsllc.com">http://www.g2systemsllc.com</a>	crunchbase.com
Germany	Cellnetrix	software	<a href="http://www.cellnetrix.com">http://www.cellnetrix.com</a>	crunchbase.com
Germany	servtag	software	<a href="http://www.servtag.com">http://www.servtag.com</a>	crunchbase.com
Czech R	MicroMedia	software	<a href="http://www.micromedia.cz/en">http://www.micromedia.cz/en</a>	crunchbase.com
Germany	Transinsight	software	<a href="http://transinsight.com/">http://transinsight.com/</a>	crunchbase.com
UK	Biovex	biotechnology	<a href="http://biovex.com/">http://biovex.com/</a>	crunchbase.com
UK	Intercytex Group	biotechnology	<a href="http://www.intercytexas.com">http://www.intercytexas.com</a>	crunchbase.com
Germany	Zyraz	Chocolatier and Technologist Combined	<a href="http://www.zyraz.com">http://www.zyraz.com</a>	crunchbase.com
Germany	Biocompatibles International	biotechnology	<a href="http://www.biocompatibles.com">http://www.biocompatibles.com</a>	crunchbase.com
Germany	alertme	communication applications	<a href="http://www.alertme.com">http://www.alertme.com</a>	crunchbase.com
Germany	SYGNIS Pharma AG	biotechnology	<a href="http://www.sygnis.de">http://www.sygnis.de</a>	crunchbase.com
UK	Skipso	software	<a href="http://www.skipso.com">http://www.skipso.com</a>	crunchbase.com
Norway	Metallkraft AS	Cleantech	<a href="http://www.metallkraft.no">http://www.metallkraft.no</a>	crunchbase.com
Germany	ewa-marine	consumer electronics	<a href="http://www.ewa-marine.com">http://www.ewa-marine.com</a>	crunchbase.com
Switzerland	u-blox	semiconductor	<a href="http://www.u-blox.com">http://www.u-blox.com</a>	crunchbase.com
Switzerland	Newave	eco-energy	<a href="http://www.newavenergy.com">http://www.newavenergy.com</a>	Thomson Reuters
norway	GC Rieber Shipping	marine manufacturing	<a href="http://www.gcrieber-shipping.no">http://www.gcrieber-shipping.no</a>	Thomson Reuters
norway	simrad-optronics	machinery manufacturing	<a href="http://www.simrad-optronics.no">http://www.simrad-optronics.no</a>	Thomson Reuters

norway	Norwegian Car Carriers ASA	Service	<a href="http://www.noccasa.no">http://www.noccasa.no</a>	Thomson Reuters
norway	Comrod	machinery manufacturing	<a href="http://www.comrod.com">http://www.comrod.com</a>	Thomson Reuters
norway	<b>SinOceanic</b>	machinery manufacturing	<a href="http://www.sinoceanic.no">http://www.sinoceanic.no</a>	Thomson Reuters
norway	Repant ASA	high tech	<a href="http://www.repant.com">http://www.repant.com</a>	Thomson Reuters
Sweden	NetInsight	software	<a href="http://www.netinsight.net">http://www.netinsight.net</a>	Thomson Reuters
Sweden	HMS	high tech	<a href="http://www.hms.se">http://www.hms.se</a>	Thomson Reuters
Sweden	Aerocrine AB	biotechnology	<a href="http://www.aerocrine.com">http://www.aerocrine.com</a>	Thomson Reuters
Sweden	Orexo	biotechnology	<a href="http://www.orexo.com">http://www.orexo.com</a>	Thomson Reuters
Sweden	Vitrolife	biotechnology	<a href="http://www.vitrolife.com">http://www.vitrolife.com</a>	Thomson Reuters
Sweden	RaySearchLaboratories	Medical technology	<a href="http://www.raysearchlabs.com">http://www.raysearchlabs.com</a>	Thomson Reuters
Sweden	Probi	biotechnology	<a href="http://www.probi.se">http://www.probi.se</a>	Thomson Reuters
Sweden	Impact Coatings	cleantech	<a href="http://www.impactcoatings.se">http://www.impactcoatings.se</a>	Thomson Reuters
Sweden	Cellavision	biotechnology	<a href="http://www.cellavision.com">http://www.cellavision.com</a>	Thomson Reuters
Italy	H-care	communication applications	<a href="http://www.h-care.eu">http://www.h-care.eu</a>	crunchbase.com
Austria	Microtronics	high tech	<a href="http://www.microtronics.at">http://www.microtronics.at</a>	crunchbase.com
Hungary	Prezi	software	<a href="http://www.prezi.com">http://www.prezi.com</a>	crunchbase.com
Slovenia	Intera	software	<a href="http://www.intera.si">http://www.intera.si</a>	crunchbase.com
Italy	Dooit	software	<a href="http://www.dooit.it">http://www.dooit.it</a>	crunchbase.com
Austria	Emisoft	software	<a href="http://www.emisoft.com">http://www.emisoft.com</a>	Thomson Reuters
Croatia	Calyx	software	<a href="http://www.calyx.hr">http://www.calyx.hr</a>	crunchbase.com
Slovenia	Hotalot	Service	<a href="http://www.hotalot.com">http://www.hotalot.com</a>	crunchbase.com
Austria	Mobilizy	high tech	<a href="http://www.mobilizy.com">http://www.mobilizy.com</a>	crunchbase.com
Croatia	EADS	high tech	<a href="http://www.mbb-gmbh.info">http://www.mbb-gmbh.info</a>	Thomson Reuters
Italy	H-Farm Venture	Service	<a href="http://www.h-farmventures.com">http://www.h-farmventures.com</a>	crunchbase.com
Romania	GreenPixel	Service	<a href="http://www.greenpixel.ro">http://www.greenpixel.ro</a>	crunchbase.com
France	NAVX	high tech	<a href="http://www.navx.com">http://www.navx.com</a>	crunchbase.com

Romania	Netboot	software	<a href="http://www.netboot.ro">http://www.netboot.ro</a>	crunchbase.com
France	French Today	Service	<a href="http://www.frenchcleantech.com">http://www.frenchcleantech.com</a>	crunchbase.com
Romania	Mindomo	software	<a href="http://www.mindomo.com">http://www.mindomo.com</a>	crunchbase.com
Romania	Live2c	software	<a href="http://www.live2c.ro">http://www.live2c.ro</a>	facebook.com
Romania	Zitec	software	<a href="http://www.zitec.ro">http://www.zitec.ro</a>	facebook.com
Romania	Avchat software	software	<a href="http://avchathq.com/">http://avchathq.com/</a>	crunchbase.com
Italy	Esagrafica Service Solutions	software	<a href="http://www.esagrafica.it">http://www.esagrafica.it</a>	crunchbase.com
Ukraine	Yunasko	eco-energy	<a href="http://www.yunasko.com">http://www.yunasko.com</a>	Greencubator.com
Serbia	Byteout	software	<a href="http://www.byteout.com/">http://www.byteout.com/</a>	Incubator of Technical University Beograd
Serbia	Farmakom	agriculture	<a href="http://www.farmakommb.com/">http://www.farmakommb.com/</a>	Incubator of Technical University Beograd
Serbia	Conimex A.Z.	commerce		Incubator of Technical University Beograd
Spain	Tintas Arzubialde	printing	<a href="http://www.tintasarzubialde.com/en/">http://www.tintasarzubialde.com/en/</a>	Incubator of Technical University Beograd
Spain	Cales de Llierca	lime and derived products	<a href="http://www.calesdellierca.com/en/company.php">http://www.calesdellierca.com/en/company.php</a>	Incubator of Technical University Beograd
Italy	Lamberti	chemistry	<a href="http://www.lamberti.com/">http://www.lamberti.com/</a>	Incubator of Technical University Beograd
Spain	Europigments	printing	<a href="http://www.europigments.es/default.php">http://www.europigments.es/default.php</a>	Jelena Borocki, Ph.D.
Austria	Folial	tear tape solutions	<a href="http://www.folial.at/">http://www.folial.at/</a>	Jelena Borocki, Ph.D.
Serbia	IHIS biotehnologija	biotechnology		Jelena Borocki, Ph.D.

#### Appendix 4. Research sample companies

Country	Company		Type of interview	Length	Manager	CEO
Ukraine	Yunasco	<a href="http://yunasko.com/">http://yunasko.com/</a>	via e mail	16.05-20.05.		
			interview	45min	Business Development Director	
Serbia	Teleskin	<a href="http://teleskin.org/Home/aboutUs?lang=en">http://teleskin.org/Home/aboutUs?lang=en</a>	via e mail	09.05-19.05.		X
			interview	30+60min		
Croatia	Calyx	<a href="http://www.calyx.hr/">http://www.calyx.hr/</a>	via e mail	09.05-15.05.		X
			interview	50min		
UK	Skypso	<a href="http://www.skypso.com/">http://www.skypso.com/</a>	via e mail	04.05-19.05.		
			interview	45min		X

## Appendix 5. Abbreviation

AT	Austria
BE	Belgium
BG	Bulgaria
BR	Brazil
CEO	Chief Executive Officer
CH	Switzerland
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
EU27	European Union in the year 2007
EU15	European Union in the year 2004
FI	Finland
FR	France
GDP	Gross Domestic Product
GR	Greece
HR	Croatia
HU	Hungary
IC	Intellectual Capital
IE	Ireland
IN	India
IS	Iceland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MK	Former Yugoslav Republic of Macedonia
MT	Malta
NL	Netherlands
NO	Norway
OMC	Old Member Countries
PL	Poland
PT	Portugal
R&D	Research and Development
RO	Romania
RS	Serbia
RU	Russia
SME	Small and Medium Enterprise
SE	Sweden
SI	Slovenia
SK	Slovakia
TR	Turkey
UA	Ukraine
UK	United Kingdom