SPEEDING UP OF LITHUANIA’S ECONOMY VIA GLOBALIZATION

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Lithuania after two decades of the post-communist transformation and large scale experimentation with the European integration needs to dynamize and modernize the economy to arrive at viable 21st Century global models. Lithuania also needs to adopt very bold and innovative ways to “sell” to the world its extreme austerity sacrifices during the continuing period of global Great Recession and its earlier periods of bold systemic transformations as well.

By 2013, we have arrived at the critical amount of experiential knowledge and it is a high time to manage this knowledge for a much more realistic new understanding and more efficient governance of new risks and evidence-based policies in market economies fit for the 21st Century.

The big problem is that so far Lithuania’s changing economic models could not fully deploy its human resources in the modern way. The economy is still beset by the Soviet legacies and this constitutes the barrier to effectively employing human resources that are increasingly educated in modern ways at home or abroad. So the dual problem is that Lithuania badly needs modern human resources for its further rapid and modern development but at the same time there is not enough effective demand for them due to the outdated political-economic and financial structures and other still lingering Soviet legacies.

The big challenge before the country therefore is how to target the entire globe as Lithuania’s (current or potential) market in order to induce entirely new perspectives and actually create many more advanced opportunities for the young, newly educated people. If this problem is not solved in time, many will emigrate and thus condemn Lithuania to further transitional periods in its development on Europe’s periphery.

The new methods of strategic management and competitiveness-boosting networking based on knowledge management are presented in the article. The article shows how Lithuania can benefit integrating education, research and business fostering innovations which catalyze the creation of added value. Two key aspects of today’s knowledge-based economy: knowledge creation and knowledge transfer to businesses are presented in the article. Lithuania’s long term goals are to develop higher education and higher added-value market niches that will precisely call upon the new human resource capabilities to create innovations which catalyze the creation of added value.

The thrust of this paper is to show how the general trends of the higher education and globalization can be adapted to conditions of Lithuania. Special attempt is made for analysis of local business problems and solutions which are relevant to Lithuania in the context of knowledge and globalization. In this context special attempt is made for developing new business strategies which play roles of key drivers in moving Lithuania’s economy towards radical knowledge-based economic changes.

The aim of this paper is to reveal pillars of competitiveness and trends of knowledge – based economy development in the world, the EU and Lithuania in particular; to analyze the KEI (knowledge economy index) by outlining the main characteristics of knowledge based economy.

Lithuania’s long term goals are to develop higher added-value market niches that will precisely call upon the
Lithuania’s new human resource capabilities to create an entrepreneurial economy that is integrated continentally and globally. Special attempt is made to higher education having target to accent collaboration between higher education and knowledge intensive business as priority and starting position in speeding up of Lithuania’s economy via globalization.

1. Global economic challenges towards competitiveness and growth

The global economic situation as presented in Global Competitiveness Report of 2011-2012 shows that after a number of difficult years, a recovery from the economic crisis is tentatively emerging, although it has been very unequally distributed: much of the developing world/China, India/ is still seeing relatively strong growth, despite some risk of overheating, while most advanced economies/Japan, USA/ continue to experience sluggish recovery, persistent unemployment and financial vulnerability, with no clear horizon for improvement. In addition, rising commodity prices are eroding the purchasing power of consumers and are likely to slow the pace of recovery. Such uncertainties are being exacerbated by growing concerns about the sustainability of public debt amidst the recession of some economies such as Cyprus, Greece, Ireland, Italy, Spain, and the eurozone in general. The damage that would be wrought by the first sovereign defaults among advanced economies since the 1940s is impossible to gauge, although the mere possibility of this eventuality has already hit investor confidence, put the very viability of the euro into question, and further undermined the US dollar’s value and its place as the world’s preferred reserve currency (The Global Competitiveness Report 2011–2012).

According some researchers, the world economy (now turned global economy) is influenced as a subject to ebb and flows called long waves or Kondratieff waves (after a brilliant Russian economist who proved the existence of long waves). These waves are about 50 years long (give or take 5-10 years or so) and are usually caused by major technological breakthroughs. Last such a long wave started in 1950s and lifted all the boats of the Western world emerging from the war with pent-up demand and cranked up by the Marshall Plan and other US aid but underwritten, so to speak, by a new technological paradigm (cars, highways, TV, space research, etc). What followed in the 1950s and 1960s was a period of sustained and high growth of about 4% per annum and 4% inflation, very moderate by the yardstick of those times. So we had good (4% and 4%) times during the 1950s and the 1960s.

Some half a century later, we are again experiencing a new flow in the global economy brought about by the information & communications technologies (ICT) revolution this time, especially the internet revolution which, as far as the potential impact on our lives is concerned, can only be compared to the invention of print by Johannes Gutenberg some 500 years ago. The Internet’s effect on the global economy can be compared to the reverse (or positive) oil price shock. The Internet is bringing lower prices or slows inflation down (not pushes it up as was in the year 1973 the case with oil price increases by OPEC) and higher economic growth (not depression caused by higher oil prices in so oil-dependent Western economies). If you study the economic history of the world, all great technological revolutions (breakthroughs like invention of paper, steam engine, cars, railways, TV, computers, mobile telephones, internet, etc) brought similar great benefits to humanity.

The transition towards direction of competitiveness & growth requires us to understand what theoretical and methodological potential social sciences and separate economies need for to do its job and to justify the confidence and the support of the population.

The social science in Europe needs well trained scholars, the resources of time and equipment to gather data, skills and tools for to analyse the multifaceted information and finally, the social science need willingness of policy makers to listen to the evidence and to conclusions of social scientists for the ability to communicate its findings for solving local problems which arise from global context.

2. Global tendencies in development of knowledge based economies

Knowledge is a power. In today’s era of knowledge based economies, constantly changing business environments, severe competition, and globalization, gaining the knowledge edge will greatly empower an organizations to stay on the cutting edge. Technological developments in the 21st century have transformed the majority of wealth-creating work from physically-based to “knowledge-based.” Technology and knowledge are now the key factors of production. With increased mobility of information and the global work force, knowledge and expertise can be transported instantaneously around the world, and any advantage gained by one company can be eliminated by competitive improvements overnight. The only comparative advantage a company will enjoy will be its process of innovation-combining market and technology know-how with the creative talents of knowledge workers to solve a constant stream of competitive problems—and what is important that we have ability to derive value from information. We live now in information society where a knowledge economy and knowledge management is essential.

This paper aims at emphasizing knowledge based economy and knowledge management in the new information society.

Knowledge – based economy is constantly renewed and competitive economy of new knowledge, the core of which is to apply new knowledge in economic processes.

The success of knowledge economy depends on the interaction between national knowledge basis and innovation systems.

Development tendencies of knowledge – based economy in different countries and regions are variable. The authors of scientific research maintain that the USA is a cradle of knowledge economy and forecast that the same development trends will continue till 2020 (Global Trends 2015, 2000; Mapping the Global Future, 2004).

According to an experts, Japan is one of the leading countries in knowledge – based economy. But the following question arises: at what level is the EU?

The aim of the Lisbon Special European Council of 23-24 March 2000 was to invigorate that EU should become the most competitive and dynamic knowledge – based economy in the world.

The implementation of the Lisbon Strategy provided for developing research and innovatory enterprises by creating
innovations in all fields of human activities, by creating and using new technologies, by promoting competition, by supporting education, improving the social policy and consolidating the free market.

3. Tendencies in European Union knowledge based economies development

Looking at the current region of European development trends it seems that the initial implementation of the Lisbon strategic goal was difficult, that’s why in 2004 it was reassessed and the goal was revised. That strategy was based on three main directions of the development: research and innovations was the main propeller of the growth for Europe having target Europe to become more attractive to investors and businesses. This could be done by consolidating the social model of Europe, which was based on a general activity and a larger social community.

The following directions can be distinguished: competence of the population and the social community, the resumption of public administration and knowledge – based economy. To ensure a rapid development of knowledge economy, it is important that macro economy should be stable and strong. The Knowledge economy index (KEI) as a tool should devote attention to the comparison and development tendencies calculated by the World Bank. According to the calculation results of the World Bank, Denmark, Sweden, Finland, Holland, and Norway which are overtaking the USA and Japan, are leading countries. The UK and Ireland are overtaking the USA, which is left in position 9. Unfortunately, Japan stays in position 20 (8,42).

KEI makes calculations by measuring the main characteristic of knowledge. At the present time Sweden is the leader in the development of knowledge economy, KEI reached 9,51. Finland is in the second place (9,35), next comes Holland (9,35), Norway (9,31), Canada (9,17), UK (9,10), Ireland (9,5), USA (9,02). Lithuania is in the thirty first position (7,77), in 2006 it was in the thirtieth. Latvia is in position 21 (7,65). The Baltic States’ leader is Estonia (8,42), which is 20 position in, it means, that Estonia is one step behind Japan.

When comparing the results of different countries we can see that European countries are leaders. Also, if we compare 2006 and 2009 years, we see that situation was changed and the leaders were European countries too. According to the 2006 data the Oceanic region was in the first place (8,71), Western Europe was in the third position (8,27), and Europe and Central Asia were in the fourth position (6,02). This year the situation has changed and is Western Europe occupies the first position (8,76), the G7 region is in the second position (8,72), Europe and Central Asia are third (6,45), Eastern Europe and the Oceanic Region come fourth (6,41), the fifth place goes to all World countries in which KEI is indicated (5,95), Middle East and North Africa are in the sixth position (5,47), Latin America is seventh (5,21), Africa is eighth (2,71) and South Africa is in the last position (2,58).

4. Knowledge based economy creation process: the challenges for Lithuania

A national political consensus was reached and the national agreement was signed calling for Lithuania to become a knowledge-based economy. The term “knowledge economy” has been coined to reflect the increase importance of knowledge as a critical factor for economic performance. Lithuania together with researchers in different European countries was prepared for developing collaboration and scientific synergy in areas where European scale and scope are required to reach the critical mass necessary for top-class science in a global context. And it comes at the right time for a global community that seeks new and effective approaches to numerous challenges facing humanity, each of which transcends the borders of any particular state.

A knowledge based economy is one where organizations and people acquire, create, disseminate and use knowledge more effectively for greater economic and social development. This requires:

- An economic and institutional regime that provides incentives for the efficient creation, dissemination and use of existing knowledge.
- An educated and skilled population that can create and use knowledge or in other words critical mass that values knowledge capital that sustain a culture that values knowledge.
- A dynamic information infrastructure that can facilitate the effective communication, dissemination, and processing of information.
- A system of research centers, hubs, universities, think tanks, consultants, firms and other organizations that can tap into growing stock of global knowledge, assimilate and adapt it to local needs.

The decision was made, that further development of the knowledge economy infrastructure (e.g. better access to high-speed Internet) is needed. That will necessitate a better public sector-private sector collaboration so as to arrive at innovative management models and strategies underpinning the knowledge economy in Lithuania. In the 21st century the world’s economy is more oriented to transition.

Europe has recognized Lithuania as the prime transport centre in the region linking the EU and East. Therefore country is prepared to become a part of two EU priority transport corridors: West – East and South – North.

North-South direction: 1 corridor (the VIA BALTICA highway and the RAIL BALTICA railway), connecting

<table>
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<tr>
<th>Region and country</th>
<th>Knowledge economy index (World Bank)</th>
<th>Economy incentive regime</th>
<th>Innovation</th>
<th>Education</th>
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<td></td>
<td>1995</td>
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<td>World</td>
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<tr>
<td>USA</td>
<td>9.11</td>
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<td>Japan</td>
<td>8.48</td>
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<td>Lithuania</td>
<td>5.91</td>
<td>7.17</td>
<td>7.77</td>
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East – West corridor: IX corridor, IX B corridor branch (Kiev - Minsk - Vilnius - Klaipėda) and IX D corridor (Kaunas - Kaliningrad).

These corridors are as a key for an effective development, safe and environmentally friendly handling of the increasing amount of goods going East – West and North – South. Moreover, it helps to enhance sustainable transportation and smart IT solutions in the field of transport. As a result, these corridors stimulate the economic growth and business development.

Having target to gain ranking and competitiveness, government has set a strategic goal for Lithuania to become the Northern Europe Service Hub by 2015-2030 with the share of exports of services making approximately 1/3 of Lithuania’s total exports and 1/3 of total FDI in Lithuania settling down in the service sector. We believe that Lithuania is the ideal venue for such transnational hub, cause its citizens are concerned with activities within its borders and Lithuania also viewing itself deeply as part of the global world.

5. New nature of business and transition of Lithuania towards knowledge based economy.

The 21st century knowledge revolution created new opportunities and possibilities for the access and use of knowledge and information. The transition towards a knowledge economy required from policy makers to understand the comparative strengths and weaknesses not only their countries but economic systems also and then act upon them to develop appropriate short and long term policies and investments.

Corporations need to change the ways they do business, they must become more flexible, amorphous networks of international entrepreneurs and knowledge managers working on particular projects. How such corporations should be governed is a new challenge before the managers working under the conditions of the global knowledge economy.

In the global economy any country, if it is serious about rising its standards of living must open its economy so as to avoid itself of opportunities of trade, interact with and learn from it. Modern growth strategy was developed at Harvard by M.Porter (Porter, M., 1990), where the (A, B, C, D) stages of competitive development of the nations were presented. A.Lahti (Lahti, A., 2007) resumed Porter’s economic growth stages presenting them in the form of chart and named them like Global Challenge and the new economics. Some years later authors of Global competetiveness Report 2011-2012 presented competetiveness as the set of institutions,policies and factors that determined the level of countries productivity and presented them in form of competetiveness pillars which was mentioned as a key factors in explaining any economies growth potential on factor-driven,efficiency-driven and innovation-driven stages. (fig.2).

Stage A: Factor-driven. Practically, any of the internalized or globalized industries have drawn their competitiveness from the basic factor conditions, such as low-cost labor and access to national resources. Firms typically produce commodities more than specialities. The rate of technology and R&D investments is low. The local economies are highly sensitive to fluctuations in commodity prices and exchange rates. There are only a few truly international firms. Domestic demand for exported goods is modest. The role of foreign firms is considerable, as they act as a channel for foreign markets and they bring foreign technology, knowledge and management with them to the host country. Technology is assimilated through imports, imitation, or foreign direct investment (Lahti, A., 2007). Key for factor driven economies are: institutions, infrastructure, macroeconomic environment, health & primary education.
Stage B: Investment-driven. In the investment-driven stage, countries develop their competitive advantages by improving their efficiency in producing standard products and services which become increasingly sophisticated. While the advanced technology still comes mainly from abroad, with licensing and joint ventures, local firms’ invest in process technology and modernization of production facilities etc. Firms often produce under contract to foreign manufacturers that control marketing channels. Home demand is still rather undeveloped, and related and supporting industries are not functioning optimally. It is typical to this stage that wages and input prices are higher than before and employment is increasing. Public policy concentrates on long-term matters. One of the major areas are infrastructure projects. Harmonization of customs, taxation, and corporate law may allow the economy to integrate more fully with global markets (Lahti, A., 2007). Main keys for efficiency driven economies are: higher education& training, efficiency of goods market, labor market efficiency, financial market development, technological readiness and market size.

Stage C: Innovation-driven. In the innovation-driven stage, the number of industries operating successfully at international level increases and broadens. Firms create new technologies and methods and compete with low costs due to high productivity rather than low production factor costs. Home demand increases and becomes more sophisticated. Clusters are well developed, fostering innovation and technological change. A country’s competitive advantage lies in its ability to produce innovative products and services at the global technology frontier using the most advanced methods. Institutions and incentives supporting innovation are crucial for further development. The economy becomes stronger against outer shocks, like cost shocks, because of its ability to compete with technology and product differentiation. Improvements related to externalities, market imperfections and incentives are important to develop the well-functioning factors, product and financial markets (Lahti, A., 2007). Main keys for innovation driven economies are: innovation and sophistication factors, such as, business sophistication and innovation.

Stage D: Wealth-driven. Unlike other stages the wealth-driven phase is driven by past accumulation of wealth and becomes unable to generate new wealth. Firms become more vulnerable to uncompetitiveness. They innovate less and the investment rate decreases. Employees begin to lose motivation and so on. The result is that firms lose competitive advantage compared with foreign firms and may even start to move their headquarters from their original home country to other countries. The standard of living and welfare is still rather high. The policy attempts in this stage try to increase the dynamism of the economy, innovations and profitability (Lahti, A., 2007).

First three stages involve successive upgrading of a nation’s competitive advantages and will be associated with progressively rising economic prosperity. The transition through the four stages is not automatic since countries may get stuck in a stage. Most investment-intensive economies are finding that their relatively high-cost labor make them vulnerable from really lower-wage countries, such as China, India.
6. Business environment and infrastructure as a key driver for Lithuania’s move towards dynamic and knowledge based growth.

Lithuania has been leading the post communist world in economic and political reforms, shedding development retarding legacies of the occupying power (USSR), and trying to re-join the global village after some half a century of the Soviet occupation and the resultant destruction of ties to the world. Since 1990, Declaration of Independence, LT has gained a unique global recognition, even admiration, for its valiant and peaceful freedom-seeking anticommunist revolution and thus amassed a lot of global political capital and global good will.

As was mentioned before the big challenge before the country therefore was how to target the entire globe as Lithuania’s (current or potential) market in order to induce entirely new perspectives and actually create many more advanced opportunities for the young, newly educated people.

a) Location and infrastructure

Having in mind that the French National geographic Institute has concluded that Europe’s geographical centre is situated 26 km North of Vilnius (this is now registered in the Guinness Book of World Records), Lithuanian business market is very easy to access, because of the geographical proximity, which can serve for incubation of new technologies. Moreover location of the country which imagine it’s business opportunity to be in crossroads of such three huge markets: EU (Western Europe and Scandinavian), BSR (The Baltic Sea Region Innovation Network), and Eastern market (Russia and CIS (Commonwealth of Independent States)), in which operates more than 700 million customers, create opportunities for companies expand their competitive edges moving their activities out of the region generating ‘spread’ of technological innovations globally(fig.3).

Figure 3. Lithuania on the crossroads of the three huge markets.
Source: www.investlithuania.com

Starting the Presidency in the year 2013, Lithuania is a member of the international organizations and unions such as World Trade organization since (2001), European Union since (2004), NATO since (2004) and Schengen since (2007). Therefore Lithuania ensures free trades between numerous markets, gets possibility to provide for customers more choices and broader range of products and qualities, and most importantly stimulates economic growth. Moreover, these memberships allowed Lithuania’s access to developed markets at the lower tariffs and ensure free traffic flow at internal borders. Additionally, country gets international support and cooperation. And finally, membership makes easier and cheaper doing business in other countries and helps to expand and develop Lithuania’s business market and environment as well.

The widening and deepening of the European integration markedly increased competitive pressures, so companies began looking for new, sustainable and dynamic advantages. Given that the continent is aging pretty rapidly and immigration presents a problem for a number of reasons, a shortage of qualified labor is developing, which can be best addressed by taking advantage of the digital/knowledge revolution and of the potential of new EU members such as Lithuania.

Under these circumstances, a better use of the continent’s resources has become critical to winning the competitive game or surviving in the unified Europe and the integrated world. Large European and multinational corporations (e.g. BT, Buckman Labs, Nokia, Siemens, Barclays Bank, Computer Science Corporation, etc) were the early adopters of new thinking. They first realized that high initial costs of research, human/intellectual capital costs, etc, are efficiently spread only over longer periods and larger geographical areas. The vision they have, specifically their new-frontier mentality and the ability to develop integrative thinking across functional areas of business, not only at the highest management levels but, what is even more important, at lower management levels resulted in knowledge-sensitive enterprise cultures and the resultant organizational learning regarding new business models and strategies. Also, such issues are pretty high on the EU institutions’ agenda (e.g. Lisbon Strategy). The unique European competitive advantage (e.g. compared to the USA) is that EU institutions are able to give push and pull to many continent-wide initiatives that fall within the public goods category (e.g. earlier adoption of continent-wide standards for mobiles, knowledge management practices, etc).

b) EU Policy Challenges for Lithuania (three targets):

1) Lithuania’s scenario - 2030, 2) EU debate on the 2030 energy and climate policy, 3) Renaissance of Lithuanian Industry (target re-industrialisation of industry according EU agenda: increasing the share of industry in GDP to 20 by the year 2020).

The chief criterion for Lithuania before to become a full member of the EU was the capability to withstand the European competitive pressures and become competitive and visible in globalizing world. While in the first period lower labor costs do provide certain competitive advantages pretty much across the branches of economic activity, this factor was of rather short duration in the case of Lithuania or other transition economies. Lithuania’s strategy was to develop higher added-value market niches that will precisely call upon the Lithuanian capabilities to create an entrepreneurial economy that is integrated continentally and globally. Knowledge economy provides such opportunities especially in the context of knowledge and innovation in the European and global business. The main goal was strengthening of Lithuania’s knowledge economy having target to catch up and surpass Western Europe in terms of dynamism. For that purpose was developed Lithuania-2030 scenario, where new challenges of values and challenges to the leadership was choosed as a priority. People not technologies were priorities.
In this scenario dynamism of the people was chosen as a prerequisite and dynamism of technologies was chosen as a destiny. Having in disposition dynamic and highly skilled talent pool: 30% of overall population with higher education, compared to the EU average (24%), 50% speaking two foreign languages, 49 higher education institutions (22 universities and 25 colleges), 7 universities and 8 colleges hold IT curriculums, 40% talent in science and technology, with leading in the world position in mobile e-signature, highest fiber optic density in Europe, world’s fastest upload internet in 2009, exemplary GSM penetration and densest network of public internet access points in Europe, Lithuania is a spring board to the single European market counting over 500 million consumers as well as to Eastern markets. Moreover Lithuania’s Economic freedom score 71.5 is making its economy the 23rd freest in the 2012 Index. Its overall score in the year 2012 was 0.2 point higher than in the 2011, with significant improvements in labor, fiscal and monetary freedom offset to a large extent by serious decline in the score for government spending. Lithuania was ranked 11th out of 43 countries in the Europe region, and its overall score was well above the world and regional averages.

Taking into account all these analyses, should be noticed that Lithuanian advantages are infrastructure, very good location and market features, additionally, country has quite good technological readiness and business sophistication. All these determinants make country open, competitive and most importantly ensure the possibility to dynamic growth and expand. However, some factors such as macroeconomic environment, labor market efficiency and financial market development affect country negatively and tend to weaken Lithuanian business environment and attractiveness.

Stable political and economic environment ensured by EU, NATO and WTO membership, Europe’s prime transport center, innovation driven knowledge economy (global laser, biotech, IT leadership), top quality talent pool, competitive business operation environment are those predicable arguments which show that Lithuania is more than prepared for radical start in to creation of innovative economy having target of countries economy re-industrialisation and creating innovations for entire world.

c) Strengthening of education and knowledge intensive business as a key driver for speeding up of Lithuania’s entire growth.

In the era of globalization Lithuania, a small nation without abundant natural resources, can survive only by transforming itself into a knowledge based society by promoting science and technology. Development of knowledge infrastructure during (2009-2010): huge investment of EU funds (10%) in two most advanced high –tech clusters around Vilnius and Kaunas Universities: “Sunrise Valley” and “Santara” Kaunas, major reforms in higher education and R&D market based competitive funding of studies, autonomy of Universities and the power of choice by students, business and government cooperation was a key drivers for radical start of cycling in to the dynamic growth. Lithuania continued to be one of the fastest growing in the EU over last 12 years (GDP 2000-2012). The dominant challenge for Lithuania was how to use a considerable theoretical research (e.g. biotech, lasers, etc) potential of the Lithuanian research institutes, universities and business. Therefore it was a need to develop a practice-oriented strategy for knowledge-based economy in Lithuania.

The biotechnology industry was one of a key allied industries in Lithuania, which has been developing since the 1990s and is regarded as one of the most sophisticated in Central and Eastern Europe. It is estimated that the sector employs 700 people, including 160 R&D employees, while its total annual revenues exceed EUR 50 million. The success of the Lithuanian biotechnology industry has been reinforced by the return of Lithuanian scientists who had spent over a few years abroad. However, the potential goes beyond this with a pool of 18,000 R&D researchers and specialists in Lithuania today. 15 research institutions carry out chemical and biochemical research on protein, enzymes and nucleic acid for pharmaceutical purposes, 16 institutions, including five major universities, train biotechnology and business specialists in cooperation with both domestic and foreign biotechnology companies. Nowadays on September 2012 Thermo Fisher Scientific Inc. (NYS: TMO), the world leader in serving science, announced the official opening its Molecular Biology Center of Excellence in Vilnius, Lithuania. The new facility is targeted to provide molecular, protein and cellular biology products to better serve growing demand from life sciences customers throughout Eastern Europe, and create new opportunities globally. The 156,000-square-foot Molecular Biology Center of Excellence is currently home to more than 400 research, laboratory and manufacturing personnel, with room for expansion. In addition to its geographically central location, Lithuania is known for its well-established commitment to innovation, highly skilled life sciences workforce and favorable economic environment. As part of Thermo Fisher’s investment in developing the scientific workforce in Lithuania, the company has collaborated with the University of Vilnius to construct a mobile biology laboratory for high school students that provides hands-on experience with molecular biology and DNA experimentation. Thermo Fisher also supports science education in Lithuania through a series of initiatives, including internships and scholarships that provide students with practical experience and financial support. Since acquiring Vilnius-based Fermentas International Inc. in 2010, Thermo Fisher has continued to invest in the region to capitalize on its base of world-class educational institutions and scientific research talent. By the year 2013 Lithuania is known and proud of innovations and inventions by its researchers. Our mentioned laser technology is another key allied industry, which has placed Lithuania on the global map. The success story of Lithuanian laser technologies was driven by fundamental and applied research in the field of laser physics and technology conducted in Lithuania already for more than forty years, strong science and manufacture collaboration infrastructure, professional training and availability of high quality specialists. The Lithuanian laser industry firmly positioned on the global market, holds more than half of the world’s market for high-energy pico-second lasers as well as ultra-fast parametric light generators. The Lithuanian laser sector players export about 85% of their products to 100 countries around the world. The majority-three quarters of total production is sold in Europe and North America. However the rapidly growing Asian market is another target for Lithuanian laser manufacturers. The Lithuanian laser industry is growing more rapidly than the global market: during period of 2003-2008, its sales increased by 140%, whereas the world wide
laser technology sector went up by 45%. In the year 2003, 8% of total production was sold on the local market while in 2008 this index amounted to twice as much. In the long run Lithuania’s laser industry presents attractive business expansion opportunities to foreign investors: long term (since 1966) laser development and manufacture traditions, leading Lithuanian laser equipment competitiveness in international markets. World’s first tunable laser wavelength NT200 produced by Lithuanian ISO9001 certified manufacturer of lasers, laser systems and components for R&D and industrial applications EKSPLA won the world’s best Scientific Laser award at the prestigious 2010 Prism Awards for Photonics Innovation in San Francisco. Global leadership in transferring fundamental research into manufacture; 11 science and laser technology research centers carry out fundamental research. About 85% of production exported to all continents. Annual sector growth of about 20% and largest share in value added created on the national market, one of the targets best educated, most-multilingual and highest quality talent pools. Currently 16 laser technology companies, employing over 450 highly qualified specialists operate in Lithuania. The number of employees increased more than twofold over the last five years. Every tenth Lithuanian laser industry professional holds a PhD.


As concerns educational institutions in European countries are still somewhat attached to the subject-based teaching/learning and this problem is therefore more pronounced in Europe than in North America. Nowadays higher education and universities all over the world are preparing themselves for new status quo and challenges which are predicted by social and economical processes and new business opportunities. Looking to the trends in global higher education, private education occupies leading positions and is on the rise. The global education market amounts to more than 2.3 trillion USD, with around 15% in the developing world. Private sector participation is growing while government regulations are becoming more liberalized. At the moment private higher education market is estimated to be worth more than 350 billion on current expenditures alone and is growing further. As concerns private sector of higher education in Lithuania, it is rather than week. Only 3% of university students study in private sector. Some competition appear when we look to the social sciences sector. Being more flexible, private institutions have a possibility to pay higher salaries and use foreign lectors, even some subjects possible to be bought from outside. In general, public sector of higher education in Lithuania is responsible for the most specialists available in the field of technologies, natural sciences, life sciences, humanities and arts. In nearest future the competition between universities should not be local but global. From our point of view, public universities in the short run will be the most important driving force for competitiveness of Europe in the future. Today Lithuania’s institutions of higher education are an European family member of 4700 higher education institutions with more than 12 million students. At present there are 22 universities (state and private) and 25 colleges in Lithuania. The country is well above the EU average by the proportion of students per 1000 to the total population aged 20-29 (LT-73.21; EU-52.8). Lithuania has switched over to the European model of higher education that makes a clear distinction between university and non-university studies. They are divided into undergraduate, graduate and postgraduate studies. The common time and workload framework allows for a bigger mobility of students and comparability of degrees and other higher education prospects. As concerns future of Lithuanian universities, they must be ready for new challenges which are posed by the internationalization of higher education, aging population, global energetic, climate and macroeconomic changes. Solving these problems universities must be prepared to identify, detect, analyze and prepare recommendations for new business opportunities which are most feasible to invest in. Universities should be both initiators and leaders in this activity and have to develop new curriculum and tools, new learning approaches such as learning by doing or learning by developing, implementation of which can combine aspects of innovation in learning and business. Moreover universities should be initiators and leaders of this activity not only in their local regions, but going international. On the agenda of higher education is internationalization, cross-border education, different policy rationales and approaches to cross-border education, etc. At the moment number of international students in Lithuania is less than one percent. Therefore, most of Universities have to develop the new policy challenges, new curriculum that applies to professors and students. Lithuania’s higher education is still looking for a better model of regulation of universities, for improvements which help Lithuanian universities to compete more successfully at global level. From this point of view many changes must to come from inside of the universities. This is due to internationalization and the rapid exchange of information, via programs for the mobility of academics, administration staff and students. Right now in spite of some achievements according Thomson Reuters “in the list of 400 European universities” Lithuanian universities are absent, only 1 Estonian and 2 Polish universities are mentioned. The higher education funding per student in Lithuania is only 3.100 € (compared to EU average of 8.600€). Lack of clear regulation and incentive structures within the public sector especially in universities is impossible or sometimes not regulated in standard contracts of university professors (limits to create a spin off from a university). Lithuania’s higher education is still looking for a better model of regulation of universities, for improvements which help Lithuanian universities to compete more successfully at global level. Today Lithuanian Universities must be prepared for new challenges posed by internationalization of HE, macroeconomic and demographic changes. They have to develop new curriculum and tools, that applies to professors and students, new learning approaches implementation of which can combine aspects of innovation in learning and business. Nowadays all over the world universities must be prepared for new challenges which are predicted by rapidly changing socioeconomic processes. They must be prepared to identify, detect and analyze new business opportunities. As mentioned before, on the agenda of HE is not only internationalization and cross-border education but very important tool such as educational export, which is very popular nowadays in UK and USA. But in case you wish to export, it is necessary to have products for export. Many of experts and professors see education as a public good, and not
as a commercial product. There are two overwhelming arguments for looking at HE also as something that can be sold: if we believe our HE system is good, we should make it available to the rest of the world. The second argument is more selfish. If we do not create new products for exports, such a country will become a poor country in the next twenty years. From this point of view many changes must come from inside of universities and must became demand-driven priority of leading universities in Lithuania. As was mentioned in Vilnius conference “European Higher Education in the World” by Androulla Vassiliou commissioner for higher education in European Union: “Internationalization of HE is the best response to globalization. To succeed in Global Economy universities must have competitive strategies prepared locally”. “Having in mind that the number of higher education students in the world is expected to quadruple, from 100 million in 2000 to 400 million in 2030, with particularly strong growth in Asia and Latin America. The key priorities for higher education institutions and EU member states are targeted towards comprehensive internationalization strategies.” (higher-education-in-the-world_en.pdf-Adobe Reader). Only some universities in Lithuania understood that internationalization is that vehicle and that frame of mind that can help support research networks, which are the lifeblood of the integration in to European and Global research. Lithuania’s minister of Higher education dr. D. Pavalkis in his interview for daily “Respublika” mentioned that nowadays Lithuania’s high schools have more then several thousands of study programs, actually too much. Also there are created different specializations of those study programs.” More then 70 study programs in the year 2013 not collected students (as a result amount of students in the year 2013 was reduced by 9%). All these facts, according minister show not achievements but weaknesses of some Lithuanian universities which required serious revision of their activities asap. Internationalization of higher education is demand-driven priority and must be on the agenda of leading universities in Lithuania, which can support emerging economies, developing and transition countries to build or strengthen their capacity of higher education. In case effect of globalization and internationalization of Lithuania’s HE not be achieved in time, there is a threat that Lithuanian HE system has become synonymous with mediocrity and backwardness. Bridging science and business or academic collaboration is a next target which is on the agenda how to survive under conditions of uncertainty, we have in mind conditions of Global recession.

7. Academic and knowledge intensive business collaboration as starting position for Lithuania’s move towards radical economic changes.

The theory-practice gap has been something of a problem inherited from the communist period, as are the inter-institutional collaboration shortcomings. One important aspect of that challenge is the interdisciplinary and cross-disciplinary nature of modern business models that mandates integrative thinking and puts a premium on those managers who are able to integrate functional perspectives. In today’s world in spite of global transformations separate market participants are unable to achieve good results which knowledge economy requires.

The key for solving problems are networks, based on the level of local intellectual capital. In the network of such knowledge institutions there are very popular objects of knowledge economy such as knowledge camps, houses, towers, islands, technological parks, valleys, transport hubs and science parks.

Five integrated R&D centers (valleys) were established in 2007 – 2009 years, two of which are in Vilnius (Santaria and Sunrise valleys of electronics, nanotechnologies, ITT and biomedicine), two are in Kaunas (Santaka and Nemunas valleys of ITT, mechatronics, chemistry and agriculture) and one maritime valley in Klaipeda.

These valleys, firstly, give possibility to access to skills and networking, i.e. concentration of scientists, researchers, developers and university academia, close collaboration of knowledge-intensive businesses with science and study institutions, opportunity to be co-located with other companies in the same sector (clusters) and region. Secondly, Lithuanian get advantages of research excellence i.e. open access labs, R&D projects supported by EU/state, application of research results in industry and business. Moreover, it ensures innovation and new technology development and comfortable conditions to establish new technology-oriented businesses – offices, labs and business incubators. Finally, it helps to increase international competitiveness.

By developing valleys in Lithuania it is sought to create clusters of research, higher education and knowledge-based economy of an international level, to speed up the creation of knowledge-based society and to strengthen Lithuania’s competitiveness. Valleys in Lithuania are created seeking concentrate, renew and optimize the infrastructure, which enable state-of-the-art technologies and other most promising sectors of science, technologies and business to be developed, relations between scientific research and higher education to be strengthened, close interaction between scientific research and higher education to be strengthened, close interaction between scientific research and knowledge-intensive business to be ensured, as well as to engage in training researchers and other specialists.

Also, it is sought to develop scientific co-operation of the highest level on the national and international scale, to attract necessary foreign investments of great intellectual potential, and on the basis of research and higher education, as well as knowledge-intensive business to create clusters of knowledge-based economy.

“Sunrise valley” in Vilnius is one of innovative centers, which was deliberately modeled after the Silicon Valley, California, where “Eastman Kodak”, “General electric”, “Intel Fairchild”, “Lockheed”, “Hewlett Packard” and other companies started and developed their activities.

Knowledge economy clusters are successfully created near Universities in different countries. Very successfully towards this direction are developing our neighbors-Nordic countries. In recent years Finland and Sweden twinkled their resources for R&D especially in the last decade that influenced growth of high tech level of production in exports of those countries. Technological parks “Kista” and “Technopolis” are well known knowledge economy clusters in all over the world. The neighboring country Poland also has great achievements in this field of activities. Poland is successfully developing 45
management is a wave of the future: chalengers for higher education, knowledge economy and competetiveness-boosting networking based on new economy via new methods of strategic management and underappreciated benefits for a nation like Lithuania.

entire “global village”. Globalization can provide huge and leadership; hence there is a need for Lithuania to go before the Lithuania’s people for the sake of the future which is the cannot properly reward the financial virtue and sacrifice of from those institutions will work.

In reality “Sunrise Valley” accumulated theoretical and practical potential of the best Lithuanian research Institutes, Universities, think tanks, consultants, firms and organizations and is ready to tap into the growing stock of global knowledge and adapt it to local needs.

In the long run (till 2015) “Sunrise Valley” the largest unit of Lithuania’s knowledge cluster must be developed into the largest innovation centre in the Baltic states, where high added-value products and services will be created. Such a vision for “Sunrise Valley” in the year 2005 was predicted by International Consortium “Centre for Strategy and Evaluation Services”, famous Technological parks from Great Britain, Sweden and experienced local business partners. According to the evaluations by the year 2015 in territory of 2,5 ha about 150 new high tech enterprises with more than 3000 employees will be created, among them: as mentioned above, Innovation Center for the development of laser and IT as well as the formation of business incubator and a scientific–technological park. It will be companies established by Universities and Research Centers, where students, professors and researchers from those institutions will work.

Conclusions

By the year 2013, it is rather than clear that Europe alone cannot properly reward the financial virtue and sacrifice of the Lithuania’s people for the sake of the future which is the most distinguishing trait of a responsible nation and a mature leadership; hence there is a need for Lithuania to go before the entire “global village”. Globalization can provide huge and underappreciated benefits for a nation like Lithuania.

The paper concludes that dynamisation of Lithuania’s economy via new methods of strategic management and competetiveness-boosting networking based on new challenges for higher education, knowledge economy and management is a wave of the future:

1) The transition towards a knowledge economy requires that policy makers understand the comparative strengths and weaknesses of their countries and then act upon them to develop appropriate short and long term policies and investments. It is essential for any country in developing structures for their knowledge based economies,to develop their own best practices based on their history,economic and cultural development.

2) Lithuania (LT) needs to adopt very bold and innovative ways to “sell” to the world its extreme austerity sacrifices during the continuing period of global Great Recession and its earlier periods of bold systemic transformations as well.

3) Under the conditions of deepening Eurozone crisis,Lithuania as a country with a growing economy must to be no longer badly cornered and unduly dependent on the moribund European Union which is distracted and disoriented by the cacophony of austerity/profligacy controversies, and actually rewarding free riders by default

4) Lithuania will need to develop it’s higher education via Internationalization of higher education and value-added market niches that will precisely call upon the Lithuanian capabilities to create an entrepreneurial economy that is integrated continentally and globally. Globalization provides such opportunities especially in the context of knowledge and innovation in the European and global business.

5) Bridging science and business together provides a compelling platform to research the issues of upgrading competitive advantage in developed countries and contract out non–core competencies to emerging markets.

Conclusion was made, that the general trends of the global knowledge based economy can be successfully adapted not only to conditions of Lithuania but can create the starting position to other developing and emerging market countries which are well advised to jump to these new opportunities as they represent the best chance yet to realize the “latecomer’s advantage” by leapfrogging to technologies and models of doing business which are new for Western countries as well. By help of offered strategy Lithuania can start a serious and sustainable growth and high value added job creation that would stem the dangerous bleeding of young, educated people and return them to virtual and dual networks for Lithuania.

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