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Professional MBA
Entrepreneurship & Innovation



Identifying Entrepreneurship Policy Measures that Promote International Competitiveness and Growth of Estonian Businesses: Policy Recommendations

A Master's Thesis submitted for the degree of
"Master of Business Administration"

supervised by
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Tallinn, 19 August 2011

Affidavit

I, **Raul Parusk**, hereby declare

1. that I am the sole author of the present Master's Thesis, "Identifying Entrepreneurship Policy Measures that Promote International Competitiveness and Growth of Estonian Business: Policy Recommendations", 83 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
2. that I have not prior to this date submitted this Master's Thesis as an examination paper in any form in Austria or abroad.

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ABSTRACT

This study analyses Estonian entrepreneurial environment and performance of Estonian businesses. It aims at identifying reasons for low productivity of the entrepreneurial sector and proposes recommendations for policy changes that would lead to increased performance and international competitiveness of Estonian companies.

Although Estonia has a well-developed business environment, it has not led to emergence of high-growth international companies. The paper suggests that Estonian entrepreneurs have insufficient entrepreneurial skills, expressed in low level of opportunity recognition and inexperience in managing international businesses. Government's entrepreneurship policy does not focus on supporting development of Estonian established industries.

The study compares performance of the Estonian business sector to Nordic and CEE countries and benchmarks Estonian entrepreneurship policy against global best practices. Prior research is studied in order to identify drivers of entrepreneurial performance. Additional insight into challenges and opportunities for Estonian businesses is provided in conclusions from interviews with Estonian entrepreneurs and entrepreneurship experts. Finally, changes to the current entrepreneurship policy are proposed.

The study concludes that Estonian government should focus on supporting companies in established industries. Development towards higher value-adding activities represents the best opportunity of achieving a rapid increase in productivity.

Table of Contents

Table of Figures.....	5
List of Tables.....	6
List of Abbreviations.....	7
1. Goal of the research and problem description.....	8
1.1. Goal and scope of the research.....	8
1.2. Entrepreneurial environment and performance of Estonian businesses	9
1.3. Estonia's entrepreneurship-related policies.....	18
2. Theoretical background of the problem	22
2.1. Entrepreneurship related concepts	22
2.2. Framework of entrepreneurship indicators	31
3. Analysis of the global best practice and insight from interviews with entrepreneurs and experts.....	33
3.1. Benchmarking.....	33
3.1.1. Method of analysis	33
3.1.2. Key features of benchmark countries	37
3.2. Summary of interviews with entrepreneurs and entrepreneurship experts.....	44
3.2.1. Method of analysis	44
3.2.2. Results and conclusions from interviews.....	46
4. Policy recommendations	53
4.1. Main drivers influencing design of the entrepreneurship policy.....	53
4.2. Policy recommendations	55
5. Summary	64
Appendixes.....	66
Appendix 1: Overview of Estonian entrepreneurship-related policies.....	66
Appendix 2: Overview of policy recommendations of the Estonian Development Fund.....	72
Appendix 3: List of interviewed persons	74
Bibliography	76

Table of Figures

Figure 1: Estonia in comparison to Nordic and CEE countries in most valued business indices	10
Figure 2: GDP per hour worked in purchasing power standards	12
Figure 3: Estonia's productivity in comparison to selected Euro zone countries by different productivity measures	13
Figure 4: Productivity of Estonian businesses by GDP per person employed at market prices	14
Figure 5: Export structure by type of industries, 2005-2009	15
Figure 6: Imports content of exports in manufacturing, mid 2000's ...	16
Figure 7: R&D expenditure of the business enterprise sector, % of GDP.....	17
Figure 8: Reasons for starting a business	18
Figure 9: Strategies for countries on efficiency-driven and innovation-driven stages	55
Figure 10: Proposed target groups for the Estonian entrepreneurship policy	57

List of Tables

Table 1: Value added per hour worked for high and low technology manufactures	15
Table 2: Choice of countries for benchmarking	37
Table 3: Proposed package of support measures for target groups of Estonian entrepreneurship policy	59
Table 4: Example of hierarchy of productivity goals for Estonian industries	60

List of Abbreviations

BRIC	Brazil, Russia, India and China
CEE	Central and Eastern Europe
CEO	Chief Executive Officer
EDF	Estonian Development Fund
EO	entrepreneurial orientation
Et al.	and others
EU	The European Union
EU 27	27 countries of the European Union
EUR	euro
FDI	foreign direct investment
GDP	gross domestic product
GEDI	Global Entrepreneurship Development Index
GEM	Global Entrepreneurship Monitor
IceTec	Innovation Centre Iceland
ICT	information and communication technologies
IT	information technologies
ID card	identification card
IDEA	International Danish Entrepreneurship Academy
IE	International Enterprise Singapore
IUS	Innovation Union Scoreboard
KPI	key performance indicator
M	million
NATO	North Atlantic Treaty Organisation
NZTE	New Zealand Trade and Enterprise
OECD	Organization for Economic Co-operation and Development
p.a.	per annum
PPS	purchasing power standards
Q	quarter
R&D	research and development
SEDB	Singapore Economic Development Board
SME	small and medium sized enterprises
STAN	structural analysis
STEM	science, technology, engineering and mathematics
VC	venture capital
VP	vice president
€	euro

1. GOAL OF THE RESEARCH AND PROBLEM DESCRIPTION

Estonia is a small country on the Baltic Sea with population of 1.34 million as of January 2011 (Statistics Estonia 2011). Being formerly a part of the Soviet Union, by 2011 Estonia has become a member of the European Union, NATO and the OECD.

In the last decade Estonia's economy has rapidly developed. From 2001 to 2007 Estonia's average GDP growth rate was 8.2%, significantly higher than average for the European Union (Eurostat 2011_a). To large extent economy's growth was based on domestic demand, which was fuelled by cheap credits from the Scandinavian-owned banking sector. The balance of the credit portfolio of the Estonian banking sector grew in 2001-2007 in average by 34% (Bank of Estonia 2011). Lax lending resulted in the overheating of the economy. In 2008-2009 Estonian GDP contracted by 5.1% and 13.9% respectively (Eurostat 2011_a). However, the private sector adjusted quickly to the changed economic environment. From 2010 the GDP is growing, driven by export growth of 35% p.a. (Eurostat 2011_a). Foreign media, especially those supporting liberal economic policy, praise Estonia's miraculous turnaround. *Economist* and *Financial Times* bring Estonia's economic environment and tight fiscal policy as an example for Greece and other troubled European Union countries ("Estonian exceptionalism" 2011, "Estonia's recovery holds little hope for Eurozone" 2011). However, a closer look at the foundations of Estonia's economy shows that the performance of the Estonian entrepreneurial sector is rather modest (or even disappointing), if compared to the high development level of country's business-friendly entrepreneurial environment.

1.1. Goal and scope of the research

The goal of this research is to improve the fit of country's entrepreneurship policy to opportunities and needs of the Estonian business sector, thereby promoting growth and improving competitiveness of Estonian businesses on international markets.

The scope of the study includes:

- Analysis of Estonia's entrepreneurial environment and of business sector performance;
- Studying theoretical literature and benchmarking entrepreneurship policies against best-performing small entrepreneurial countries for identification of factors that drive entrepreneurial performance;
- Defining target groups for government's entrepreneurial policy;
- Interviewing entrepreneurs and experts from fields related to entrepreneurship in order to gather insight on challenges faced by Estonian businesses;
- Suggesting policy recommendations.

1.2. Entrepreneurial environment and performance of Estonian businesses

Estonian governments have been following business-friendly economic policies since the country became independent in 1991. Estonia removed all barriers to foreign direct investments (FDI) and to foreign trade, making country attractive for international businesses, above all from Nordic countries. As of December 2010, Finland and Sweden account for about 59% of FDI to Estonia (Statistics Estonia 2011). These countries had a strong influence on formation of Estonia's business culture and infrastructure due to geographical proximity and close cultural ties. Estonia took over many of the business practices and policies of Nordic countries. As a result, Estonia's business infrastructure outperforms other Central and Eastern European (CEE) countries almost in every aspect, evidenced by Estonia's high ranking in most international business indices:

- *Ease of Doing Business 2011* (The World Bank 2010_a): 17th out of 183 countries;
- *Global Competitiveness Index 2011* (The World Economic Forum 2010-2011: 29): 33rd out of 139 countries;
- *Index of Economic Freedom 2011* (The Heritage Foundation 2011): 14th out of 183 countries;

- *Ease of Paying Taxes 2011* (PwC 2011): 30th out of 183 countries;
- *E-Government Survey 2010* (The United Nations 2010_a): 20th out of 183 countries;
- *E-Participation Survey 2010* (The United Nations 2010_b): 9th out of 183 countries;
- *Corruption Perception Index 2010* (Transparency International 2011): 26th out of 178 countries.

In every index Estonia is the highest-ranked CEE country and almost on the same level with the Nordic countries – Finland, Sweden, Norway and Denmark (Figure 1).

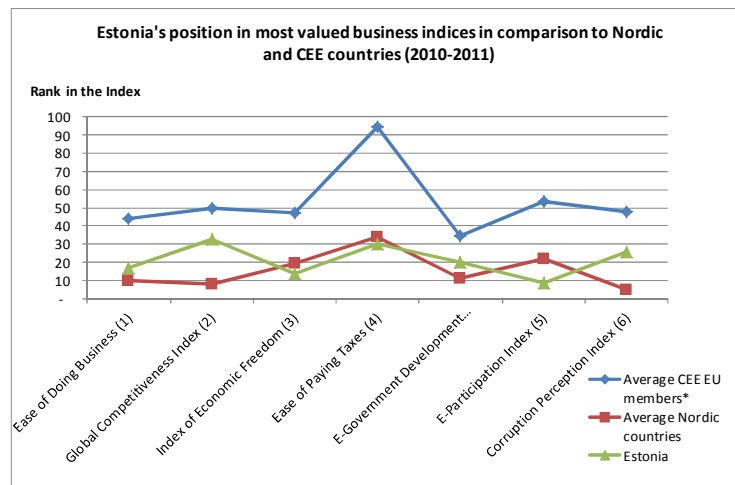


Figure 1: Estonia in comparison to Nordic and CEE countries in most valued business indices

* Excluding Estonia, Bulgaria, Romania

Source: (1) The World Bank; (2) The World Economic Forum; (3) The Heritage Foundation; (4) IFC, PwC; (5) The United Nations; (6) Transparency International

The main differentiating

features of the Estonian business environment are the following:

Estonia has an open economy. The country encourages international trade and inward FDI. Before joining the EU in 2004, the country had a unique foreign trade regime with no tolls on import and export. Estonia still has a very favourable environment for trade and foreign investments:

- In 2011 *Ease of Doing Business Index* (The World Bank 2010_b): Estonia is ranked third of 183 countries by dimension of Trade Across Borders;
- In 2010 the ratio of Estonia's export of goods and services to GDP was 60.7%, the 6th highest in the EU (Eurostat 2011_a);
- As of the end of 2009, the ratio of stock of inward FDI to GDP was 81.4%, the 7th highest in the EU (Eurostat 2011_a).

Estonia has a business-friendly tax system. All undistributed profits are tax exempt, so effectively a 0% corporate income tax rate is applied on

reinvested and retained profits. Dividend and private income tax rate is 21%. The tax system is simple and rules are easy to comply with.

The country follows a conservative fiscal policy. Before 2008 the government sector had a budget surplus which was accumulated into a stability reserve. The government sector savings and massive spending cuts were sufficient for financing the budget deficit of crisis years.

- In 2010 Estonia's government budget returned to surplus, being the only EU country without the budget deficit (Eurostat 2011_a);
- At the end 2010, the ratio of Estonia's government debt to GDP was 6.6%, the lowest in the EU (Eurostat 2011_a).

The exchange rate of the Estonian currency – Estonian Kroon – was fixed to Deutsche Mark and subsequently to Euro from 1992 to 2010. In 2011 Estonia abandoned the Estonian Kroon and became a member of the Euro zone.

Estonia's government provides efficient and state-of-the-art e-services. Estonian ID card allows providing online digital signature and serves as a digital access card to Estonia's secure e-services. By using the ID card a company can be started online within two hours and citizens can cast their votes online on parliamentary elections.

A closer look at the performance of Estonian businesses reveals issues that question longevity of country's competitiveness and potential for catching up the development and welfare level of Western European countries. The common denominator for these issues is productivity. While Estonia's business environment is one of the best in the EU, productivity of Estonian companies is one of the lowest, trailing also many CEE countries.

The following analysis of the performance of Estonian entrepreneurial sector is based on the information from government policies and from the development strategy Growth Vision 2018 of the Estonian Development Fund (Estonian Development Fund 2011) as well as on the latest data from OECD, Eurostat and other sources. Two groups of countries are used

for comparing and evaluating Estonia's performance. Estonian society strives in its economic and political developments towards the welfare standards of Nordic countries. Therefore, Finland, Sweden, Denmark and

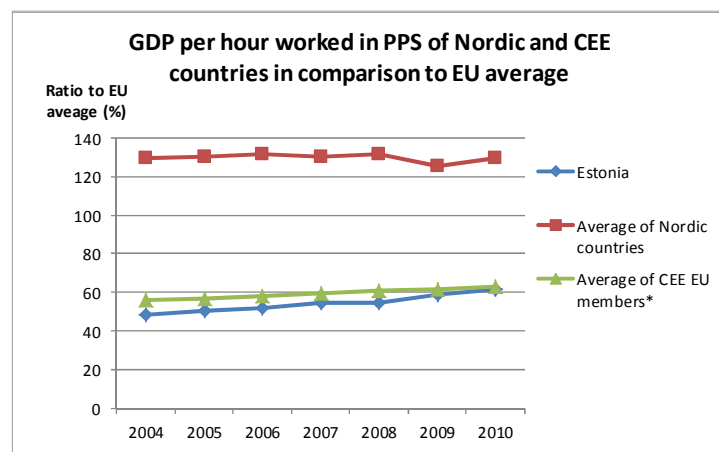


Figure 2: GDP per hour worked in purchasing power standards (EU27 = 100)

* Excluding Estonia, Bulgaria, Romania

Source: Eurostat

Sweden should serve as the first benchmark group. From another side, Estonia had a similar starting point to other former socialist countries. Therefore, the second benchmark group is made of a group of ex-socialist countries that joined the European Union in 2004 -

Poland, Czech Republic, Slovakia, Hungary, Slovenia, Latvia and Lithuania. Because OECD analysis does not cover Latvia and Lithuania, these countries are excluded from the benchmark group on indicators that are based on OECD data.

National Reform Programme Estonia 2020 (2011), hereafter Estonia 2020, emphasises that Estonian productivity lags the developed European countries, being in 2009 on the level of 65% of the average for the European Union (measured by GDP per person employed in purchasing power standards - PPS). In fact, the productivity measure chosen by the government shows the performance of Estonian businesses from the best possible angle. Because Estonians work in average more hours than workers of the European Union in average, GDP per hour worked in PPS is lower – only 59.1% of the European Union average in 2009 and 61.8% in 2010 (Eurostat 2011_a). As shown in Figure 2, Estonian productivity is about to catch up the average productivity level of other CEE EU members. In comparison, the GDP per hour worked in PPS for Nordic countries is 129.6% of the European Union average (Eurostat 2011_a), more than two times higher than in Estonia.

To provide more insight into international competitiveness of a small export-dependent country, productivity is best measured in market prices, not in PPS. Market prices reflect the value of one working hour on international market. Once the impact of domestic pricing level is excluded,

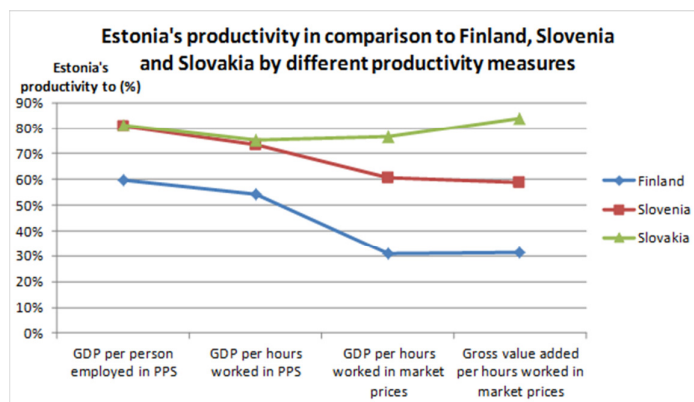


Figure 3: Estonia's productivity in comparison to selected Euro zone countries by different productivity measures
Source: Eurostat, OECD StatExtracts

Estonia's productivity level pales further. Figure 3 compares Estonia to Finland, Slovakia and Slovenia (benchmark countries that have adopted Euro). The graph shows that Estonia's productivity is 54% of the Finnish level if measured by GDP per hours worked in PPS, but plunges to 31% if measured in GDP per hours worked in market prices. A similar pattern can be seen in comparison with Slovenia (73% and 61% respectively), while a comparison with Slovakia shows less fluctuations, illustrating similar price levels in Estonia and Slovakia (Eurostat 2011_a; OECD 2011).

A productivity difference to Finland of more than three times can be explained by three factors (or their combination):

- Estonian companies have significantly lower production efficiency;
- Estonian economy structure differs from Finnish (Estonia having higher share of low-productivity industries);
- Estonian companies have to charge lower prices for products and services that they produce because of performing low value-adding functions in the global value chain.

There is no data available for comparing the production efficiency in Estonia and Finland. Presumably this difference is not significant. Foreign-owned companies generate 62% of the export of the Estonian manufacturing sector (Strategy Unit of Government Office 2010). The majority of such companies are established by Scandinavian businesses that outsourced low value-adding production to a cost-efficient location. It

can be assumed that daughter companies of Scandinavian businesses



Figure 4: Productivity of Estonian businesses by GDP per person employed at market prices in thousand EUR
Source: Estonian Statistics Department

have introduced in Estonia the same technologies and the same organisational processes as on their home market, so the productivity difference cannot

be essential. Also, during the crisis Estonian businesses were forced to implement process innovations for increasing the production efficiency. As shown in Figure 4, the productivity of Estonian companies has increased by approximately 20% from the second quarter of 2010 to the first quarter of 2011 if compared to same quarters of previous years (Statistics Estonia 2011).

The Growth Vision 2018 states that the low productivity of Estonian enterprises is mostly related to Estonia's industry structure, which is not of the knowledge economy but based on cheap labour. Higher share of Estonian GDP is produced by low-value adding industries if compared to developed countries. Even if Estonian industries would reach the productivity level of Western European respective industries, the overall productivity level of the economy would not exceed 80% of developed countries due to differences in the industry structure (Estonian Development Fund 2008: 18).

However, the comparison of the productivity in different industries in Estonia and in the Nordic countries does not support the opinion that the industry structure is the main reason for low productivity. OECD provides information on structure of countries' exports by dividing industries into high, medium-high, medium-low and low technology industries (OECD STAN Database 2009). As shown in Figure 5, high and medium-high technology industries accounted for about 40% of Estonia's exports in

2005-2009, while in Nordic countries this share is 48%. However, it is noteworthy that for the other benchmark group – the new EU members – the share of high and medium-high technology exports is 61%, significantly higher than in

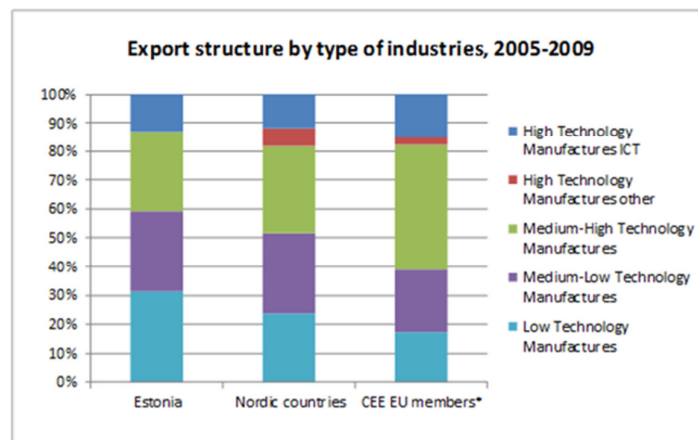


Figure 5: Export structure by type of industries, 2005-2009

* Excluding Estonia, Latvia, Lithuania, Bulgaria, Romania

Source: OECD StatExtracts

Nordic countries, despite the fact that the CEE countries have significantly lower productivity than the Nordic countries. (OECD 2011).

Some Estonian low-technology industries produce more value added per hour worked than Estonian high-technology electrical and optical equipment manufacturers. The same is true for Finland – the low-technology food industry produces more value added than medical, precision and optical instruments (Table 1). The lowest-performing Finnish manufacturing industry (wearing apparel, dressing and dyeing of fur) produces 48% more value added per hour worked than the highest-performing Estonian industry - manufacturing of other non-metallic mineral products (OECD, 2011).

VALUE ADDED PER HOUR WORKED, 2009, EUR	Estonia		Finland	
	low-technology manufactures*	high-technology manufactures*	low-technology manufactures*	high-technology manufactures*
MANUFACTURING IN AVERAGE	8.5		43.8	
FOOD PRODUCTS, BEVERAGES AND TOBACCO	9.1		45.9	
TEXTILES, TEXTILE PRODUCTS, LEATHER AND FOOTWEAR	5.2		23.5	
WOOD AND PRODUCTS OF WOOD AND CORK	8.4		27.3	
PULP, PAPER, PAPER PRODUCTS, PRINTING AND PUBLISHING	10.8		52.3	
.....PHARMACEUTICALS		N/A		N/A
.....ELECTRICAL AND OPTICAL EQUIPMENT**		8.8		
.....OFFICE, ACCOUNTING AND COMPUTING MACHINERY				35.0
.....RADIO, TELEVISION AND COMMUNICATION EQUIPMENT				58.2
.....MEDICAL, PRECISION AND OPTICAL INSTRUMENTS				42.9
.....AIRCRAFT AND SPACECRAFT		N/A		N/A
MANUFACTURING NEC; RECYCLING	5.5		25.0	

Table 1: Value added per hour worked for high and low technology manufactures

* According to OECD Stan Industry List

** No data available for Estonia for subcategories

Source: OECD StatExtracts

industry's value added lower than manufacturing in average
industry's value added higher than manufacturing in average

Consequently, the main reason for low productivity is not the small share of high value-adding industries, but rather the low value-adding role of Estonian companies (and companies of other CEE countries) in the global value chain within industries. Nordic countries perform product development, marketing and other high-value functions, while Estonia specialises in lower-value production outsourcing. Imports content in exports of manufactured products illustrates well the position of countries

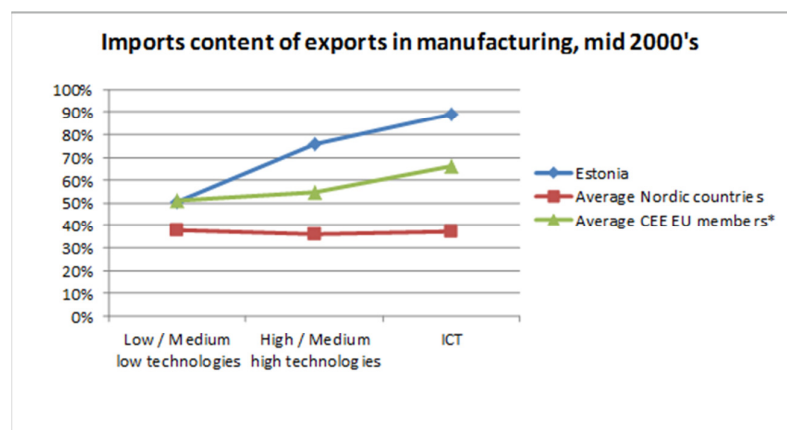


Figure 6: Imports content of exports in manufacturing, mid 2000's
Estonia in comparison to Nordic and CEE EU members
* Excluding Estonia, Latvia, Lithuania, Bulgaria, Romania
Source: OECD StatExtracts

in the global value chain. The higher the imports content, the less value the country is adding and its role is limited to performing specific functions like assembly. Figure 6 illustrates this ratio for Estonia, the CEE

countries and the Nordic countries. While for low and medium-low technology industries the difference between countries is not significant, high and medium-high technology industry exports of Nordic countries have 36%, of CEE countries 55% and of Estonia even 76% of import content. The differences are even more drastic for information and communication technologies (ICT), a subsector of high technology industries. For these manufactures import content increases to 89% for Estonia and to 66% for other CEE countries, while for Nordic countries it remains on the level of 37% (OECD 2011). These figures prove that Estonia is specialising in low value-adding activities even in comparison to CEE countries, above all in high-technology sectors.

Although government policies do not provide much insight into reasons behind the low productivity, one of the highlighted issues is the low level of R&D investments of Estonian businesses. Indeed, while the ratio of R&D

investments to GDP of the public sector has increased to the average level of the European Union (supported by financing from EU structural funds), business R&D investments are almost four times lower than of the Nordic countries (Eurostat 2011_b). At the same time, Estonian businesses invest more into R&D than companies from other CEE countries (Figure 7).

Again, government policy documents do not explain the reasons of the low R&D investment. Comparison of the data on imports content of exports for different countries (Figure 6) suggests that Estonian exporting companies are

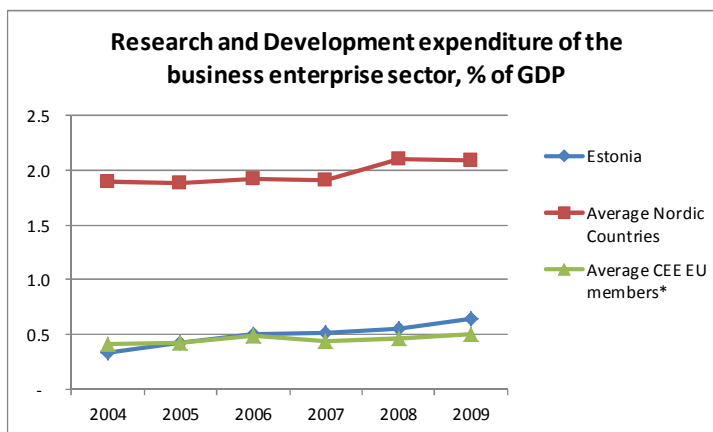


Figure 7: R&D expenditure of the business enterprise sector, % of GDP

* Excluding Estonia, Latvia, Lithuania, Bulgaria, Romania

Source: Eurostat

specialised in providing production services to Scandinavian companies and are not performing R&D activities. Estonian companies are suppliers of low-technology components, focusing mostly on production quality and efficiency and have neither ambition nor resources to invest into R&D.

Low level of connectedness of Estonian companies with Estonian and global knowledge networks serves as another reason for low business R&D investments. Foreign investors are not interested in technology transfer and further development of their technology in Estonia, because Estonia is not important as a target market and the level of Estonian R&D is not good enough to develop new intellectual property (Roolaht 2010: 55). From another side, Estonian academic R&D institutions are motivated to create globally competitive academic science, rather than to commercialise R&D and provide applied research for Estonian businesses. Therefore, the public R&D activities function separately from the business sector and do not trigger private R&D (Karo and Kattel, 2010: 87). The website of the Ministry of Science and Education does not even mention

commercialisation among its goals, unlike the respective Finnish and Danish government offices.

Estonian Entrepreneurship Policy for 2007-2013 relates issues of low productivity also to low level of entrepreneurial activities and, ironically, high level of taxes and administrative barriers. The data from Eurobarometer survey

may indicate at another reason for low productivity. Estonia

differs from other EU countries by high share of necessity entrepreneurship

and low share of companies established for taking advantage of

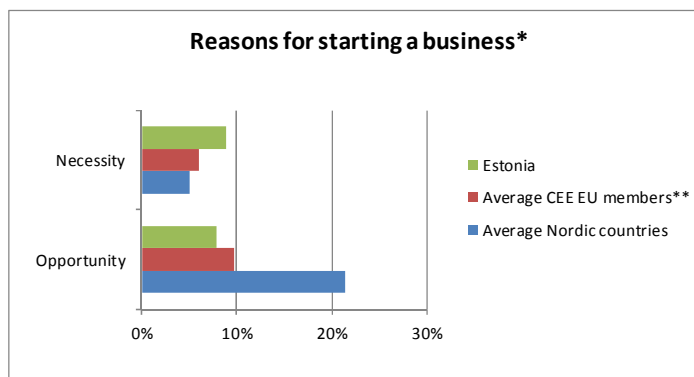


Figure 8: Reasons for starting a business

* Base: all respondents

** Excluding Estonia, Latvia, Lithuania, Bulgaria, Romania

Source: Entrepreneurship in the EU and beyond, Eurobarometer (2009)

interesting business opportunities (Figure 8). Estonia is ranked 26th in the EU by ratio of opportunity-driven entrepreneurs to necessity-driven entrepreneurs, ahead of only Greece (Eurobarometer 2009). Most entrepreneurs started the business out of necessity. It means that Estonian entrepreneurs are not good at spotting business opportunities and providing high-value products and services.

1.3. Estonia's entrepreneurship-related policies

From early 2000's Estonian governments developed several policy documents aimed at improving entrepreneurial environment and promoting knowledge-based economy. As of 2011, three main policies and an activity plan guide development of the Estonian entrepreneurial environment:

Knowledge-based Estonia, Research, Development and Innovation Policy for 2007-2013 (hereafter Knowledge-based Estonia) provides analysis of challenges related to R&D and innovation, defines goals, KPI's and activities for the government. Knowledge-based Estonia is focused on

science, academic and high technology innovations. It pays less attention to R&D and innovation related challenges of the business sector and is not addressing non-technological innovation opportunities.

Estonian Entrepreneurship Policy for 2007-2013 (hereafter Entrepreneurship Policy) analyses challenges in entrepreneurial environment, defines a vision, values and major focus areas and defines activities for the government. It defines productivity and measures of early-stage entrepreneurship (new business creation and survival rate) as key performance indicators.

Made in Estonia - an activity plan for applying Entrepreneurship Policy to increasing export and attracting foreign investment for a period of 2009-2011 (hereafter Made in Estonia) analyses challenges, defines goals, KPIs and activities for attracting foreign investment and increasing export.

Estonia 2020 is Estonian strategy for achieving goals of the Europe 2020 strategy of the European Commission. The plan analyses challenges faced by Estonian economy, describes main policy directions and activities and sets goals for increasing Estonian competitiveness.

In addition to government-approved policies, Estonian Development Fund (hereafter EDF) provides foresight on development of the business environment. Another aim of the EDF is developing funding opportunities for early-stage high-potential companies. EDF reports to Estonian Parliament. In 2010, EDF presented to public the Growth Vision 2018, a vision about Estonian development path for the next decade, describing factors that will making Estonia globally competitive by 2018. Some aspects of the Growth Vision 2018 have been included in Estonia 2020 strategy, but in general it has not been taken for a basis of government policies.

As discussed in chapter 1.2., the analytical sections of government policies describe quantifiable deficiencies of the Estonian business environment, yet do not attempt explaining the underlying causes of problems. The documents do not suggest why Estonian excellent business environment

does not result in increased competitiveness of Estonian businesses. While missing the diagnosis, the policies also fail presenting a coherent vision of goals and priorities. Policies describe in detail a large number of activities and financial measures to be continued or implemented (Entrepreneurship Policy alone defines 53 different activities, 17 of which are related to government funding of different entrepreneurial support measures), but do not set clear focus on main factors that should drive Estonian competitiveness. Policies are partly contradictory. For example, the focus areas in Knowledge-based Estonia are defined as ICT, biotechnology and materials science; in Estonia 2020 - creative industries and ICT; in Made in Estonia – ICT, business- and financial services, transport and logistics, manufacturing of machinery and metal products, manufacturing of electrical and electronics equipment, wood and products of wood, energy technologies, biotechnology and materials science.

In general, government policies are paying more attention to issues of attracting smart FDI, developing new technologies (ICT, nanotechnology, and biotechnology) and promoting export. Little attention is paid to entrepreneurial culture and to traditional industries that represent the majority of economy.

The Growth Vision 2018 provides much more insight and vision than government policies, although it does not present its goals and priorities in a systematic way. The Growth Vision describes four alternative development scenarios for Estonia. It also defines key success factors for long-term competitiveness of the country in eight key dimensions (value system, nature of the economic policy, foreign policy approach, green economy, access to quality education, environment for foreign talents, the goal of the social systems and mode of governance). Additionally, the EDF developed (or is in process of developing) specific sub-policies for manufacturing, ICT, education and foreign policy.

The Growth Vision 2018 proposes focusing Estonian economy on new growth areas – environment, renewable energy, health and wellness

products and services, financial services and international supply chain management. Although in analytical part it discusses the opportunities from improving value chain positioning of existing industries, such direction is not defined as a priority. Only the sub-policy for manufacturing industries emphasises the importance of moving up the value chain.

Among other priority areas are discussed quality of technological and entrepreneurial education, approaching developing Asian markets, attracting high value-adding FDI into growth sectors and providing venture capital to start-up companies.

While the Development Fund has addressed many issues that are important for increasing country's competitiveness, it is difficult to identify the most critical issues that the government should focus on.

The detailed review of entrepreneurship-related policies is provided in the Appendix 1 and of the Growth Vision 2018 in the Appendix 2.

In November 2010 National Audit Office issued a report on impact of government support activities on competitiveness of the Estonian economy. The report concludes that entrepreneurship support measures have not improved productivity and export capabilities of Estonian enterprises. Companies that received government funding have not performed any better in terms of productivity or export than companies that have received no public funding. The report states that the main reasons for low efficiency of government policy are low flexibility by implementing support measures and lack of priorities. Government tries to handle many entrepreneurship problems at once and does not take into account the actual needs of businesses (National Audit Office, 2010).

To summarise, the main problems limiting international competitiveness of Estonian businesses are the following:

- Estonian entrepreneurs are weak at identifying international high-growth business opportunities. Export is limited to supplying low-technology content components to Scandinavian companies and the

main competitive advantage is providing high production quality for medium or low prices (Estonian Chamber of Commerce and Industry 2010: 32). The society supports an attitude that only a high-technology company can be internationally competitive. More feasible non-technological innovations related to discovery of unsatisfied customer needs are not appreciated and encouraged;

- The business sector gets little support from Estonian researchers. Commercialisation of R&D has a low priority and R&D institutions have little interest in addressing issues of existing industries. FDI from developed countries does not result in improved knowledge, because foreign investors receive no value from technology transfer to Estonia.
- Government's entrepreneurship-related policies are not guiding Estonian businesses towards better performance. The government does not analyse reasons of low productivity and, therefore, cannot set clear priorities, much needed for a small country with limited resources. The policies tend to follow mechanically European Union guidelines, which may not suit Estonian circumstances.

According to words of Christian Ketels, Professor of the Harvard Business School, Estonia has not been successful in transforming its strong business environment into sophisticated and productive companies (Estonian Development Fund 2011: 4).

2. THEORETICAL BACKGROUND OF THE PROBLEM

2.1. Entrepreneurship-related concepts

Researchers are increasingly interested in the topic of entrepreneurship because governments around the world, from Canada to Denmark to New Zealand, have defined entrepreneurship as a foundation for country's wealth creation. First of all, researchers are interested in understanding drivers of entrepreneurship and measuring its implications on growth and productivity, which in turn helps defining policy measures on a country and/or international levels.

Although a large body of research has been conducted, there seem to be little coherence in results. Hardly any explanation of entrepreneurship-related causal relationships is universally accepted (for example, of effects of institutional settings on entrepreneurial activity level or impact of entrepreneurial orientation on productivity growth). Such ambiguity is caused by the complex nature of entrepreneurship – an activity defined by a mix of institutional, individual, cultural and economic factors.

For aims of the current research it is important to understand what factors determine successful entrepreneurial environment, what are the main attributes of entrepreneurial behaviour, what kind of businesses (entrepreneurs) contribute most to economic growth, employment and welfare and how a country should nurture opportunity-driven and growth-oriented entrepreneurs. The following entrepreneurship-related concepts are of special importance:

- Economic development stages of countries
- Entrepreneurial orientation
- Broad definition of innovation
- “Gazelles” and high-impact firms

Economic development stages

In The Global Entrepreneurship and Development Index Acs and Szerb refer to Michael Porter’s approach of grouping countries to three economic development stages: factor-driven stage; efficiency-driven stage and innovation-driven stage (Acs and Szerb 2010: 4). On a factor-driven stage countries produce commodities and low value-added products. The stage is characterized by high level of necessity-based self-employment in agriculture, manufacturing and services. Efficiency-driven stage is characterized by increased production efficiency and educated workforce. On efficiency-driven stage self-employment decreases and share of large companies in the economy increases. On the innovation-driven stage knowledge drives efficiency. The innovation-driven stage is based on high value-adding and knowledge-intensive industries. Stages from factor-

driven to innovation driven correlate strongly with growth of per capita GDP by purchasing power parity (Acs and Szerb 2010).

Understanding country's position on the factor-driven / innovation-driven axis vis-à-vis to other countries is crucial for policy makers by tailoring entrepreneurship policy to country's specific circumstances.

Entrepreneurial orientation

Wiklund refers to Miller's work that the degree of entrepreneurial behaviour depends on extent of firm's innovative, risk taking and proactive activities (Wiklund 1999: 38). Together these three dimensions are referred to as company's entrepreneurial orientation (EO). It is important to understand of how the sub-dimensions of the EO relate to each other and influence performance of the firm in order to promote EO within a firm or within a country,

Kreiser, Marino and Weaver (Kreiser, Marino and Weaver 2002) analyse the extent to which the sub-dimensions of the EO scale co-vary with one another. Authors concluded that although three sub-dimensions of the EO are related, firms should seek to develop various combinations of each sub-dimension in order to achieve the best performance in their given context. The study also supported cross-cultural validity of the EO scale, meaning that the Entrepreneurial Orientation scale can be efficiently employed for analysing international entrepreneurship.

On the other hand, the results of the study of Hansen *et al.* do not support the cross-national robustness of the EO scale. The abovementioned study assessed configural, metric and scalar cross-national invariance of three EO dimensions based on analysis of SME's in seven countries. Invariance was observed only on a limited scale. The study concludes that high level of caution is suggested when interpreting differences across countries (Hansen et al. 2011).

Common wisdom suggests that Entrepreneurial Orientation and specifically innovative and proactive behaviours should increase the productivity of the firm. Being a frontrunner and developing new products

and business concepts ahead of competitors should enable faster growth and provision of higher value products and services. Researchers have conducted several studies for providing empirical evidence that EO and its innovative sub-dimension are related to productivity.

Wiklund (1999) analyses the sustainability of the “EO–performance” relationship. The long-term effect of entrepreneurial orientation should be analysed as EO is a resource-consuming strategic orientation. Wiklund refers to Zahra and Covin (1994) who state that firms with EO can target premium market segments, charge high prices and “skim” market ahead of their competitors, gaining a competitive advantage that leads to improved financial results. There is a reason to believe that relationship between the EO and performance is particularly strong among small firms, as smallness fosters flexibility and innovation but limits competitiveness in other strategic dimensions. In Wiklund’s study data was collected from a large sample of small Swedish firms during three consecutive years. The results indicate that there is a positive relationship between EO and performance increasing over time.

Jim Andersén (2010) also performed an analysis of the relation between the three main parameters of EO and performance of firms. Similar to Wiklund, his study was based on a sample of small Swedish companies, but he came to opposite conclusions. In overall – no correlation between the EO and performance was identified. Andresén reviewed the prior studies and he pointed to the fact that the results are mixed. Some authors have found significant relationship of EO and performance, some authors have found that only some components of EO are related to different performance measures and others could not find support for any correlation between EO and profitability (Andersén 2010).

International aspects of entrepreneurship

Researchers pay special attention to international perspective of entrepreneurship.

Innovation in Firms: a Microeconomic Perspective (OECD 2009) finds that exposure to international markets has a strong positive effect on firms' incentives to develop novel products. Among small-sized countries the highest international orientation display firms in Belgium, Luxembourg, Denmark, Sweden and Finland. Belgium's firms are more focused on modification, while Nordic countries and especially Finland display high level of "new-to-market international innovators". Not surprisingly, the Benelux and Nordic countries (with exception of Norway) have also the highest level of SMEs active on foreign markets. For example, share of internationally active SMEs was 79.9% in Luxembourg, 67.5% in Belgium and 58.2% in Denmark, while in Austria only 28% and in Switzerland 28.1% of SMEs were active abroad.

Ruzzier et al. (2007) analyse internationalization of SMEs from the human capital (international business skills, international orientation, environmental perception and management know-how) perspective. The analysis is based on a study of Slovenian SMEs. The study concludes that the composite of all aspects of human capital is important for internationalization.

Frenz and Lambert (2010) refer to research conducted by Patel and Pavitt (1994) that innovation activities are less internationalized than other business activities and international companies tend to keep innovation sources near the companies' headquarters (Frenz and Lambert 2010: 8). Such conclusions are important to policy makers for defining the policy towards FDI.

Focusing on Growth, The Second Report of the 2025 Taskforce (New Zealand Government, 2010) pays special attention to developing absorptive capacity of firms and of the country in general. The report refers to research that commercially successful innovations have usually a much greater impact on economies of countries where they are most comprehensively implemented than on the economy where they were invented (Bhidé 2008). The report suggests increasing absorptive capacity, referring to the capability to identify and acquire new production

and distribution technologies, to adapt that technology to the needs of local firms, and to put it into production in a way that increases productivity. Authors of the report consider as the most important role for a government being its ability to create a policy environment within which every sector of the economy will find it attractive to invest in productivity-enhancing innovation. For example, the report suggests that removal of barriers to entry and the removal of labour market regulations can permanently increase the incentive to innovate (Aghion and Howitt 2009). The report also emphasises that given New Zealand's level of integration into the global economy, most of the ideas that improve productivity in New Zealand will be developed overseas.

Broad definition of innovation

Innovation is considered the most important component of the Entrepreneurial Orientation. In last decades besides the technical innovation non-technical innovation raises significant interest. Researchers examine what type of innovation activities contribute most to growth and increased value added.

Innovation in Firms: a Microeconomic Perspective (OECD 2009) refers to the broader definition of innovation in the third edition of the Oslo Manual (OECD/Eurostat 2005), which defines innovation as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations. Technology-based activities are only a subset of what is included in the broader concept of innovation and often more relevant for manufacturing firms than for those in services. Innovation policies should take into account the heterogeneity of firms and understand functional relationships that influence innovation at the firm level in order to tailor the policy measures.

Frenz and Lambert (2009) analysed the effect of four mixed modes of innovation to output and value added of UK companies. The "mode of innovation" is defined as a set of activities or practices which tend to be grouped and implemented together by the same firms. The four mixed

modes were 1) new-to-market innovating based on own technology, 2) marketing-based imitating; 3) process modernising and 4) wider innovating. Authors conclude that in-house innovating, process modernising and wider innovating increase performance of firms. Only market-driven imitating mode had no relation to performance. The paper concludes that non-technological modes of innovation are more related to value added per capita and technology-based innovation has stronger influence on output per capita. A similar pattern was evident in skills – non-STEM skills (science, technology, engineering and mathematics), measured by the proportion of degree holders in other disciplines than science and engineering, is positively associated with value added, and STEM skills are positively related to output per capita (Frenz, Lambert 2009).

In 2010 Frenz and Lambert performed a micro-level innovation survey on 17 countries. In addition to four mixed innovation modes from the 2009 study authors defined the fifth innovation mode – networked innovating (external knowledge sourcing). Authors found that in most countries one or more innovation modes are positively associated with labour productivity and turnover growth, but there is no consistent cross-country pattern as to which modes show significant associations with productivity:

“Even if common innovation patterns have been identified, there is no “single” mode or form of innovation across countries that underlies the overall impact of innovation and there appear to be major national differences in patterns of competitive and comparative advantage both with respect to levels of productivity and growth in turnover” (Frenz, Lambert 2010: 19).

Also notable is the limited number of innovation modes that are statistically significant in the productivity equations.

Criscuolo (OECD, 2009) finds in a study on 18 countries that product innovation is strongly associated with labour productivity. One per cent increase in firms’ innovation sales per employee is associated with a productivity increase of 0.5%. Contrary to common wisdom, process innovation was not associated with productivity. Therrien and Hanel

(OECD, 2009) use extended productivity models to further analyse the link between productivity and innovation for Netherlands, Canada, the United Kingdom and Germany. For all countries innovation was positively related to productivity, although refined models (including additional variables and increasing the precision) decreased the positive effect in comparison to results from core models.

Indirectly, the impact of non—technological innovations on entrepreneurial performance is analysed in a study of Baumol, Schilling and Wolff (2009). Baumol et al. compare the education of inventors and entrepreneurs. The study shows that both inventors and entrepreneurs in the United States are better educated than the general population, but inventors are better educated than entrepreneurs and the difference has increased over time. The study concludes that entrepreneurship – opening up of new market opportunities – is not as sensitive as inventing to an increasing educational requirement:

“Entrepreneurship still appears to be the domain of “generalists” who can sense an uncommon but promising market opportunity or idea for a new business form ... successful entrepreneurship requires a wide range of general abilities.” (Baumol et al. 2009: 725).

“Gazelles” and high-impact firms

Acs et al. (2008) refer to studies of David Birch in early 80’s of small and medium-sized enterprises in the USA. Birch discovered that in late 70’s and early 80’s 82% of jobs were created by companies that had less than 100 employees. From another side, 80% of jobs were created by companies that were younger than four years (Birch 1981). In 1994 Birch and Medoff suggested that even more important for job creation are rapidly growing firms – “gazelles”. They found that 4% of rapidly growing firms generated 70% of new jobs. Gazelles are not necessarily small but younger than other firms

In 2008 Acs et al. concluded a study on gazelles – high-impact firms - for the Small Business Administration of the United States. High-impact firms were defined as enterprises whose sales have at least doubled over a

four-year period and which have an employment growth quantifier of two or more over the period. Acs et al. found that these firms are relatively old, rare and contribute to the majority of overall economic growth. The average age of a high-impact firm is around 25 years old. These firms exist for a long time before they make a significant impact on the economy. They represent between 2 and 3 percent of all firms, and they account for almost all of the private sector employment and revenue growth in the economy. High-impact firms exist in all industries. While some industries have a higher percentage of these firms, they are not limited to high-technology industries. High-impact firms also come in all sizes.

The data suggest that local economic development officials would benefit from recognizing the value of cultivating high-growth firms versus trying to increase entrepreneurship overall. Encouraging diversity as a policy seems to make much more sense than targeting selected industries. In the United States roughly one in 15 companies is a high-impact company. Almost 95 per cent of high-impact firms are over five years old. No more than 5.5 per cent of high-impact firms are start-ups (0-4 years old).

Acs et al. also find that high-impact firms are more efficient than low-impact firms. Revenue per employee was greater for high-impact firms in total for all time periods studied and firm-size categories. The gap between high- and low-impact firm productivity also seems to be increasing over time. (Acs et al. 2008)

Hessels, Gelderen and Thurik (2008) analyse in their study entrepreneurial growth aspirations. Authors refer to studies of Baumol (1996); Audretsch and Thurik (2001); van Stel and Storey (2004); Van Stel et al. (2005) that entrepreneurial activity by nascent entrepreneurs is positively associated to economic growth only for countries with a high level of per capita income. High-growth firms contribute more to economic growth than small, new, firms in general. Most persons involved in new firm formation have no growth aspiration (Wennekers and Thurik 1999; Henrekson 2005). Entrepreneurs aspiring to produce novel products, to

make their company grow or to indulge in export activities are bound to contribute more to economic growth than their counterparts who have lower levels of aspiration and aim to survive in a corner of the market as a lifestyle entrepreneur (Bellu and Sherman 1995; Kolvereid and Bullvag 1996; Wiklund and Shepherd 2003).

Hessels, Gelderen and Thurik conclude that necessity-based entrepreneurs and entrepreneurs striving for independence are not likely to have ambitious goals for their business and are not making a significant contribution to country's innovation, employment creation and economic growth. They also conclude that people with prime motivation of increasing wealth tend to be job-growth and export-oriented and suggest that policy makers should shift their focus from the quantity of entrepreneurs to high-growth entrepreneurship (Hessels et al.; 2008).

2.2. Framework of entrepreneurship indicators

For policy purposes it is important to measure the level of entrepreneurship and entrepreneurial orientation. Limited national studies have been completed for decades but it is notoriously difficult to gather and analyse consistent data on entrepreneurship across the countries. Entrepreneurship indicators are measured mostly via surveys, responses to which may differ due to many reasons like culture, economic environment, industry structure etc. As discussed above, there is little cross-country invariance of the data on entrepreneurial orientation indicators. Different respected organisations like World Bank, Eurostat or OECD are working on defining a comprehensive set of entrepreneurship indicators.

In September 2006 the OECD together with Eurostat started an Entrepreneurship Indicators Project. The conceptual framework of the entrepreneurship indicators project incorporates three tiers: determinants of entrepreneurship, including regulation, R&D, entrepreneurial capabilities, culture, access to finance and market conditions; entrepreneurial performance (firms, employment, wealth) and impact of

entrepreneurship, including employment, economic growth and poverty reduction (OECD 2006) - <http://www.entrepreneurship-indicators.net/>. In 2010 Acs and Szerb by calculating the Global Entrepreneurship and Development Index define entrepreneurship as a dynamic interaction of entrepreneurial attitudes (entrepreneurship-related behaviours), entrepreneurial activity (measuring high-growth potential start-up activity) and entrepreneurial aspiration (measuring distinctive, qualitative, strategy-related nature of entrepreneurial activity) (Acs and Szerb, 2010). These three categories accommodate 14 pillars of entrepreneurship indicators, calculated as a combination of institutional and individual (firm-level) criteria.

Acs and Szerb argue that 14 entrepreneurship indicators reinforce each other. In other words, countries that have evenly high level of index values display a better entrepreneurial performance than countries with some indicators on a very high level, but some indicators evaluated on a low level. Acs and Szerb group countries into five categories: factor-driven countries, efficiency-driven countries, innovation followers, innovation challengers and innovation leaders. By analysing clusters authors find that the lack of individual characteristics of opportunity recognition and managerial start-up skills cause the low level of attitudes in efficiency-driven and innovation followers clusters. They conclude that

„this finding underlines the general beliefs that changing institutions is relatively easier than changing individual characteristics. Hence, efficiency-driven and innovation followers need to improve opportunity perception and start-up skills while not to decrease other indicator values“ (Acs and Szerb, 2010: 24).

To summarise, the following aspects of entrepreneurship research are most important for the current study:

- Entrepreneurial performance correlates with GDP per capita. The highest GDP per capita have countries in Innovation Leaders cluster (Acs and Szerb 2010). The important difference between Innovation Leaders from one side and efficiency-driven economies and Innovation

Followers from another is perception of opportunities and possession of start-up skills. Development of these individual characteristics is more difficult than developing institutions, but critical for country's wealth creation.

- In most surveys entrepreneurial orientation, and more specifically innovation, do have positive correlation with productivity and value added. The broad concept of innovation includes also non-technological innovation, like organisational, marketing of business model innovation. According to the study of Frenz and Lambert (2010), different modes of innovation display correlation with productivity and / or output almost for all countries. There is, however, no dominant innovation mode. Different countries benefit from different innovation modes. Therefore, policy makers should carefully examine the specific context of a country for deciding on best fit (Frenz and Lambert 2010).
- Many researchers also emphasise that a small share of high-impact firms contributes almost 100% of employment growth of a country. Such firms drive the economy and should be in the focus of entrepreneurial policy. Contrary to the popular belief, such firms are not young and can be found almost in any industry and come in all sizes. Necessity-based and lifestyle entrepreneurs deliver little or no innovation, growth and new jobs (Hessels et al.; 2008). Therefore, governments should switch their focus from quantity to quality of entrepreneurs.

3. ANALYSIS OF THE GLOBAL BEST PRACTICE AND INSIGHT FROM INTERVIEWS WITH ENTREPRENEURS AND EXPERTS

3.1. Benchmarking

3.1.1. Method of analysis

Learning from the global best practice provides good opportunities for identification of best policy recommendations. However, as discussed under the review of the theoretical literature, the casual relationship between the government measures and entrepreneurial performance is

not unequivocal. Because of a complex nature of entrepreneurship, an approach that works well for one country may be unsuitable for another. Such ambiguity makes it difficult to choose benchmark countries to learn from. Therefore, within the framework of the current study, the benchmarking process will be performed as follows:

- The most relevant characteristics of benchmark countries in relation to Estonian conditions will be defined;
- Availability of data on entrepreneurship indicators will be checked;
- The countries with relevant characteristics and high performance in several studies will be chosen;
- The availability of structured English-language information on determinants of entrepreneurial environment will be checked;
- Features relevant to Estonian challenges will be identified;
- Applicability of features to Estonian conditions will be analysed.

It should be noted that within the scope of the current study, the information gathered during the benchmarking process is limited to analysing only main features of the entrepreneurial support system of the benchmark country. The study will not include detailed analysis of entrepreneurial measures. The accuracy of the analysis depends on availability of English language policy materials on official government websites.

The most important characteristics for a choice of a benchmark country are high entrepreneurial performance and the size of the domestic market. Although Estonia is a part of the large European Union market, this market is not homogenous. It is divided into countries with own languages and own distinct culture. Entrepreneurs in countries with a large domestic market face different challenges than growth-oriented entrepreneurs in small countries. The latter should have international ambitions in building their business and readiness to operate on multiple and diverse foreign markets. Therefore, the benchmark countries should have the following features:

- The country should be positioned among top 20 most entrepreneurial/innovative countries in several entrepreneurship/innovation related studies;
- The country should be small, with no more than 10 million inhabitants;
- Country's economy should not be driven by one large neighbour.

Six surveys have been studied for defining the benchmark countries.

OECD study Measuring Entrepreneurship, a collection of indicators (2009) provides information on 38 countries. The data is presented separately on each entrepreneurship indicator and OECD does not create a composite ranking for determining the more or less entrepreneurial countries. Ranking of countries differentiates significantly by different indicators. The survey is not applicable for choosing benchmark countries.

Eurobarometer study - Entrepreneurship in the EU and beyond (European Commission 2009) surveys entrepreneurship indicators in 36 countries. Similar to OECD study, Eurobarometer interprets separately each indicator and does not create a syndicated ranking. The study gives some interesting insight on early-stage entrepreneurship indicators – for example on ratio of opportunity-based versus necessity-based entrepreneurship - providing additional information for a choice of benchmark countries.

The Global Entrepreneurship Monitor 2010 study surveyed 59 countries (Kelley, Bosma, and Amorós 2011). GEM evaluates attitudes towards entrepreneurship, activities of individuals participating in entrepreneurship and aspirations of entrepreneurs for developing their businesses. GEM does not rank countries but provides some useful insight on important aspects of entrepreneurship, like innovation and international orientation.

Innovation Union Scoreboard groups the European Union members into four innovation performance groups – innovation leaders, innovation followers, moderate innovators and modest innovators based on different innovation indicators gathered mostly from Eurostat (European Commission 2011). IUS compares EU innovation performance to main

competitors – the United States, Japan and BRIC countries. The study builds a composite innovation indicator and ranks countries accordingly. IUS data may be useful as additional information for a choice of benchmark countries.

OECD Innovation Microdata Project (OECD 2009) provides detailed insight into innovation-related behaviour of 17 countries. The data is provided separately for each indicator and may give additional information for a choice of benchmark countries.

The Global Entrepreneurship and Development Index (GEDI) combines individual and institutional indicators on entrepreneurship for 71 countries into entrepreneurial attitudes, entrepreneurial activity and entrepreneurial aspirations (Acs, Szerb 2010). The indicators are synthesized into composite index and countries are ranked accordingly. Due to weighing of both individual and institutional values along the most important entrepreneurial dimensions, the index is the most suitable for defining entrepreneurship rank for benchmark countries.

The choice of benchmark countries is performed as follows: twenty top ranked countries in GEDI index are chosen as an initial sample. Countries with over 10 million inhabitants are subsequently excluded. Based on additional information on innovation, opportunity-based entrepreneurship and availability of English language data, two more countries are excluded from the sample. As a result, Denmark, Finland, Iceland, Ireland, New Zealand, Singapore, Slovenia, Sweden and Switzerland are defined as benchmark countries (Table 2):

	GEDI rank*	Inhabitants over 10 m**	Introduced a nontechnological innovation***	Introduced product/process innovation***	Share of turnover from innovation (SMEs)***	Opportunity/ Necessity ****	Business R&D as % of GDP *****	Availability of English language data and materials	Choice for benchmarking
Australia	11	NO							
Belgium	12	NO							
Canada	2	NO							
Denmark	1	YES	H	M	M	H	H	YES	YES
Finland	13	YES	M	M	M	H	H	YES	YES
France	18	NO							
Germany	16	NO							
Iceland	9	YES				M	M	YES	YES
Ireland	6	YES				L	M	YES	YES
Korea	20	NO							
Netherlands	10	NO							
New Zealand	5	YES	M	M				YES	YES
Norway	8	YES	L	L	L	M	L	YES	NO
Puerto Rico	17	YES						NO	NO
Singapore	15	YES						YES	YES
Slovenia	19	YES				M	M	YES	YES
Sweden	4	YES		M	M	H	H	YES	YES
Switzerland	7	YES				M	H	YES	YES
United Kingdom	14	NO							
United States	3	NO							

Table 2 Choice of countries for benchmarking

* The Global Entrepreneurship and Development Index, 2010

** United Nations (<http://unstats.un.org/unsd/demographic/products/vitstats/serATab2.pdf>)

*** OECD Innovation Microdata Project 2009

**** Entrepreneurship in the EU and beyond, 2009

***** Eurostat (http://epp.eurostat.ec.europa.eu/portal/page/portal/science_technology_innovation/data/main_tables)

3.1.2. Key features of benchmark countries

Denmark:

Denmark received the highest ranking in GEDI index. The promotion of entrepreneurship is considered as one of the most important features of economic policy. Denmark's approach to developing entrepreneurship is based on comprehensive monitoring of 76 entrepreneurship indicators in six dimensions (Danish Enterprise and Construction Authority 2009). By each indicator country's position is measured against the top performing countries in the world, the best practice is analysed and specific measures are defined for closing the gap. The areas with highest correlation to economic performance are defined as priorities: promoting entrepreneurship education; lowering personal income taxes; providing private advisory services to entrepreneurs; promoting venture capital; simplifying possibilities of restarting following bankruptcy; loosening labour market regulation and promoting access to foreign markets.

The policy focuses on high-growth enterprises. By introduction of the Entrepreneurship Index in 2004, the goal was set to be in 2010 part of the European entrepreneurial elite. By 2015 Denmark should have the world's highest share of high-growth start-ups. The report assumed that it takes 3

to 5 years before any improvements in the framework conditions will materialise in better country performance.

The government provides annual data on performance. Since the first Entrepreneurship Index in 2004, Denmark has made striking improvements in its framework conditions for entrepreneurship and passed Sweden and Norway, which were far ahead of Denmark in the initial analysis.

Danish innovation policy is emphasising the importance of commercialization of R&D results and links to businesses. Danish Ministry of Science, Technology and Innovation states that its goal is

„ensuring that the exchange of knowledge between knowledge institutions and enterprises becomes more efficient, and that collaboration and mobility between the public and private research sectors should be increased at national as well as on international level“ (Danish Ministry of Science, Technology and Innovation 2011).

Interesting features of Danish entrepreneurial environment:

- Well-structured approach to entrepreneurship policy with clearly linked situation analysis, goals, indicators and measures;
- Learning from global best practice;
- Accountability of the government, pursuit of defined goals;
- Focus of government officials and R&D personnel on knowledge transfer and commercialization of R&D results;
- Offering by entrepreneurship academy IDEA free entrepreneurship courses and counselling for students with a business idea;
- Simplifying restart possibilities after bankruptcy by accelerating debt discharge from 5 to 3 years;
- Reducing the time needed for closing an enterprise from 3.4 years to 1.1. year;
- Agreement of the Danish Government with country's pension sector for joint financing of venture capital programme to Danish SME's (The Danish Government 2011).

Finland:

The Global Entrepreneurship Monitor 2009 report on Finland states that the country has good framework conditions for entrepreneurship, but these result in relatively low growth-oriented entrepreneurial activity if compared to other Nordic countries. Finnish companies are also less active in exporting. "Entrepreneurship is a viable and tempting career option for too few talented individuals" (Stenholm et al. 2009: 11).

The Evaluation of the Finnish National Innovation System (The Ministry of Education / The Ministry of Employment and The Economy 2009) concluded that the weaknesses of the Finnish entrepreneurial environment are lack of high-growth entrepreneurship and low international orientation of Finnish managers. The high level of public R&D spending does not return sufficient number of world-class high-growth businesses. The report concludes that because Finnish businesses have reached the global technology frontier, the innovation policy should change its focus from established clusters to supporting young firms:

"As pointed out by modern economic growth literature, being close to the frontier calls for different growth policies from that pursued in the catching-up stage of development" (The Ministry of Education/ The Ministry of Employment and The Economy 2009: 56).

Interesting features of Finnish entrepreneurial environment:

- While the review of the Finnish Innovation System calls for changing growth policies at moving from the catching-up stage to the technology frontier stage, the opposite should be relevant for Estonia. Estonia should not copy growth policies of countries that are on the technology frontier because the country is not ready for implementing these;
- At some technical universities entrepreneurship is a mandatory element of curricula and universities hire teachers with a background in entrepreneurship;
- The Finnish *Demand- and User-Driven Innovation Policy* (The Ministry of Employment and the Economy of Finland 2010) promotes stimulating demand for innovations through public procurement of innovations.

Iceland:

Innovation Centre Iceland (IceTec) is supporting Icelandic businesses in increasing productivity and competitiveness. IceTec is also responsible for doing research on innovative technologies and for knowledge transfer to businesses. The country provides entrepreneurship-related support measures similar to other Nordic countries, including grants, support to collaboration between businesses and R&D institutions and funding from the state-owned venture capital fund.

Interesting features of Icelandic entrepreneurial environment:

- Consolidating the responsibility for R&D and entrepreneurship policy under one government agency.

Ireland:

Like other rich Western European countries, Ireland provides a wide range of support measures and makes significant investments into supporting Irish businesses. Although entrepreneurs consider government activities in areas of innovation and entrepreneurship being positive, they complain over absence of dedicated entrepreneurship policy and lack of priorities (The Irish Government 2011). The GEM 2010 Report on Ireland states that Irish early-stage entrepreneurs display the highest level of innovation behaviour among innovation-driven economies and a high proportion of entrepreneurs are driven by high growth ambitions (Fitzsimons, Paula and O’Gorman, Colm 2010).

Interesting features of Irish entrepreneurial environment:

The GEM study on Ireland emphasises that international experience is associated with higher rate of entrepreneurial activity. For people that lived overseas for at least a year, the rate of early stage entrepreneurship was 9.8%, almost two times higher than for people that had no experience of living abroad (Fitzsimons, Paula and O’Gorman, Colm 2010).

New Zealand:

New Zealand is the 5th ranked country in the GEDI index. The country has set a goal of raising exports from 30 % of GDP level to 40 % and achieving income parity with Australia by 2025. For achieving these goals, New Zealand's policy foresees developing new higher value products around existing areas of competitive strength.

Country's R&D policy is focused on commercialization. The Focusing on Growth, The Second Report of the 2025 Taskforce (New Zealand Government, 2010) defines increase of the absorptive capacity as the main goal for R&D institutions. The report emphasises that a small country like New Zealand will gain much more from focusing on implementation of global innovations, instead of relying on domestic science. The public research and science institutions should support business opportunities in areas of competitive strength of the country. The government sees its role in providing assistance to New Zealand firms in implementing innovations and increasing the value of their production.

New Zealand Trade and Enterprise (NZTE) is a government agency that supports entrepreneurship. The agency emphasises that as a publicly funded organisation, it has to make the best use of limited resources. Therefore, agency provides some support measures only for companies that have reached a certain stage of development. The New Zealand's International Growth Fund is supporting firms that are most likely to operate successfully internationally. The company should deliver benefits to New Zealand's economy – without this an activity will not be eligible for funding (NZTE 2011);

Interesting features of New Zealand's entrepreneurial environment:

- Clear focus for government agencies in supporting different aspects of entrepreneurial activities and clear performance measures – increase in productivity, export growth;
- Focus on supporting existing exporters;

- Proactive support to companies that qualify for support under government programmes by assigning an account manager and tailoring the best-fitting package of services;
- The government carefully monitors effectiveness of support programmes and company-level funding. The fund-rising programme Escalator was closed when the intermediated funding volume decreased;
- Online access to NZTE programmes and services is designed in easy-to-understand and easy-to-navigate way, guiding entrepreneurs in starting a business, exporting, applying for financing and doing e-business;
- The government makes active efforts to attract highly educated foreign labour and high value investor migrants to New Zealand. According to Denmark Entrepreneurship Index 2009 (Danish Enterprise and Construction Authority 2009), by this criteria New Zealand is the Index's top-ranked country;
- NZTE Beachheads programme connects businesses to a network of private sector advisors who can provide detailed insights into doing business in international markets;
- While grants are provided only to developed companies, early stage companies receive support in business training, networking, business incubating and mentoring.

Slovenia:

Slovenia has implemented a formalised set of entrepreneurship-related policies that embody almost no unique features. Slovenian policies suffer under the same problem as Estonian policies – setting no priorities. For example, in the Programme for Stimulating the Internationalisation of Companies for the Period 2010-2014 of Republic of Slovenia (Government of the Republic of Slovenia 2010) almost all regions in the world, with exception of Sub-Saharan Africa, are defined as target markets for Slovenian exporters. . The review of public sources reveals no interesting features of entrepreneurial environment that could be implemented in Estonia.

Singapore:

By the World Bank Doing Business Index 2010 (The World Bank 2010_a): Singapore is considered the best country for doing business. The country has consciously been developing its business environment to attract FDI and promote international competitiveness of Singapore's businesses.

The main body for supporting innovation and entrepreneurship is Singapore Economic Development Board. The main goals for SEDB are:

- Attracting foreign investments;
- Growing industry verticals – expanding within industries;
- Enhancing business environment.

International Enterprise Singapore (IE) is the government agency that promotes international growth of Singapore-based enterprises.

Interesting features of Singapore entrepreneurial environment:

- Clear focus and specific goals for government agencies in supporting different aspects of entrepreneurial activities;
- Well-structured and business-oriented websites of IE and SEDB;
- Support to internationalisation by IE within the "3C" framework, providing Connections, Competency and Capital. IE has a global network in over 30 locations for helping Singapore-based enterprises in international expansion. Among other areas, the competency assistance is provided for building alliances to enter international markets, for building branding capability, for international IP-related issues, for accessing international trade statistics, etc.

Sweden:

Sweden has not implemented a dedicated entrepreneurship policy. The government is more concerned with regional development and employment than with promoting entrepreneurship. Sweden offers a wide range of business support measures, with specific focus on special support programmes for regional development, minorities and female entrepreneurs. Sweden has the highest level of business R&D spending in

the European Union but this spending is mostly done by large companies. The R&D spending of SMEs is on average EU level (Almerud et al. 2008). . The review of public sources reveals no interesting features of entrepreneurial environment that could be implemented in Estonia.

Switzerland:

The Capgemini Consulting study (Capgemini Consulting 2010) describes Switzerland as „European champion“ on innovation, based on country’s strong record of market-driven R&D in collaboration of business and universities and country’s success in technology transfer. The review of public sources reveals no interesting features of entrepreneurial environment that could be implemented in Estonia.

3.2. Summary of interviews with entrepreneurs and entrepreneurship experts

3.2.1. Method of analysis

For gathering real-life insight about challenges faced by Estonian companies, 21 qualitative face-to-face interviews were conducted with entrepreneurs, investors into early-stage companies, specialists responsible for entrepreneurship development at different government agencies and experts from academic circles.

The choice of interviewed persons was determined by two factors. First, the insight should be gathered from people with diverse background. Out of 21 interviewed persons 11 had a background from different fields. For example, an angel investor was a former entrepreneur and a manager of a start-up company served formerly at the supervisory board of an entrepreneurship-related government agency. Second, in order to find people who have expertise and willingness of sharing their opinions in the field of entrepreneurship, the pyramiding search (von Hippel, Franke, and Prügl 2008) was applied. For pyramiding search in each interview referrals were asked to persons with most expertise in the topic. Starting points for expert choice were defined through individual contacts of the author. Due to the small size of the country and “leanness” of the Estonian business

society, the referrals were never more than two steps away. Out of 21 interviewed persons 12 were found through referrals, out of these six received multiple referrals.

The list of interviewed persons is presented in Appendix 3.

The interview was designed with the following structure:

- Asking interviewees to provide an assessment of whether Estonian entrepreneurs in general are internationally competitive;
- If the answer to the first question is „no“, then asking an assessment about reasons of low competitiveness. The following hypothesis of low competitiveness was presented to interviewees for evaluation:
 - o Estonian companies identify few international business opportunities because the society supports an attitude that only a high-technology company can be internationally competitive. More feasible non-technological innovations that are not related to technological superiority but rather to discovery of unsatisfied customer needs and respective adoption of the business model are not appreciated and encouraged;
 - o Estonian companies have little experience and low competence for managing an international business;
 - o Government's efforts in creating a supportive entrepreneurial environment have no focus and priorities.

The interviewees were asked to confirm, reject or amend the hypothesis with own interpretations of low competitiveness.

- Finally, the interviewees were asked to address the problem with answering the following questions:
 - o Who should be concerned with solving the problem of low competitiveness?
 - o What should be the main directions for solving the problem?
 - o What specific measures should be implemented?

3.2.2. Results and conclusions from interviews

All interviewees were of opinion that Estonian companies in general have low international competitiveness. In regard of reasons of low competitiveness, there was a difference in opinions of whether the focus on technological innovation (contrary to the customer-oriented view of innovation) is a problem. Investors tended to consider it not being a problem while start-up entrepreneurs and researchers considered it being a significant issue:

Technological image of innovations is not a big issue, rather there is a problem with business management and development (here and hereafter in chapter 4.2.3., the text in italic refers to quotations from interviews).

Focusing on technological aspect of the innovation is very typical in Estonia, in contrary to the USA. In Estonia the product-market fit phase is missing. Entrepreneurs should start from another end, from prototyping. In the software business it takes a couple of days to build a prototype and test it with potential customers.

Inventing is not the most important part of the innovation. The commercialisation part is missing.

All interviewed persons agreed with the hypothesis that Estonian companies have little competence for international business and government's efforts to create a supportive entrepreneurial environment have no focus and priorities. In addition to three causes proposed by the interviewer, two additional problems were emphasised. Several interviewees stressed that Estonian entrepreneurs have low international ambitions:

There is less hunger than 20 years ago. Businessmen strive for easy life and early exit. An Estonian entrepreneur with an annual turnover of 300 thousand euros feels so important that he barely fits in the room. A Russian owner of a restaurant chain with 100 million dollars in revenues does not consider himself being a businessman because he thinks his business is too small.

Another problem is path dependency of the country. The government is stuck with previously successful economic policies and cannot adjust to new challenges:

The only strategy of the Estonian government is being a passenger.

To summarize, the interviewees considered the most dominant reasons for low competitiveness being rooted in attitudes of entrepreneurs. Estonian entrepreneurs do not have ambitions for developing their businesses abroad and these with global ambitions have no knowledge and experience for managing an international business:

In envisioning his/her markets, the entrepreneur thinks of Estonian map and, in the best case, includes a bit of Sweden and Finland.

Estonians and other entrepreneurs from CEE countries are so much different from Americans while presenting themselves to investors. Americans have business basics in their DNA.

I have not seen an Estonian company doing large-scale outsourcing to Asia.

At the same time, government's economic policy does not help overcoming these obstacles. The state avoids setting priorities because politicians consider prioritising being dangerous:

We know that we should define areas to focus on, but we cannot agree what should serve as a basis for priorities that is both reasonable and politically acceptable. We should decide what the truth is and then live by that.

The goal for bureaucracy is to minimize risk in order not to be accused in corruption and in making wrong decisions.

The country is not open to foreign top specialists and the higher education system is weak. Universities and academic institutions are not successful in technology transfer to businesses:

State's current policy is such that a person not knowing Estonian shouldn't really feel himself comfortable in this country.

The state has tried to create a marriage of local business and local research, but that does not work. For great performance we do not need the closest knowledge, we need the best knowledge.

Many interviewees pointed out that Estonian businesses have been good at process innovation, especially during the crisis. Differences in

production efficiency to developed countries are not significant. The low productivity is caused by a low position in the value chain, far from end-customers and technology frontier.

The crisis has optimised the level of expenses, the production efficiency has increased.

Estonia is small and far from places where „real things happen“. For venture capitalists even Nordic countries are in the periphery and not as attractive as the UK or Germany. Estonian companies are not been taken as seriously on international markets as companies from established Western European countries:

The VC turned down an investment into one of companies in our portfolio because creating an understanding of our legal system would have taken too much effort.

Only now, after having acquired companies in Finland and Norway, we are allowed to the feast table with big players.

Estonian name does not help making business. People know that Germans are great in engineering and French have good connections in Luxembourg. Estonia does not have any image.

Estonian labour market is thin and it is difficult to find qualified personnel for any industry:

If I need tomorrow five more application developers I wouldn't find them. Maybe I wouldn't find so many quickly even in Finland.

Technology entrepreneurs and investors emphasised that there is no lack of ideas in Estonia and the start-up rate is high, but low management and business development knowledge is an obstacle to converting ideas into businesses:

Estonia has the highest start-up rate among the Baltic countries and maybe even among Nordic countries. An article in New York Times named two locations in Europe where interesting technology start-ups are growing – these are London and Tallinn.

There are a lot of ideas. Bain Capital proposed that they buy Company X (an Estonian technology start-up, author's remark) - their idea and

technology - and Bain provides management for developing the business.

All interviewed people were of opinion that entrepreneurs themselves have the biggest responsibility for improving the international competitiveness of their businesses. However, the vast majority of interviewees considered that the government should support entrepreneurs with focused measures. Three persons, all of them entrepreneurs, were of opinion that the state shouldn't do much else for supporting entrepreneurs besides creating a generally favourable environment for business - which it already does.

Although there were different views of what kind of specific measures would improve competitiveness, almost all interviewed persons emphasised the following main directions for solving the problem of low competitiveness:

- Setting distinct priorities for government's entrepreneurship and innovation policies;
- Internationalising Estonian business environment;
- Developing business skills of Estonian entrepreneurs.

Government's priorities should be based on understanding and utilization of country's existing strengths and weaknesses. Several interviewees emphasised that due to Estonia's location, size and cultural background, a large international company cannot locate its head office in Tallinn. If a company grows internationally, it should move its head office closer to customers. There should be a distinct vision of what is the role of Estonian companies in the global value chain. The existing economic structure should serve as a point of departure for planning the new economic structure. As an example, in Finland start-ups are popping up in fields of robotics, mobile services and gaming - growing out of successful Finnish communication technology industry and timber industry:

What can be done for internationalization of Estonian businesses if taking into account country's resources - location, size and human resources? Estonia could be positioned as an international R&D centre.

What functions do we provide for international businesses? Are we Chief Executive Officers, Chief Financial Officers, Chief Marketing Officers, Chief Technology Officers or Chief Strategy Officers?

Estonia could be a smart back office for companies that have outgrown the country.

Sales of an international company are completed somewhere else and you should be close to the customer. In our portfolio of 25 companies, none can keep its head office in Estonia once they grow big.

Here can never be a head office of a large international company if we keep thinking of Estonia as of a nation state. But if in 20-30 years perspective Estonia changes into a Singapore-like multicultural and multinational centre, than why not?

Despite of a strong consensus that government's policies should be focused on specific target groups, there were differences in opinions of what kind of companies or industries the policy should be focused on. Most interviewees were of opinion that the focus should be on supporting existing companies and specifically exporters. The interviewees also emphasised that government should prioritise development of such fields of higher education that are needed for selected focus areas. Specifically, technological professions (including ICT) and entrepreneurial higher education were highlighted. Cooperation with established successful industries would help developing universities that provide international top-level education:

The state should rather support new projects of existing companies, because existing companies have the management know-how and therefore the odds for success are much better.

Enterprise Estonia should increase the share of existing companies in its product development portfolio. A couple of years ago 1/3 of funding was provided to existing companies and 2/3 to start-ups. Now the share is 50-50, but it should be 2/3 to existing companies and 1/3 to start-ups.

We could become integrators in the global value chain but we do not have much experience in integrating on international scale, e.g. in organizing production in a foreign country.

We should have many small companies with 10-100 employees that provide some specific product or service to large international companies. Estonian companies shouldn't try developing their own brands. It is expensive and for brand development a stronger home country is needed.

In a small country the government should proactively search for companies with international potential and offer them support.

Conscious avoidance of any prioritisation results in massive bureaucracy. About 1/3 of funds are spent on managing the system, on overhead of government agencies and on private consultants.

The government should have in-house competence for helping businesses to expand the value chain.

We could provide modern premises for maritime academy and equip it with world-class equipment. The academy could provide specialists for us (BLRT, the largest Estonian-owned manufacturing company, author's remark) and for Tallink (the largest Estonian-owned service company, author's remark) and attract top professors and students from Scandinavia and Eastern Europe.

In order to grow, Estonian businesses should have international customers and most probably arrange international production. Entrepreneurs should strive for international networking and mentoring. Start-up entrepreneurs and investors emphasised that ambitious technology start-up companies should go to the US for networking with potential customers and investors. Opinions differentiated of whether government should provide specific support for international networking. Some supported an idea that government should create a business incubator in Silicon Valley. Others were of opinion that a government-funded incubator sets too many limitations. Internationalisation of education is considered critical for triggering international business. The share of both foreign professors as well as students in Estonian universities should significantly grow:

If you talk to customers and partners in California, the right ideas come automatically. Take GrabCAD (a high-potential technology start-up, author's remark) – ordinary guys do very good things since they moved to California.

Business incubators should be created outside of Estonia, in places like Silicon Valley.

It does not make sense to hire experienced foreigners for networking. Usually for these positions apply consultants that provide little value.

Estonia cannot avoid targeted immigration and should start importing foreign doctorants.

Technological higher education is important, but for high quality you need to import smart foreigners. University system should become international - it triggers international business.

Although almost everybody was on opinion that Estonian entrepreneurs and especially start-up entrepreneurs lack management and international business development skills, there were not many ideas of how to improve the situation. There was a suggestion that entrepreneurial education should be systematically taught to all students. Otherwise, it was suggested that if a company grows over a certain limit, founders should be encouraged to give up the CEO position to someone that has international business experience in this field. Mentoring should be actively promoted. Entrepreneurship support agencies should build a network of mentors and require assigning one to every financed company. As an interesting remark from the CEO of Skype Estonia, in a global but employee-wise small company like Skype (the company has about 800 employees, out of these about 400 IT specialists in Estonia), everyone gets an understanding of business models, customer needs, product development and production – because almost everyone is still close to the business and to customers. After working in such company, a person is better prepared to start own business:

Estonians do not believe that giving the CEO position to an American could be of any use, but they bring the vision, strategic choices, marketing and understanding of the industry.

If I could do anything differently based on today's knowledge, I should have taken business courses. Intuition and gut feeling which are based on experience from another field (science, author's remark) are not the best basis for decision making in a new field of activity. I mistakenly relied too much on opinion of the financial investor when we exhausted ourselves in so many different fields of activity.

People leaving Skype usually start their own business. In an international but still relatively small organisation they get a good understanding of business processes.

For conclusion, the interviewees proposed some specific opinions and ideas in regard of designing government support measures or rearranging work at government entrepreneurship-related agencies:

Instead of grants, government guarantees and other financial instruments should be used to leverage the available funding.

The current equalising „first come – first served“ financing approach should be changed to a positive discrimination approach.

From the fear of corruption the state has outsourced all the evaluation functions to external experts and to the private sector. The state should hire own specialists to accumulate understanding of different industries.

Creation of the Estonian Development Fund was very good. Although the Fund has made a lot of mistakes, due to co-financing requirement they have created a network of angel investors in Estonia.

The Estonian Development Fund should provide venture capital financing as a fund-of-funds, instead of providing direct financing.

The government officials should analyse which support programmes are efficient and why.

The support measure to newly created enterprises should be cancelled (by Enterprise Estonia). Estonian Unemployment Insurance Fund supports unemployed persons in a more efficient way. Instead, Enterprise Estonia employees could dedicate more time to providing growth support funding.

4. POLICY RECOMMENDATIONS

4.1. Main drivers influencing design of the entrepreneurship policy

In order to provide recommendations for changing the entrepreneurship policy, the following conclusions from previous sections of the study should be taken into account:

- Development level of the country is important for the policy design. Innovation-driven countries should implement different policies than efficiency-driven countries;
- High-impact firms provide almost all employment and revenue growth of the private sector. Contrary to the popular belief, high-impact firms are relatively old and represent all industries (Acs et al. 2008). Young companies contribute significantly to economic growth only in countries with high level of GDP per capita. Country's entrepreneurship policy should focus on quality rather than on quantity, on finding and supporting high-impact firms (Hessels et al.; 2008);
- Successful entrepreneurial countries have implemented clear and focused entrepreneurship and innovation policies where all components

of the policy are well structured and linked. These countries have assigned clear responsibility to different government agencies for separate sections of policies. Implementation of policies is coherent and the results are monitored across government agencies;

- In successful entrepreneurial countries ministry of science and technology and R&D institutions consider commercialisation of knowledge being their primary objective;
- Non-technological innovations are at least as important for providing value added and turnover growth as technological innovations. Non-technological innovations are more important for countries on efficiency-driven stage than for countries on innovation-driven stage;
- Only foreign markets can provide significant and scalable business opportunities for entrepreneurs from small countries. In order to capture business opportunities, entrepreneurs should have high international orientation and international networks;
- The main reason for low productivity of Estonian businesses is low position in the value chain;
- Estonian businesses and entrepreneurs are good at process innovation and weak at business development and marketing;
- FDI to Estonia have not resulted in knowledge transfer because Estonian R&D environment does not provide additional opportunities to foreign investors;
- Procedures of providing in Estonia (and in other EU countries) government support to entrepreneurial sector are very bureaucratic due to fear of corruption. Still, changes to entrepreneurship policy should ensure that the risks of unethical behaviour are mitigated;
- Internationalisation of universities (increasing the share of high-level international professors and international students) in fields that are related to strong domestic industries will trigger international business opportunities and increase absorptive capacity in Estonia.

4.2. Policy recommendations

Innovation Union Scoreboard suggests that Estonia is an innovation follower and ranks 14th by innovation performance among EU countries (European Commission 2010: 12). Global Entrepreneurship Monitor 2010 report does not include Estonia in its analysis and therefore does not classify the country to any of the development stages. The productivity and R&D data and the qualitative analysis of the entrepreneurship environment from previous chapters of the current research indicate that Estonia belongs to the cluster of efficiency-driven countries and not to innovation-driven countries. Innovation-driven countries are close to utilizing the productivity potential of established industries and should focus on young enterprises in new industries. The catching-up countries of the efficiency-driven stage should focus on existing industries and businesses that have significant potential for productivity improvements. As explained in the comparison of Estonian and Finnish productivity data (Table 1), Estonian manufacturing companies would increase value added by more than 400% by catching up the productivity level of Finnish companies.

Current Estonian entrepreneurship and innovation policies follow mechanically the European Union model for innovation-driven stage countries. It means that

efficiency-driven Estonia aims at moving from lower value-adding industries and low-value adding functions within the industry directly to higher value-adding industries and high-value adding functions within the industry. On Figure 9

it would be illustrated by moving from the lower left corner to the higher

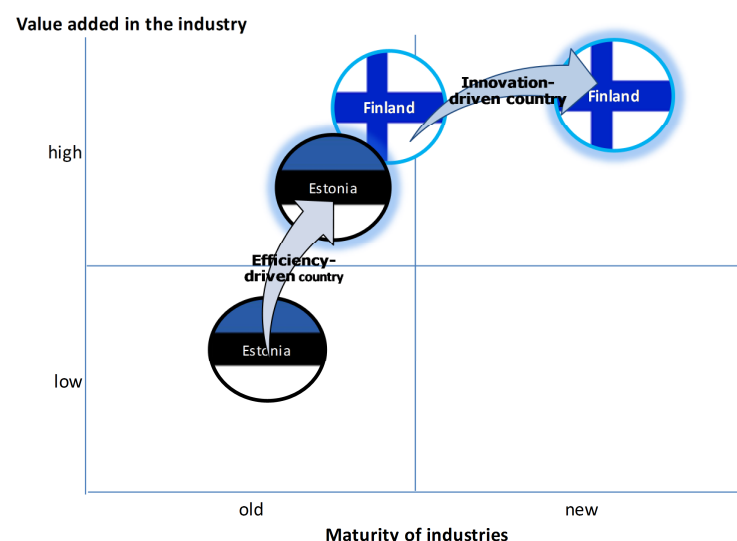


Figure 9: Strategies for countries on efficiency-driven and innovation-driven stages
Source: Prepared by author

right corner. Such path is certainly the most complicated and risky, requiring management, marketing and technology skills that Estonian business and R&D institutions do not possess. An easier and much efficient path for Estonian businesses would be moving higher in the value chain of existing or related industries (the path from the lower left corner to the higher left corner in Figure 9). Effectively it would mean abandoning the Scandinavian development model and adopting the New Zealand development model. Currently Estonia is focusing on development of industries that are defined as priorities also by Scandinavian countries - wellness and health products, materials science, nanotechnology and biotechnology. In these industries we have little or no competitive advantages for creating top knowledge and top innovations. Instead of head-to-head competition with Nordic countries in new industries, Estonia should focus on existing industries where Estonian businesses have competence, customers and significant value added growth opportunities.

Based on described strategy choice, the goal for Estonian entrepreneurship policy should be supporting Estonian businesses in moving up the value chain for increasing productivity and achieving international growth.

In building the entrepreneurial support system, Estonia should abandon the current unfocused "First come – first serve" principle and define specific target groups. The target groups shouldn't be differentiated by industries. As discussed above, high-growth enterprises may come from any industry and Estonian enterprises in all industries have a significant potential for increasing productivity. The basis for defining target groups should be international business volume (Figure 10).

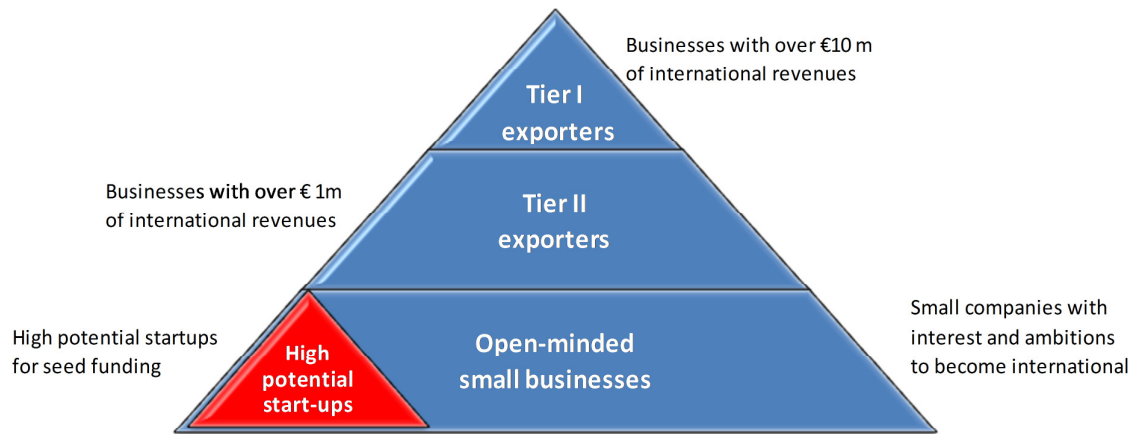


Figure 10: Proposed target groups for the Estonian entrepreneurship policy
Source: Prepared by author

Tier I exporters are Estonian companies with over €10 m of international turnover. Government supports activities of increasing productivity and expanding the international value chain:

- Moving closer to industry's technology frontier by implementing product and process innovations;
- Moving closer to end-customers through brand building and business model innovations;
- Entering new geographical markets;
- Outsourcing low value-adding activities to low-cost locations;
- Expansion into related industries.

A key-account manager of Enterprise Estonia proactively approaches Tier I exporters and designs a tailor-made package of support measures.

Tier II exporters are Estonian companies with over €1 m of international turnover. As by Tier I exporters, government supports activities of expanding the international value chain:

- Moving closer to industry's technology frontier by implementing product and process innovations;
- Moving closer to end-customers through brand building and business model innovations;
- Entering new geographical markets.

Open-minded small businesses are companies that have occasional or no international sales but have ambition of becoming international. The government supports knowledge and network building:

- Development of an international scalable business model;
- Building knowledge of potential export markets;
- Obtaining entrepreneurship-related knowledge,
- Building network of business contacts;

High-potential start-ups are ambitious new companies that develop a product or service with potential of having in five years international revenues of more than €10 m p.a. The government supports early-stage activities:

- Development of a business plan;
- Product development;
- Entering international markets;
- Obtaining entrepreneurship-related knowledge;
- Building network of business contacts.

The eligibility criteria for receiving funding as a high-potential start-up are the following:

- Entrepreneurs should display international ambitions;
- The start-up should have a scalable business model;
- The company should have a potential of creating high value-adding jobs in Estonia;
- Preferentially foresee collaboration with Estonian and/or international R&D institutions, resulting in knowledge transfer;
- Receive co-financing from an angel investor or VC.

Table 3 presents allocation of support measures to target groups:

	TIER I EXPORTERS	TIER II EXPORTERS	SMALL BUSINESSES	HIGH-POTENTIAL START-UPS
Tailor-made package of support measures	✓			
Co-financing of product development		✓		
Co-financing of international brand development		✓		
Export guarantees		✓		
Access to (international) network		✓	✓	✓
Support to entrepreneurship training		✓	✓	✓
Support to mentoring		✓		✓
Support to market research		✓	✓	✓
Support to business plan development		✓	✓	✓
Seed financing				✓
Support to (international) incubating				✓

Table 3: Proposed package of support measures for target groups of Estonian entrepreneurship policy

Source: Prepared by author

Estonia should define Nordic countries as the primary geographic target market for Estonian businesses. Nordic countries are already the main trade partner for Estonia, but for low value added products and services. It is the easiest to move up the value chain in existing markets, where companies have accumulated knowledge and network of business contacts. Other EU countries should serve as a secondary target market. Estonia should not consider Asia among its main target markets, but should develop Asian contacts in order to support outsourcing of low value added activities. Estonia should build contacts in the USA, the UK and Singapore in order to provide support for networking and business contacts of high-potential start-up companies.

The government's entrepreneurship policy should set performance criteria that are coherently followed from the macro level (Estonia's business sector in total) to the micro level (evaluating company-level performance of government support measures).

The main performance measure for Estonian entrepreneurship policy should be *productivity, measured as value added per hour worked in market prices*. Such criterion is chosen because:

- Value added translates directly into country's wealth creation (unlike turnover-based productivity measures);
- Reflects directly international competitiveness;
- Can be applied on a company level for measuring performance of government support measures.

For applying the key performance measure, the hierarchy of measureable goals can be defined as described in Table 4.

Productivity goals for Estonian industries*	Manufacturing		Incl. Fabricated metal products		Incl. Electrical / optical equipment	
	2009	2019	2009	2019	2009	2019
Estonian productivity to Finnish in %	19%	60%	22%	65%	17%	55%
average annual growth rate	15.3%		14.6%		15.9%	
Productivity target in €	8.5	35.3	8.2	32.1	8.8	38.6

Milestones	2013	2016	2013	2016	2013	2016
Productivity target in €	15.0	23.0	14.1	21.3	15.9	24.8

* measured as value added per hour worked in market prices

Table 4: Example of hierarchy of productivity goals for Estonian industries

Source: OECD and author's calculations

The industry-based productivity rates will serve as a basis for company-level performance goals. For example, in order to fund a product development project of a company in fabricated metal products industry, the following performance goals could be set:

- Productivity measured as value added per hour worked in market prices should be increased to at least €14;
- The export in 2013 should grow by 60% if compared to 2011;
- The change of total value added in Estonia should be positive.

Due to unfocused approach in supporting Estonian business sector, government does not have a good understanding of global development trends of Estonian main industries and of the position of Estonian companies in the international value chain. Competence building of government specialists is one of the key tasks for providing efficient

support to Estonian companies. Government should develop a thorough in-house knowledge of the current positioning of most important Estonian export industries:

- Gap of Estonian companies to the technology frontier and to end-customers;
- Global positioning of Nordic companies;
- Key competences and resources that are required to bridge the gap to technology frontier / end-customers by Estonian companies, feasibility of bridging the gap;
- Global competition trends in next 5-7 years, for example threat from Asian producers or from other CEE countries.

For such competence building the government should not rely solely on local academic experts. The government should contract global institutional top-knowledge (global top universities or consultancy companies). Global experts should develop such knowledge together with local researches and government specialists to ensure knowledge transfer.

Change from equalizing approach to selective support of companies increases the risk of corruption. The policy should ensure that the risks of unethical behaviour are mitigated. Also, the policy should ensure that benefits from increased value added will be enjoyed by both company and the country. Therefore, the following control mechanisms of government funding could be implemented:

- Each government grant to an established company will be given against specific performance targets, which ensure that both the company as well as the country will enjoy benefits from increased value added. If targets are not met by an agreed deadline, the grant may be converted into interest-carrying loan. Such approach aligns the interests of the company and of the government.
- Seed funding to start-up companies will be granted against the ownership share in the company. The expected return should be set on a relatively low level, for example around 10%. The start-up agrees that if the company will be successful, it keeps part of its high-value

adding functions in Estonia. However, if the business logic forces company to move all its high-value functions to another location, the government has an option of increasing its ownership share in the business to compensate for the lost value to the country.

The most successful Estonian international companies (BLRT Grupp, Tallink, Webmedia) have all expanded their business to Nordic countries by acquiring established Finnish and Scandinavian companies. In such a way the Nordic brand and marketing knowledge have been successfully merged with the cost advantage of Estonian production. The government should consider supporting Estonian companies in moving up the value chain via acquisitions.

Estonian government activities of attracting foreign direct investment should serve to goals of increasing productivity and employment. The focus should be on attracting two types of FDI. The first type of FDI is investments made by mid-sized companies and positioned on technology frontier in industries, where Estonia has strong academic knowledge and / or established businesses (e.g. ICT, biotechnology). Investments from such companies help integrating Estonian specialists and experts into global knowledge networks. In small international companies Estonian workers obtain experience of international business processes and understanding of business models. Such knowledge helps in discovering international business opportunities and motivates setting up own businesses on a later career stage. Mid-sized high-tech companies should be specifically addressed and attracted, first of all from Scandinavia, and provided with specific temporary benefits if they perform high value-adding functions in Estonia. The benefits may include setting a threshold for social income contributions, or lowering dividend tax for a certain period. The second target group to attract FDI from are companies that make large-scale investments and provide lower-skilled jobs. The aim of attracting such FDI is decreasing the unemployment level, which is the highest among non-qualified workforce.

The policy should create motivation for development of absorptive capacity and increasing technology transfer. Government should develop policy measures that support implementation of knowledge from Estonia's priority science areas (ICT, biotechnology) in products and business processes of existing industries.

The government should ensure that university education that supports target industries is on the best level in the Baltic Sea region. The fields of priority education fields to consider are ICT, Machine Building, Maritime education and Entrepreneurship education. The government should attract in these fields foreign professors and ensure that at least 20% of academic staff is from other countries and with top-knowledge in the field. Significant share of students should come from other countries, helping to build international business networks. Consequently, the study language should be English.

5. SUMMARY

The current study analyses Estonia's entrepreneurial environment and performance of Estonia's businesses. The analysis reveals that Estonian business sector employs a specific niche of the global value chain by providing production services to Nordic businesses. Due to low value added of such role, the productivity of Estonian businesses is low, limiting further welfare growth of Estonian population.

The analysis emphasises that Estonian entrepreneurship and innovation policies mechanically copy strategies of innovation-driven Nordic countries, although Estonia's economy is on another development stage. Estonian companies are facing very much different challenges than Finnish or Danish companies. Therefore, country's entrepreneurship policy should be adjusted accordingly.

Instead of focusing on development of globally new industries, Estonia's economy would significantly gain from moving towards higher value-adding activities in existing industries. The study proposes focusing policies on improving productivity and increasing international competitiveness of established exporting companies.

Estonia should set clear and measurable objectives for developing the business sector. The indicators should be coherent and suitable for performance measurement both on country and on company level. The most suitable performance indicator is increase in productivity measured as value added per hour worked in market prices.

Estonia has great preconditions for further successful development. The country is a neighbour to one of the world's richest regions – the Nordic countries. It has developed well-performing institutions and receives significant funding from the European Union that supports country's development. The four to five times productivity gap to developed countries should be perceived as an opportunity. By receiving focused support from the government, Estonian businesses can catch up the

developed countries and significantly improve productivity and, thus, the wellbeing of Estonian population.

Appendixes:

Appendix 1: Overview of Estonian entrepreneurship-related policies

Overall goals	
Estonia 2020	<ul style="list-style-type: none"> - Achieving rapid growth in productivity; - Returning to the high employment level of the pre-crisis period.
Entrepreneurship policy	<ul style="list-style-type: none"> - Estonian entrepreneurs and employees are competent and the nation is entrepreneurial and open to changes; - Estonian enterprises have means for making future-oriented investments and increasing productivity; - Estonian enterprises have an improved export capacity and businesses grow because of capitalizing on international opportunities; - Estonian legal environment is supportive to entrepreneurship.
Knowledge-based Estonia	<ul style="list-style-type: none"> - Competitive quality and volume growth of R&D; - Modernising entrepreneurship creating added value in the global economy; - A society that is open to innovations and oriented on long-term development.
Made in Estonia	<ul style="list-style-type: none"> - Competitiveness of Estonian investment environment has been improved and foreign investments have been attracted; - Increase competitiveness of Estonian companies on international markets.
Quantifiable goals	
Estonia 2020, Goals for 2020	<ul style="list-style-type: none"> - R&D investments as % of GDP from 1.42% (2009) to 3%; - Share of Estonian export in world trade from 0.085% (2009) to 0.110%; - Employment rate from 66.4% (2010) to 76%; - Productivity per employed person compared to the European Union average from 65% (2009) to 80%.
Entrepreneurship policy Goals for 2013	<ul style="list-style-type: none"> - Number of enterprises per 1000 inhabitants to increase from 30 (2004) to 40; - Survival rate of enterprises after three years to increase from 57% (2003) to 70%; - Productivity of Estonian enterprises in comparison to EU average to increase from 50.6% (2004) to 72%; - Developing Estonian rank in World Bank's Doing Business survey from 16 (2005) into top 15.
Knowledge-based Estonia Goals for 2014	<ul style="list-style-type: none"> - R&D investments of the business sector from 0.34% (2004) to 1.6% of the GDP; - Innovation-related investments from 1.6% (2004) to 2.5% of revenues; - Share of turnover from new products and services from 7.6% (2004) to 15%; - Employment in high and medium-high technology sector from 7.535 (2004) to 11% of total employment; - Productivity of enterprises from 57% (2005) to 80% of the

	European Union average.
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1. Measures for improving regulations

Estonia 2020
<ul style="list-style-type: none"> - Changes in legislation to stimulate implementation of priority policies for economic development; - Systematic assessment and decreasing administrative burden; - Maintaining stability of the taxation environment.
Knowledge-based Estonia
<ul style="list-style-type: none"> - Improving protection of intellectual property; - Providing tax benefits for R&D activities; - Improving administrative capabilities and evaluating efficiency of support measures; - Coordinating activities of different government offices.
Entrepreneurship policy
<ul style="list-style-type: none"> - Evaluation of influence of new and existing legislation on entrepreneurship; - Involving entrepreneurs and entrepreneurial associations in elaboration of new entrepreneurship-related legislation; - Improving international competitiveness of entrepreneurship-related legislation.

2. Measures for improving market conditions

2.1. Focus areas (countries, industries, technologies)
Estonia 2020
<i>Broader use of the potential of the creative industries, ICT and other key technologies for raising the value added of other sectors</i>
Knowledge-based Estonia
<i>Priority areas to be supported:</i> <ul style="list-style-type: none"> - high value adding technologies (ICT, biotechnology, materials science); - areas solving socio-economic problems in nationally important fields like energy, defence, security, healthcare and ecology; - developing research on Estonian national culture, language, history and nature.
Made in Estonia
<i>Most perspective countries for attracting FDI:</i> <ul style="list-style-type: none"> - Sweden, Finland, Germany, Switzerland, the United States, Great Britain, Denmark, Netherlands, Japan and Canada, Additionally, to search more actively for investments in Arab countries, China and Far-East countries
<i>Key industries for attracting FDI:</i> <ul style="list-style-type: none"> - ICT, business- and financial services, transport and logistics, manufacturing of machinery and metal products, manufacturing of electrical and electronics equipment, wood and products of wood. Additionally, focus on priority areas of Estonian innovation policy – energy technologies, biotechnology and materials science
<i>Most perspective countries for export:</i> <ul style="list-style-type: none"> - Sweden, Finland, Germany, Russia, Norway, China, Great Britain, Lithuania, Netherlands, Czech Republic. Additionally, target markets are Latvia, Denmark, Belgium and Arab countries
2.2. Access to foreign markets

Estonia 2020
<i>Shaping a policy supporting long-term growth of the international competitiveness of Estonian companies:</i>
<ul style="list-style-type: none"> - More lasting state support to companies' export needs; - Continuing measures aimed at export and supporting cooperation; - More efficient use of foreign representations for supporting exporters.
Knowledge-based Estonia
Prefer supporting development of competitive technologies, products, services or processes that are export-oriented and sustainable
Entrepreneurship policy
<i>Supporting internationalisation:</i>
<ul style="list-style-type: none"> - Developing exporting capacity of Estonian enterprises (expansion into new markets, joint marketing, participating in foreign fairs, export guarantees); - Providing services that support internationalisation of enterprises (supporting companies by searching technologies in international markets, creating support network in foreign markets, providing information services – access to databases, intermediating contacts); - Other activities of the public sector supporting internationalisation (promotion of Estonian brand, servicing foreign investors).
Made in Estonia
<i>Simplifying entry into foreign markets:</i>
<ul style="list-style-type: none"> - support measures for export marketing; - support measures for hiring export managers; - state-sponsored marketing programmes.
<i>Supporting exporters on target markets:</i>
<ul style="list-style-type: none"> - promoting Estonian export industries; - creating positions of export counsels at Enterprise Estonia; - creating export incubators in most important markets; - proactively developing export opportunities.
2.3. Public sector involvement, public sector demand
Knowledge-based Estonia
<ul style="list-style-type: none"> - Stimulating demand for new technologies, e.g. through public procurement - Starting technology foresight; - Application of R&D&I in government offices.
Made in Estonia
<i>Aligning foreign policy with export promotion:</i>
<ul style="list-style-type: none"> - Developing foreign economic strategies; - Organising visits of business delegations into target markets; - Increasing the business component in foreign visits of top politicians; - Improving the work of bi- and multilateral economic commissions; - Developing the network of double taxation avoidance treaties.
3. Measures for creating access to financing
Estonia 2020
<ul style="list-style-type: none"> - Making state's support measures to entrepreneurship more effective – substituting subsidies with financial instruments like guarantees etc;

<ul style="list-style-type: none"> - Creating financial instruments to support manufactures' technology investments. - Launching a financial instrument for offering venture capital to start-up's; - Ensuring access of Estonian companies to the global venture capital market; - Creating a system for assessing the impacts of entrepreneurial subsidies; - Consolidation of entrepreneurial subsidies.
Knowledge-based Estonia
<ul style="list-style-type: none"> - Support development of competitive technologies, products, services or processes that are preferably export-oriented and sustainable; - Provide early-stage venture capital investments to R&D intensive companies.
Entrepreneurship policy
<ul style="list-style-type: none"> - Improving access of SMEs to capital (guaranteeing microloans to starting entrepreneurs, launching a venture capital fund, bridge-financing to rapidly growing small enterprises, state guarantees to different credit instruments); - Supporting investments (support to start-up companies, supporting investments into new technologies, supporting infrastructure investments in regions); - Developing angel networks and intermediation of contacts (supporting investor networks through training and international cooperation, intermediation of contacts between entrepreneurs and foreign investors).
Made in Estonia
<i>Simplifying access to foreign markets:</i>
<ul style="list-style-type: none"> - Providing export guarantees; - Developing a package of financial measures for an exporting company.

4. Measures to create and diffuse knowledge

R&D and Innovation activities, Cooperation, Knowledge transfer
Estonia 2020
<i>Creating preconditions for increasing the volumes of R&D in the private sector and rising the number and quality of innovation outputs:</i>
<ul style="list-style-type: none"> - Promoting R&D and innovation of companies operating in Estonia; - Supporting R&D intensive FDI to Estonia; - Providing systematic support for young, innovative enterprises; - Supporting transfer of knowledge and skills; - Improving the attractiveness of Estonia as a place to live; - Analysing the need for changing the incubator financing mechanism; - Launching a support measure for promoting the use of R&D infrastructure.
Knowledge-based Estonia
<i>Improving innovation capabilities of businesses:</i>
<ul style="list-style-type: none"> - Supporting growth of awareness and competences related to strategic innovation management and development (including support to hiring Estonian and foreign development specialists); - Supporting application of Estonian and foreign technologies in businesses; - Supporting economic clusters and cooperation of enterprises; - Development of science and technology parks and incubators; - Organisation of competitions for business ideas; - Developing technology transfer centres at universities; - Launching new technology centres and supporting existing ones for starting long-term, market oriented cooperation projects between enterprises and science and

research institutions.

5. Measures related to entrepreneurial skills

Entrepreneurship education, attracting qualified labour, entrepreneurial training
<i>Estonia 2020</i>
<i>Improving international competitiveness of tertiary education:</i> <ul style="list-style-type: none"> - Support immigration of highly qualified specialists; - Create possibilities for foreign students to remain working in Estonia; - Increasing the number of post-graduate students; - Increasing state funding for tertiary education in fields of education having key importance for Estonian economy; - Promote short-time studies of Estonian students in foreign countries.
<i>Entrepreneurship policy</i>
<i>Improving knowledge and skills:</i> <ul style="list-style-type: none"> - Developing knowledge and skills of entrepreneurs, managers and employees through training and lifelong learning; - Consulting start-up enterprises with growth potential and international ambitions in fields that boost performance in productivity, growth and competitiveness.
<i>Made in Estonia</i>
<i>Improving access to export-related knowledge and improving skills:</i> <ul style="list-style-type: none"> - Developing export awareness; - Developing export-related skills (including development of knowledge and skills for managing international value chain and outsourcing of production into countries with cheaper labour); - Developing knowledge of foreign languages.

6. Measures related to entrepreneurial culture

Attitude to entrepreneurship, entrepreneurial mindset
<i>Knowledge-based Estonia</i>
<ul style="list-style-type: none"> - Developing supportive attitudes towards innovation in public institutions; - Improving innovation awareness of Estonian society and valuing innovative entrepreneurs.
<i>Entrepreneurship policy</i>
<ul style="list-style-type: none"> - Increasing awareness of existing and potential entrepreneurs, managers, investors and engineers on innovation, technology, internationalisation; - Using a single internet portal for providing information on entrepreneurship; - Develop knowledge of politicians on promoting entrepreneurship; - Increasing awareness on innovation and entrepreneurship of different groups in society; - Improving entrepreneurship and innovation-related knowledge of teachers and scientists.

7. Measures related to other fields

7.1. Foreign Direct Investment
<i>Estonia 2020</i>
<i>Attracting FDI into sectors with greater export potential and higher value added than</i>

currently:

- Attracting high value FDI with key impact on shaping of supply chains and transferring knowledge and skills;
- Support measures aimed at serving foreign investors;
- Develop local government infrastructure to deal with regional investor service;
- English language information materials for promoting hiring of workforce;
- Use of the internet portal www.eesti.ee as a single contact point for foreign investors to be simplified;
- Developing a comprehensive talent programme and improving the availability of foreign-language education in Estonia.

Made in Estonia

Approaching potential investors:

- special offerings for targeted sectors;
- cooperation with research programmes;
- building the local value chain for new investments.

Promotion of the investment climate, sector-based branding:

- providing detailed information on targeted industries;
- promotion of investment opportunities in targeted industries;
- promotion of Estonian business environment;
- influencing general attitude towards Estonia.

Developing support measures for investments:

- simplifying process of selling state-owned land;
- developing industrial parks;
- supporting investments into infrastructure;
- training of the workforce to the needs of the investor;
- creating a network of contact persons.

Developing international transport connections:

- increasing the number of direct flights;
- improving interconnectivity between different means of transport;
- developing sea container transit.

Developing a competitive business environment:

- analysing labour taxation principles;
- changing tax environment for bringing head offices of international companies to Estonia;
- developing special tax measures for supporting innovative companies;
- defining measures for promoting Estonian residency.

7.2. Infrastructure

Estonia 2020

Bringing transportation, ICT and other public infrastructure and institutions that support business to an international level:

- Devote more attention to international connections, especially direct flights and cross-border railways and roads;
- Continue establishing quality high-speed Internet coverage.

Appendix 2: Overview of policy recommendations of the Estonian Development Fund

Vision	<p><i>Leading to a globally competitive and locally attractive Estonia:</i></p> <ul style="list-style-type: none"> - Changing the nature of economic policy from maintaining favourable general business environment to focused and spearheading changes; - Well targeted economic policy, focuses have been selected on the basis of analysis and developed in cooperation between the private and public sectors; - Policies in the fields of education, R&D and immigration support the focuses of economic policy.
Entrepreneurial determinants	
Market conditions: focus areas	<ul style="list-style-type: none"> - Focusing on new growth areas – environment and renewable energy, health and wellness products and services, financial services, international supply chain management; - More emphasis on ambitious start-up businesses and smart foreign direct investments. <p><i>Moving up the value chain:</i></p> <ul style="list-style-type: none"> - Boosting value added by moving towards product development, brand ownership and development or into higher value chains; - Moving into business areas with the greatest growth potential, like environmental and renewable energy products or health and wellness products; - Choosing the right export markets – wealthy, but saturated “Old Europe” marked by sluggish growth, rapidly growing Eastern Europe and the CIS states or big faraway markets marked by the highest growth rates.
Access to foreign markets	<ul style="list-style-type: none"> - More active foreign economic policy is needed, including promoting Estonia’s topics of interest in international organisations; - Preparatory work on faraway but rapidly growing emerging markets, including building the network of Estonian representation abroad; - Support entry to foreign markets in new growth areas – joining thematic networks, create national brands and develop regional strategies into new markets. initiate bilateral programme.
Public sector involvement	<ul style="list-style-type: none"> - Integrating economic policy with other policies and activities; - Aligning foreign policy with priorities of economic policy.
Access to financing	<ul style="list-style-type: none"> - Focused support to new, rapidly growing areas and to higher value added in traditional business areas, including providing venture capital; - Targeted activities for attracting FDI and creating to companies access to capital markets; - Set a focus for bringing FDI to new growth areas (active search, incentivise foreign investors that bring a significant part of the value chain to Estonia, create national brands).
Creation and diffusion of knowledge	<ul style="list-style-type: none"> - Create environment for foreign talents; - Ensure required skills and knowledge – international and national education in new growth areas, attract foreign specialists, integrate subjects from these fields in other study programmes; - Initiate growth programmes – conduct foresight, raise awareness in global

	trends, establish cooperation platforms; - Creating road maps for applying ICT in focus areas.
Entrepreneurial skills	- Providing business administration courses within ICT education in order to improve sales and development skills of ICT companies; - Education of entrepreneurs what are high growth enterprises, how they function and what are pluses and minuses.
Entrepreneurial culture	- Valuing risk-taking, learning from mistakes and using failures as lessons in the start-up culture and outside it; - Support entrepreneurs that have tried something on the global level, even if they have failed; - More knowledge of different cultures and more tolerance of differences.

Appendix 3: List of interviewed persons

Name	Position and Company/Insitution
Aavo Kokk	Management expert; Managing Partner at Catella Corporate Finance
Allan Martinson	Entrepreneur and venture financing provider; Managing Partner at MTVP, a private equity company focusing on financing technology companies in the Baltics and Russia
Fjodor Berman	Entrepreneur; Founder and CEO of BLRT Grupp, the largest Estonian-owned manufacturing company in Estonia
Hans Luik	Entrepreneur; Founder and Member of the Supervisory Board of Ekspress Grupp, the largest Estonian-owned media group in Estonia
Hardo Pajula	Economist; Macro Analyst at SEB Bank; Lecturer at the Estonian Business School
Heikki Haldre	Entrepreneur; CEO and Co-Founder at Fits.me, a biorobotic company that launched the world's first virtual fitting room
Ilmar Pralla	Government expert; Director of Innovations Division at Enterprise Estonia
Indrek Neivelt	Angel investor and entrepreneurship expert; Chairman of the Supervisory Board at Bank of Saint Petersburg; Co-owner of Ldiamon, a producer of optical sensors and measurement equipment; Former Chairman of the Supervisory Board at Estonian Development Fund
Ivar Siimar	Angel investor; Council Member at Click and Grow, a producer of electronic flower pots; Council Member at Defendec, a producer of smart sensors
Kaie Nurmik	Government expert; Expert at Technology and Innovation Bureau at Ministry of Economic Affairs and Communications
Linnar Viik	Innovation and IT expert; Rector at Estonian IT College; Member of the Governing Board of European Insititue of Innovation and Technology; Co-owner at Mobi Solutions; Member of the Business Advisory Board of Nordic Investment Bank
Margus Uudam	Venture capital provider; Head of Venture Capital Investments at Ambient Sound Investments, a seed investment company of founding engineers at Skype; Former Deputy Secretary General at Ministry of Finance
Meelis Kitsing	Government expert; Director of Economic Analysis Bureau at Ministry of Economic Affairs and Communications
Piret Treiberg	Government expert; Director at Enterprise Bureau at Ministry of Economic Affairs and Communications
Rain Rannu	Entrepreneur; Founder, Member of the Board and VP of Starting Stuff at Mobi Solutions, a leading mobile services provider in the Baltic countries; Co-Founder of Estonian Startup Leaders Club; Co-Founder of Garage 48 Foundation
Rainer Kattel	Entrepreneurship expert; Professor and Chair at Chair of Innovation Policy and Technology Governance Department of Public Administration at Tallinn University of Technology
Raivo Vare	Entrepreneurship expert; Chairman of the Supervisory Board at Estonian Development Fund; Former Minister of Transport and Communications
Sergey Babitschenko	Entrepreneur; Founder and CEO of Laser Diagnostic Instruments, a manufacturer of electro-optical equipment; Chairman of Baltic Photonics Cluster

Sten Tamkivi	Manager, angel investor and entrepreneurship expert; General Manager at Skype Estonia, the R&D center of Skype Inc.; Advisor to President Toomas Hendrik on matters related to information technology, innovation and entrepreneurship
Taavi Kotka	Entrepreneur; CEO and owner at Webmedia, the largest software developer in Estonia
Üllar Jaaksoo	Manager and entrepreneurship expert; CEO at NOW! Innovations, one of the leading mobile parking services providers in the world; Former Chairman of Supervisory Board at Enterprise Estonia

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