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### NEW CHALLENGES FOR ACADEMIA–ECONOMY COLLABORATION

*The transition period from plan to market economy requires the adaptation of higher education structure and content to new challenges and needs of developing society. The development problems of the country are inseparably intertwined with the aims of the University. Tremendous changes in economy and society, as an avalanche, has descended upon the university. Many problems now have to be solved by universities: fundamental and applied research, know-how transfer, technical expertise, adopting of new standards, consulting, training, modern marketing and management, active participation in regional or state activities, etc. The internationalization of university, international mobility, studies of foreign languages and modernization of studies are other internal university tasks. Therefore, there is constant necessity for permanent training, development and renewing of university academic and scientific personnel.*

Lithuania is an East European or Baltic country with 3,7 million of population, located on the east coast of the Baltic sea and surrounded by Latvia, Belarus, Poland, Russia (Kaliningrad enclave). The density of population is 54,8 per sq.km. 68% of the total population live in towns. Administratively Lithuania is divided into 10 counties (provinces), which include in total 11 cities of national jurisdiction.

Vilnius (capital) county is located in southeast Lithuania, and is the largest county in the country. There are 906 thousand residents. All the county's institutions of higher education (three Universities and three academies) are in Vilnius, as well as all the county research and scientific institutions. Thus, the capital has the greatest concentration of academic and scientific elite in the country and the nation. The next biggest concentration of higher educational institutions is in Kaunas county. The county has 757 thousand residents and 6 higher education institutions with more than 17 000 students. Two more counties – Klaipeda and Siauliai – have one higher education institution each and another six counties have no higher education institutions. Concentration of higher education institutions in the few cities has positive and negative aspects. The unemployment rate among higher education diploma owners is higher in the areas with bigger density of higher education institutions but teaching staff quality is higher in the centers where business, industrial, administration and culture activities are more intensive.

In the middle of seventies the Government of Lithuania started implementation *uniformly distribute industry* policy. The development of ten new regional industry centers was declared. The outcomes of this long- range policy are seen very well. The fast growth of main industrial centers was declined, many social problems more or less were solved. The labor force for newly declared

centers were recruited from cities or neighboring countryside. Many educated people were attracted to those remote areas for social, administrative, engineering and etc. activities from the main industrial and cultural centers. The educated specialists (teachers, engineers, agronomists, social, cultural and medical workers, etc.) were recruited from all country's higher education institutions. The big industrial enterprises in new for Lithuania economy branches (nuclear power station, ship building factories, refinery, many industrial enterprises related with military industrial complex) recruited necessary specialists from different higher education institutions of the former Soviet Union. Lithuanian higher education institutions had some too narrow profile study programmes, graduates of which were distributed in such profile enterprises of the whole Union. The biggest part of industrial applied research was ordered from Union's central ministries and other organizations. Only a part of local intellectual potential was directly related to Lithuanian needs (in agriculture, Lithuanian language philology and some few other research fields). During the period of the transition to the market economy, Lithuania suffered an economic decline. The loss of the old market and economic relations, a sudden and considerable increase of price for energy resources and imported raw materials, orientation towards the Western market forced the re-structurization of the whole economy. Large, specific enterprises which used to sell their production exclusively in the Eastern market found themselves in an especially bad situation. Declining of part manufacturing industry was counterbalanced by increases in the service sector, establishing of a great number of state institutions which were necessary for functioning of the independent state. Trade, tourism, transport services and financial mediation expanded in the private sector. The present economic situation is still affected by various difficulties which are common to all post-communist countries in their difficult economic transformation process. Some additional difficulties arise after the South Asian, Russian and other global recessions.

The essence of the necessity of the present changes lies on the requirement to influence real economic situation of the country and the Baltic region, to respond to the social needs, to the needs for new technologies, innovations, new working places, to the necessity of strategic planing of industry infrastructure, integration to EU environment. Many years the higher education institutions (HEI) fulfil three main duties: education, training and research. Today HEI has a new obligation: fast technology transfer to customers and long life learning or continuous education service. The research function can no longer be limited to fundamental research, it must play active role in applied research and technology transfer. In general, the discussion is about how HEI can lead the way, through scientific research and technological training, in taking up the challenges of the surrounding world, saturated by the global market. HEI are coming across external pressure and choices which make HEI excellence very fragile. According to "Joint Declaration on the European Higher Education Area" signed by 28 European countries, *"a Europe of knowledge is now widely recognized as an irreplaceable factor for social and human growth and as indispensable component to consolidate and enrich the European citizenship, capable to giving its citizens necessary competences to face the challenges of the new millennium, together with an awareness of shared values and belonging to a common social and cultural space"* [1].

Already in 1991 "Law on Research and Higher Education" [2] was prepared. This law is based on the principle that the State supports and promotes research and higher education, and considers them to be of particular importance for the culture and economy of the Republic of Lithuania. The law legitimized the indivisibility of research and higher education, recognized research as a form of creative work, consolidated the scientist's academic freedom, professional and social guarantees of his activities.

Till the new law was passed the demands expressed by the society were addressed to the universities by the ministries and co-operation with the environment came to universities from centralized state institutions. From 1990 the society and environment came directly to the university without the help of state authorities. The universities become free to take in consideration environment's demands and wishes.



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- accumulate, systematize and disseminate the information about vacant job places in region and country enterprises according to corresponding professions and qualifications;
- inform enterprises and other public institutions of the number of annual graduates and undergraduates (bachelors, engineers and masters) according to their professions and specialization;
- propose university students' research potential for country enterprises to carry out the ordered works of consulting and designing;
- accumulate and systematize the information about the graduates' career during the first 3-4 years (number of companies or working places created by graduates themselves, other kinds of work, regardless of the profession gained, etc.);
- analyze the graduates' possibilities to find a job according to their profession;
- expand/increase participation of VGTU researchers (specialists) in commission boards of different management structures and public organizations;
- accumulate information about the activities of VGTU employees as experts, consultants and advisers in commissions, committees or other work groups of non-university organization of structures;
- propose VGTU service for consulting, review and evaluation (expertise) of the projects carried out by social management and country's economy structures.

In this way, University becomes deeply rooted in its local territory and strengthens its diversified function.

In the period of country financial difficulties, higher education institutions should also seek for extra financial resources in addition to their traditional state budget subsidies. The Ministry of Science and Education and the higher education institutions negotiate annually on performance and agree on targets set for the institutions and the amount of funds from the state budget. In 1997 research and development financing in higher education sector consisted of 78% from state budget funds, 18 % from customers' funds and 4 % other sources. Expenditure on all R&D activities in percentage of gross domestic product was 0,57 % and 0,21 % in higher education sector, but the total expenditures on R&D in 1994-1997 period grew 2,5 times [4]. In 1997 67,4 % of all scientists were in higher education sector. In 1998 about 19% of Vilnius Gediminas technical university budget was replenished by extra financial resources (research, services, technology transfer, incomes from different studies, etc.).

From beginning of fifties prevailed polytechnic type engineering education institutions and was only one university (classic). After 1990 on the basis of different higher education institutions there were established another classic, four specialized (technical, technology, agriculture, pedagogy), and two mixed mode (classic + specialized) universities. Technical universities, alongside with other universities, exist in almost all European capital cities and industrial centers.

Magna Charta of universities states that "*university may be called every educational institution which has educated three generations of specialists and which is carrying out research, training doctoral students and possesses a large library*". The present-day life requires that the graduates not only possess thorough technical knowledge, but also can speak at least one foreign language and have sufficient skills to apply complicate information systems. Naturally, only universities can train specialists of high humanitarian level.

Vilnius Gediminas technical university attract the students not only from surrounding region but from the whole country. The country/region youth enrolment ratio is approximately 50/50 %. University awards doctoral degrees and academic titles; research work is performed here systematically. The University has modern Learning resources and Computing centers, teaching is carried out in Lithuanian, English and partly in French languages; international conferences are convened periodically; about 70 % of pedagogical staff have academic degrees and titles. Doctoral theses prepared at the University deal with problems of many technical fields (building construction, mechanics, electronics, electrical engineering, transport, environment protection, power engineering, measurements), social sciences (management), humanitarian sciences (architecture), fun-

