

## Latvia

# Higher Education: Changing Conditions, Problems, Challenges and Policy Options

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January, 2003

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## I. Executive Summary

Latvia's Higher Education (HE) system is experiencing rapid and profound changes. Significant progress can be observed on various fronts, such as: enlarged learning opportunities; diversification of the institutional base; increased funding and diversification of funding sources; compliance with the Bologna Declaration through the adoption of a common framework for readable and comparable degrees and the introduction of undergraduate and postgraduate levels, with first degrees no shorter than 3 years and relevant to the labor market; accreditation of programs and institutions; new vision for science and technology and reorganization of system governance and coordination.

Although significant progress has been achieved in reforming and modernizing HE, new problems and issues have come up that pose also new challenges to HE institutions (HEI), governing bodies of the HE system, and society at large.

In particular, growth of a global knowledge-based economy creates great opportunities, and poses great challenges, particularly for those countries dealing with difficult transitions from centralized forms of economic organization. "To create these opportunities and navigate these risks, a country must do three difficult things. It must develop a coherent, multi-faceted national strategy for building and sustaining a knowledge-based economy. It must develop this strategy in a participatory, broad-based fashion that includes and empowers all major sectors of society, including the private sector, educators, scientists and innovators, civil society, the media and others. And it must implement this strategy in a sustained and patient fashion, carefully balancing competing priorities, difficult tradeoffs, and interdependent changes with different time horizons, all in the context of opening progressively to a fast-paced, rapidly changing, unpredictable and highly competitive global economy"<sup>1</sup>.

To bring HE in line with these expectations, policies will have to determine the system's weaker parts, what mechanisms are not working effectively, how to implement corrective strategies, and agree on a new set of instruments for HE reform.

According to existing studies and surveys, to available data and to the results of the interviews conducted for this report, six major areas of problems and challenges for Latvia's HE can be identified:

- Relevance of HE for national development
- Quality of teaching
- Institutional organization of HE
- Innovation system and the role of R&D
- Funding mechanisms
- Governance and coordination

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<sup>1</sup> Building Knowledge Economies: Opportunities and Challenges for EU Accession Countries Final Report of the Knowledge Economy Forum "Using Knowledge for Development in EU Accession Countries" organized by the World Bank in cooperation with the European Commission, the Organization for Economic Cooperation and Development, the European Bank for Reconstruction and Development, and the European Investment Bank. Paris, February 19-22, 2002

1. Relevance of HE for national development. In a rapidly changing economic, social and cultural environment, HE must continually adjust to these changes, react to the economy's needs, respond to labor markets demands, and act in response to local, regional, national and international requirements. In this regard, there are three major topics of concern:

- a. The balance between vocational, non-university, short term programs, and university, academic and professionally oriented courses;
- b. The distribution of graduates by knowledge areas and the correspondence between supply and demand of hard and soft skills;
- c. Relevance of acquired skills to the economy and employers' needs.

2. Quality of teaching. International experience shows that in any rapidly expanding HE system, particularly when material and financial resources do not increase at the same rate, problems and issues of quality arise that must be confronted. In this respect, two separate set of quality-issues stand up as the most important.

a. On the one hand, availability of a high-qualified faculty. In Latvia's case, there are two particularly serious problems:

- i. The ageing of teaching staff, and
- ii. The very small number of PhD graduates, well below the quantity needed to renew the teaching staff at HEI.

b. On the other hand, need to find adequate balances in the orientation and organization of study programs between theory and practice, general and specialized education, teaching and learning, and between studying and working.

3. Institutional-support arrangements. HE relevance and quality need to be supported by adequate infrastructures and means. Latvia faces severe problems related to the provision of these infrastructures and means. Major shortages are to be found in four areas: general infrastructure (maintenance and renovation of buildings, heating); teaching infrastructure (teaching laboratories and equipment, libraries, access to electronic, specialized data bases); research infrastructure (research laboratories and equipment) and management infrastructure. During the last decade funding for all these three purposes has been scarce. As a result, there is a repressed demand and a growing pressure on government to finance investment programs in state HEI.

4. Innovation system and the role of R&D. Future development of Latvia's economy and society crucially depends on the ability of its enterprises, government and people to create, import, adapt and disseminate knowledge. The NDP for the period 2003-2006 strongly emphasizes the need of knowledge, skills and innovation in the more dynamic sectors of the economy: i.e., the forestry and fishing industries, metal-fabricating and machine-building sectors, electronic and electro technical sectors, communication and information technologies.

A National Innovation Systems (NIS) is the most common set-up designed to meet these requirements. Employing the Knowledge Assessment Methodology of the World Bank Institute, Latvia's performance over the last five years can be seen has having improved its innovative capacity, particularly with respect to three of the four above mentioned components: its economic

incentive regime, its information infrastructure and its education system. But the fourth component, i.e., the capacity to produce and disseminate innovations is lagging behind.

Nonetheless, when compared to Western European countries (not pertaining to the G7 Group), Latvia shows distinctive shortfalls. This apparent underperformance is not only caused by low expenditure in R&D. It also reflects a more generalized weakness in the development of R&D capacities and their link with industry, especially high tech industry.

5. Funding mechanisms. Latvia's public expenditure in HE and R&D presently stands at around 1% of GDP. Although private financing both of HEI and R&D has increased during the last years, there is also need to expand state financing in both directions, and to improve the funding mechanisms used to allocate public resources to state HEI.

State HEI receive funding through a mechanism described as normative cost of student places. In practice, however, the principle of normative costs does not work, mainly because of limited public funds. In fact, government is forced to apply "compressed" coefficients, so as to reduce the actual amount allocated per student place. The consequence is that the principle of linking the amount of the subsidy given per student to a normative cost, thereby creating an incentive for institutional efficiency on the part of HEI, is abandoned in practice.

Recently a loan scheme was established to support students in public and private HEI who cannot pay a tuition fee from their own or family income. At present the loan scheme is administered by the private banking sector. The student who asks for a credit must produce two guarantors and the state subsidizes the interest rate and acts as a guarantor of last resort. During 2001, 30 thousand loans were issued, with an average of Ls 350, amounting to 8.3% of the total state budget allocation to HE.<sup>2</sup> Student representatives interviewed for this report complained about lack of information on loans and on procedures to obtain loans, difficulty for many of them to produce two guarantors, and uncertainty of being able to repay de credit in the future.

6. Governance and coordination. A requirement for effective and efficient government intervention and system coordination is the existence of a state-body endowed with the authority, instruments and resources to carry out these functions. In most countries, the Ministry of Education fulfills these roles. In this respect, Latvia's situation is more complex and has come under criticism. Not only does the Ministry of Education and Science (MES) exercise responsibility in the sphere of HE, but also five additional Ministries (of Agriculture, Welfare, Interior, Culture and Defense). According to the OECD sector-review, "the fragmentation of Latvian higher education is mirrored at the level of state agencies".<sup>3</sup> For expedient policy design and action, the MES also needs to strengthen its supervisory, information and management capacities. Latvia's HE system and NIS have become both too complex and vital for the future of the nation and its economic development to be managed in less than at the highest professional level. In addition, sector regulations need to be revised and simplified. Narrow specifications of how and when state-allocated resources should be spent, curtail the HEI ability to rationalize expenditures, monitor price changes and save money in order to invest in alternative objectives.

Options for change. International experience shows that HE systems face both the new challenge of supporting knowledge-driven development and the old challenge of

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<sup>2</sup> See MES (2001:Table 7.11.1)

<sup>3</sup> OECD (2001:156)

promoting quality, efficiency, and equity in tertiary education. To address these challenges three interrelated conditions must be fulfilled:

Establish a coherent policy framework

- Create an enabling regulatory environment
- Offer appropriate financial incentives.

7.1. In the case of Latvia, bearing in mind the particular problems and challenges identified in Part II, policies for implementing change must be agreed to in the following areas:

- Relevance and quality
- Governance
- Innovation
- Funding

7.2. A list of alternative policies and instruments is outlined for each of these thematic areas and offered as a starting point for discussion.

## II. Changing Conditions

Latvia's Higher Education (HE) system is experiencing rapid and profound changes. During the '90s it had to adapt to new political conditions in society and the State, to emerging market forces

### A. Box 1

#### B. New Challenges for HE

Developing and transition economies face significant new trends in the global environment that affect not only the shape and mode of operation but also the very purpose of tertiary education systems. Among the most critical dimensions of change are the convergent impacts of globalization, the increasing importance of knowledge as a main driver of growth, and the information and communication revolution. Knowledge accumulation and application have become major factors in economic development and are increasingly at the core of a country's competitive advantage in the global economy. The combination of increased computing power, diminishing prices of hardware and software, improvement of wireless and satellite technologies, and reduced telecommunication costs has all but removed the space and time barriers to information access and exchange.

The World Bank (2002)

and to new demands from students, enterprises and employers, the government, and public opinion. Moreover, Latvia's economy and society are being confronted by the challenges of globalization and the knowledge revolution (Box 1), and its HE system is adopting the necessary reforms to become part of the European space for HE in accordance with the terms of the Bologna Declaration.

Significant progress can be observed on various fronts:

1. Increasing learning opportunities. Enrollment in HE institutions (HEI) has more than doubled during the last decade, from 46 thousand in the academic year 1990/91 to more than 110 thousand in 2001/02. In turn, first year enrollment has increased three times (Figure I.1.1). Presently, Latvia's tertiary participation rate (gross enrollment ratio) is on the same level of Austria, France, and the Netherlands (Figure I.1.2). More than 430 study programs are offered at the level of college (vocational) programs, bachelor programs (both academic and professional bachelor's programs), academic and professional masters programs and doctoral programs (Figure I.1.3). Two third of total enrollment is concentrated in the social sciences and education areas (Figure I.1.4). Simultaneously, also the number of graduates has been rising continuously, from less than 6 thousand in 1991 to more than 20 thousand in 2001 (Figure I.1.5). What is more important, it has been established that "nearly all students, irrespective of their field of study, are successful in finding work after they are graduated".<sup>4</sup>
2. Diversification of the institutional base. Increase in the number of students and a more diversified provision of study programs has been accompanied by a differentiation and diversification of the institutional base of HE. State HEI have increased their number from 10 in 1990 to 20 in 2000. Six of these state institutions have a university status and 14 are non-university HEI, although 6 of the latter grant degrees up to doctoral level. To produce a geographically more balanced provision, new regional state HE establishments were created, such as Vidzeme College of Higher Education and Ventspils College. In addition, 14 private licensed HEI have been established. Thus there are now 34 HE institutions, of which 31 have been accredited according to law<sup>5</sup> (Figure I.2.1).
3. Increased funding and diversification of funding sources. Public expenditure in education (all levels) is around 7% of GDP, the same figure as in 1995, but has decreased in relation to

<sup>4</sup> Snitnikovs and Vanaga (2001:116)

<sup>5</sup> See list of accredited HEI in MES 2001, Table 2.5.1

GDP by more than 20% in the case of HE. On the contrary, during this same period private funding for HE, originated from tuition fees paid by students both in state and private HEI, has been growing continuously. As a result, the total amount of resources invested in HE is now higher than in the years 1997 – 1998 (Figure I.3.1).

4. Meeting Bologna Declaration's requirements. The Bologna Declaration (1999) is pledged by 29 countries, to reform the structures of their HE systems in a convergent way; Latvia among them. The action program set out in the Declaration is based on a set of five objectives<sup>6</sup>: (i) the adoption of a common framework for readable and comparable degrees; (ii) the introduction of undergraduate and postgraduate levels, with first degrees no shorter than 3 years and relevant to the labor market; (iii) ECTS-compatible credit systems; (iv) a European dimension in quality assurance, with comparable criteria and methods, and (v) the elimination of remaining obstacles to the free mobility of students and teachers. As stated in the HE Concept Paper already a system of academic and professional degrees compatible with the European systems has been created in Latvia; vocational programs have been established, and a quality assurance system is in place based on the accreditation both of institutions and programs.<sup>7</sup>
5. Accreditation of programs and institutions. A quality assurance system was established in mid 1990s.<sup>8</sup> It is directed both to institutions and programs, based on self-evaluation and peer review visits. Decisions on accreditation are made by the Council for Higher Education (HEI) and by the Accreditation Commission set up by the MES (study programs). Visiting teams are composed of at least three experts: one national expert, one from the other Baltic States, and one from abroad, usually from Western Europe, sometimes from the USA and in some cases from Eastern Europe. In order to organize the process and assist HEI in their self-assessment, the Higher Education Quality Evaluation Center was established in 1994.<sup>9</sup> The first round of quality assurance-accreditation was completed in November, 2001.<sup>10</sup> More than 90% of all programs have been accredited and 31 out of 34 HEI.
6. New vision for science and technology. In the context of accession to the EU, Latvia's national science and technology policy is aimed at reorienting its research potential towards national and European priorities and to stimulate more active involvement of researchers in solving economic, cultural and social problems.<sup>11</sup>
  - 6.1. The 33 formerly isolated research institutes have now been formally attached to universities. National research priorities have been established through a resolution of the Cabinet of Ministers and are the following: Organic Chemistry; Biomedicine and Pharmacy; Material Sciences; Information Technology; Forestry and Wood Sciences, and Lettonica (Latvian history and archaeology; Latvian language, literature, folklore, and ethnography; Latvian art and culture; philosophy and sociology).

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<sup>6</sup> Confederation of EU Rectors' Conferences and the Association of European Universities (CRE), *The Bologna Declaration on the European space for Higher Education: an explanation*  
<http://europa.eu.int/comm/education/socrates/erasmus/bologna.pdf>

<sup>7</sup> For further information see *Bologna follow-up measures: Latvia*  
[http://www.unige.ch/cre/activities/Bologna%20Forum/National%20reports/report\\_Latvia\\_%20doc.pdf](http://www.unige.ch/cre/activities/Bologna%20Forum/National%20reports/report_Latvia_%20doc.pdf)

<sup>8</sup> See Cabinet of Ministers (1995) Accreditation Regulations for HE Establishments  
<http://www.izm.lv/en/default.htm>

<sup>9</sup> See <http://www.aiknc.lv/en/index.php#>

<sup>10</sup> Higher Education in Latvia <http://www.aic.lv/en/default.htm>

<sup>11</sup> Research and Development in the Republic of Latvia  
[http://www.izm.gov.lv/Zinatne\\_CD/en/04\\_national/04\\_01.html](http://www.izm.gov.lv/Zinatne_CD/en/04_national/04_01.html)

- 6.2. A National Concept on R&D was adopted by the Latvian Council of Science and approved by the Council of Ministers in July 1998.<sup>12</sup> It corroborates the national research priorities and identifies additional priorities in relation to Latvia's cooperation with the EU: information technology and telematics; life sciences and biotechnology –biomedicine, drug construction, and biotechnology; new materials; ecology and environmental protection; energy technologies; forestry and agriculture research; social and economic research. It also proposes the establishment of national research programs and excellence centers. And it lays out the following criteria for R&D funding: competitive funding of research projects reviewed by peers; public funding of a limited number of national research programs in priority areas, selected with the participation of scientists, officials and the business community; funding of scientific infrastructure at state research centers; funding of excellence centers that are internationally competitive.
- 6.3. Latvian scientists and researchers were actively involved in the EU 5<sup>th</sup> Research Framework Program<sup>13</sup>--in fact, 23 projects from Latvia were accepted for this Programme-- and are now looking forward to a similar participation in the 6th Framework Program (Box 2).

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<sup>12</sup> See [http://www.izm.gov.lv/Zinatne\\_CD/en/04\\_national/04\\_01\\_.html](http://www.izm.gov.lv/Zinatne_CD/en/04_national/04_01_.html) . Text of the National Concept in <http://www.lzp.lv/concept.htm>

<sup>13</sup> The Fifth Framework Program (FP5) has two distinct parts: the Fifth European Community Framework Program covering Research, Technological Development and Demonstration activities; and the Fifth Euratom Framework Program covering research and training activities in the nuclear sector. FP5 has a multi-theme structure, consisting of seven Specific Programs, of which four are Thematic Programs:

- Quality of Life and management of living resources (Quality of Life)
- User-friendly information society (IST)
- Competitive and sustainable growth (GROWTH)
- Energy, environment and sustainable development (EESD)

and three are Horizontal Programs, which underpin and complement the Thematic Programs by responding to common needs across all research areas:

- Confirming the international role of Community research (INCO 2)
- Promotion of innovation and encouragement of SME participation (Innovation/SMEs)
- Improving the human research potential and the socio-economic knowledge base (Improving)

FP5 was conceived to help solve problems and respond to major socio-economic challenges the EU is facing. It focuses on a number of objectives and areas combining technological, industrial, economic, social and cultural aspects. This approach is reinforced by the Key Action concept. Key actions deal with concrete problems through multi-disciplinary approaches involving all the interested parties.

<http://www.cordis.lu/fp5/home.html>

**Box 2****The Sixth Framework Program**

The Sixth Framework Program (FP6) is the Union's main instrument for the funding of research in Europe. The overall budget covering the four-year period 2003 - 2006 is €17.5 billion, representing an increase of 17% from the Fifth Framework Program. Seven key areas for the advancement of knowledge and technological progress within FP6 have been chosen: genomics and biotechnology for health; information society technologies; nanotechnologies and nano-sciences; aeronautics and space; food safety; sustainable development; and economic and social sciences. With a view towards achieving the biggest possible impact, over €12 billion is being allocated to them. FP6 represents a quantum leap beyond simply funding projects. The main focus is the creation of a European Research Area as a vision for the future of research in Europe. It aims at scientific excellence, improved competitiveness and innovation through the promotion of increased co-operation, greater complementarity and improved co-ordination between relevant actors, at all levels. Priorities have been reduced to better focus on a progressive integration of activities. New support instruments have been introduced (networks of excellence and integrated projects), which will give EU activities a bigger impact and bring about a stronger structuring effect on research conducted in Europe.

**The 6th Framework Program** [http://europa.eu.int/comm/research/fp6/index\\_en.html](http://europa.eu.int/comm/research/fp6/index_en.html)

- 6.4. Despite these accomplishments, gross national expenditure in R&D is still low, at around 0.6 points of GDP, and public expenditure in R&D has been decreasing during the last years. It represents now (2000) less than 0.2% of GDP, an exceptionally low figure when compared to that of other European countries (Figure I.6.1)
7. Reorganization of system governance and coordination. Immediately at the beginning of the transition, the Law on Education (1991) introduced significant reforms to the status of HE: depolitization of educational content, authorization for the establishment of private HEI, free choice for students, and administrative decentralization.
- 7.1. During the following years the regulatory framework has been changing and adapting to new circumstances. A Law on HE establishments was passed in November 1995, a new version of the Law on Education was adopted in October 1998, a Law on General and Vocational Education was passed in June 1999, and a new Law on HE establishments came into force in December 2000. In addition, the Cabinet of Ministers has approved several Regulations that organize and control important aspects of the HE system. Various policy documents are also expected to produce wide ranging effects on HE development, e.g., "On State aid in financing HE", "Procedures for crediting of students from the funds of credit institutions under State guarantees", and "On the concept of development of higher education".<sup>14</sup>
- 7.2. Presently, the governing principle of HE is autonomy of HEI in accordance with the Law. Autonomy includes the right to formulate and adopt a *Satversme* (institutional statute or constitution) and to independently decide on the content and form of study programs, conditions for admission of students, directions of research and scientific work, organizational and administrative structure, and salaries of faculty and administrative personnel.<sup>15</sup>
- 7.3. In turn, the MES has the overall responsibility of guiding and supervising the development of HEI.<sup>16</sup> The MES is the central executive body responsible for the development and realization of state policy in the areas of education, science and technology.

<sup>14</sup> See Rivza (2001)

<sup>15</sup> Law on Higher Education Establishments (2000), article 4 <http://www.izm.lv/en/default.htm>

<sup>16</sup> For the organization of the MES see <http://www.izm.lv/en/default.htm>

- 7.4. The Department of Higher Education, Science and Research implements the decisions of the Ministry in the areas of HE and R&D. This Department was established in 1991 and today is staffed with 13 fulltime employees.
- 7.5. In addition, the Law recognizes two separate bodies that play a role in the governance and coordination of HE: the Council of Rectors and the HE Council.
- 7.6. The Council of Rectors prepares suggestions for the Ministry of Education and Science, decides on the establishment of joint study programs, gives its opinion on law drafts and regulations related to HE, recommends experts for the accreditation of HEI and programs, proposes the accreditation of HEI on the basis of experts' work results, drafts proposals for state budget-resource distribution among HEI, and represents Latvia's HEI abroad.
- 7.7. The Council of HE is an independent body instituted to develop the national strategy in HE; implement the cooperation between HEI, state institutions and the general public, and oversee the quality of higher education. Members of the Council of HE are designated by the *Saeima* and represent the following institutions: Latvian Academy of Science, Council of Creative Unions, Association of Leaders of Education of Latvia, Latvia's Union of Doctors, Chamber of Commerce and Industry. The field of HE is present through three delegates, representing the Council of Rectors, professors of HEI, and the National Student Association. In turn, the Minister of Education and Science represents the Council in Cabinet meetings in his condition as *ex officio* member of the Council.
- 7.8. The key functions of the Council of HE are defined as follows: prepare the national concept for HE and HEI development; design long term plans and proposals for teaching and research development within the HE system; make proposals to raise the quality of research and teaching; forecast the number of students necessary for the national economy and the number of students to be financed from the state budget in each knowledge area; prepare proposals regarding the number of faculty needed in HEI; submit to the Cabinet of Ministers an assessment on the state budget project for HE; adopt decisions on accreditation of HEI and submit them to the MES for approval.

### III. Problems and challenges

#### Building a knowledge economy

1. Although significant progress has been achieved in reforming and modernizing HE, new problems and issues come up that pose also new challenges to HEI, governing bodies of the HE system, and society at large (Box 3).

#### C. Box 3

#### D. New Challenges for HE

Developing and transition economies face significant new trends in the global environment that affect not only the shape and mode of operation but also the very purpose of tertiary education systems. Among the most critical dimensions of change are the convergent impacts of globalization, the increasing importance of knowledge as a main driver of growth, and the information and communication revolution. Knowledge accumulation and application have become major factors in economic development and are increasingly at the core of a country's competitive advantage in the global economy. The combination of increased computing power, diminishing prices of hardware and software, improvement of wireless and satellite technologies, and reduced telecommunication costs has all but removed the space and time barriers to information access and exchange.

The World Bank (2002)

1.1. In particular, “the growth of a global knowledge-based economy creates great opportunities, and poses great challenges, for all countries, but particularly for those [...] dealing with difficult transitions from centralized forms of economic organization. To create these opportunities and navigate these risks, a

country must do three difficult things. It must develop a coherent, multi-faceted national strategy for building and sustaining a knowledge-based economy. It must develop this strategy in a participatory, broad-based fashion that includes and empowers all major sectors of society, including the private sector, educators, scientists and innovators, civil society, the media and others. And it must implement this strategy in a sustained and patient fashion, carefully balancing competing priorities, difficult tradeoffs, and interdependent changes with different time horizons, all in the context of opening progressively to a fast-paced, rapidly changing, unpredictable and highly competitive global economy”.<sup>17</sup>

1.2. In turn, the National Development Plan (NDP), approved by the Cabinet of Ministers on December 11<sup>th</sup> 2001, states that “the current economic model of Latvia will change, as high growth rates of economic development can only be ensured by a knowledge-based economy with intense use of high technologies. New sectors of the economy will develop and at the same time traditional sectors will be restructured”.<sup>18</sup>

1.3. Similar concepts can be found in the Long Term Strategy for Latvia's Development (Ministry of Economy 2000); in the Concept Paper on Research and Development (Latvian Council of Science 1998); and in the National Concept on Innovation (Ministry of Economy 2001). Thus during the last years a growing consensus has been emerging to transform Latvia's economy into a knowledge-based economy, rich in human capital, innovation, and export of value added goods and services (Box 4).

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<sup>17</sup> Building Knowledge Economies: Opportunities and Challenges for EU Accession Countries Final Report of the Knowledge Economy Forum “Using Knowledge for Development in EU Accession Countries” organized by the World Bank in cooperation with the European Commission, the Organization for Economic Cooperation and Development, the European Bank for Reconstruction and Development, and the European Investment Bank. Paris, February 19-22, 2002

<sup>18</sup> Minister for Special Assignment for Cooperation with International Financial Agencies (2001:29)

**Box 4****Latvia's National Concept on Innovation**

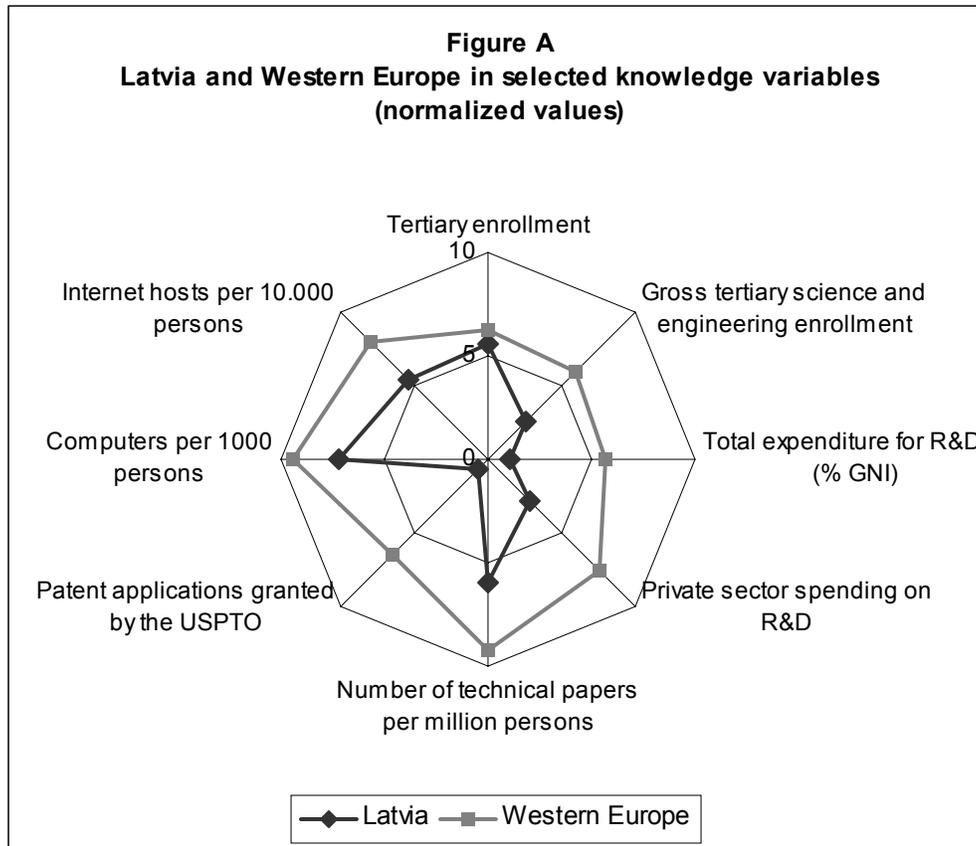
Fast development of national economy and growth of social welfare for Latvia, as a small country with open economy, is largely dependent on its ability to produce and offer in the international market competitive goods and services. In order to enhance the overall level of state's competitiveness, it is necessary to implement a purposeful state innovation policy that promotes accelerated development of new knowledge based sectors, as well as increase the share of high value added products within the traditional sectors. The development experience of World economically strongest countries shows that these countries have been creating economy open for innovations already for several decades. For some countries, the globalization of economic processes and rapid development of technologies create unique opportunities for fast development, for other countries it creates certain threat for stagnation or even decline. Ability to generate new ideas and use them commercially is the main force ensuring economic growth. This process is equally important for all business directions and sectors (industry, services, tourism, and agriculture), all types of businesses (micro, small, medium, large enterprises and multinational corporations), as well as for all social groups and regions. The dynamics of economic development no longer is determined solely by the traditional resources like labor, natural resources, capital and traditional sectors of industry and agriculture. Increasingly, the high-tech sectors are becoming the determinants of economic growth. High-tech component has become the main source of competitiveness and value added in all sectors of economy. Yet, development of high-tech companies and use of high technologies in enterprises of traditional sectors require an economic environment favorable for innovation and innovative operations like in countries that implement policies for development of national innovation and have national innovation systems working effectively.

**Ministry of Economy (2001)**

1.4. A first general overview of Latvia's position on the road towards a knowledge-based economy can be obtained from looking at Figure A, which compares Latvia's performance to that of the countries of Western Europe (not pertaining to the G7 Group) in a set of selected knowledge variables.<sup>19</sup> It shows that in all relevant variables, with the exception of tertiary enrollment, Latvia's performance clearly lags behind, particularly in those elements that are crucial for a productive national innovation system (NIS).

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<sup>19</sup> The World Bank Institute's Knowledge Assessment Methodology (KAM) consists of a set of 69 structural and qualitative variables that benchmark how an economy compares with its neighbors, competitors, or countries it wishes to emulate. It helps to identify the problems and opportunities that a country faces, and where it may need to focus policy attention or future investments. The comparison for the 69 variables is undertaken for a group of 100 countries which includes most of the developed OECD economies and about 60 developing economies. Each of the variables used in the scorecard is normalized on a scale of zero to 10, so that the highest value amongst the 100 countries used in the comparison is rated 10 and the lowest, zero.



Source: The World Bank Institute (2002)

- 1.5. In order to overcome these limitations, the NDP foresees various convergent actions and the need for further reforms in the education sector: e.g., “close cooperation between science, education and business will be strengthened, thus creating a basis for development of a knowledge and innovation-based economy”, “movement towards the information society will continue and the role of IT in development will grow rapidly”, further restructuring of the educational system [will be] carried out in order to fully satisfy the needs of the labor market”, etc.
- 1.6. Also a set of bold quantitative targets for HE development, up to year 2010, have been adopted as shown in Box 5.

<b>Box 5</b>	
<b>Quantitative indicators to be attained by 2010</b>	
<b>Human resources:</b>	
• Student number	120,000
• Number of Ph.D. students	4,500
• Number of professors	1,000
• Number of Doctors of Sciences (Ph.D.) doing research	5,000
• Number of people engaged in research	2,000
<b>Financial resources:</b>	
• State budget subsidy to higher education	1.4% of GDP
• State budget subsidy to science and research, of which for research at universities	1.0% of GDP 0.4% of GDP
• Private funds raised to support research	1.0 -1.3% of GDP
• Private funds raised to support higher education	1.0 -1.4% of GDP
<b>Infrastructure:</b>	
• Newly built science and Technology Park associated to universities and research institutes;	
• Upgrading and optimization of the infrastructure of the institutions of higher education and research institutes.	
<b>Outcome indicators</b>	
• Number of specialists to be trained	30,000
• Number of Ph.D. to be trained	700
• Number of SCI publications	1,000
• State export share of high technologies output	20 -25%
<b>MES (2002a)</b>	

1.7. To bring HE in line with these expectations, policies will have to determine the system's weaker parts, what mechanisms are not working effectively, how to implement corrective strategies, and agree on a new set of instruments for HE reform.

1.8. According to existing studies and surveys, to available data and to the results of the interviews conducted for this report<sup>20</sup>, six major problem and challenge-areas can be identified for Latvia's HE:

- Relevance of HE for national development
- Quality of teaching
- Institutional organization of HE
- Innovation system and the role of R&D
- Funding mechanisms
- Governance and coordination

<sup>20</sup> See Appendix

## Relevance of HE for national development.

2. In a rapidly changing economic, social and cultural environment, HE must continually adjust to these changes, react to the economy's needs, respond to labor market demands, and act in

### **Box 6**

#### **The importance of HE**

The world economy is changing as knowledge supplants physical capital as the source of present (and future) wealth. Technology is driving much of this process, with information technology, biotechnology, and other innovations leading to remarkable changes in the way we live and work.

As knowledge becomes more important, so does higher education. Countries need to educate more of their young people to a higher standard—a degree is now a basic qualification for many skilled jobs. The quality of knowledge generated within higher education institutions, and its availability to the wider economy, is becoming increasingly critical to national competitiveness.

Developing countries need higher education to:

- provide increasing numbers of students, especially those from disadvantaged backgrounds, with specialized skills, because specialists are increasingly in demand in all sectors of the world economy;
- produce a body of students with a general education that encourages flexibility and innovation, thus allowing the continual renewal of economic and social structures relevant to a fast-changing world;
- teach students not just what is currently known, but also how to keep their knowledge up to date, so that they will be able to refresh their skills as the economic environment changes; and
- increase the amount and quality of in-country research, thus allowing the developing world to select, absorb, and create new knowledge more efficiently and rapidly than it currently does.

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graduates by knowledge areas and the correspondence between supply and demand of hard and soft skills

- Relevance of acquired skills to the economy and employers' needs.
- 2.2. University and non-university study programs. Latvia's HE degree structure (Box 7), as well as significant number of education programs and a considerable share of enrollment are all skewed in favor of academic, non-vocational content.

response to local, regional, national and international requirements (Box 6). As stated in the NDP, the geopolitical situation of Latvia and limited resources of raw materials and energy determine that the major competitiveness factor for its economy is educated people and a qualified workforce.

2.1. Three are here the major topics of concern:

- Balance between vocational, non-university, short term programs, and university, academic and professionally oriented courses;
- Distribution of

## Box 7

### LATVIA: Higher education degree structure

The system of higher education in Latvia is binary since the Law on Education Establishments (1995) sets a difference between academic and professional higher education. The popularity of professional programs is growing rapidly - in the academic year 1998/99 professional programs attracted more than double number of new enrollees compared to the Bachelor programs.

The binary structure of higher education system in Latvia however is not strictly institutionalized; therefore one can see universities running professional programs and institutions not bearing the name of university running academic programs. In principle, three groups of programs can be distinguished: - academic programs leading to academic degrees, - professional programs based upon a standard of the first academic degree thus making graduates eligible for further academic studies, and, finally - the applied professional programs oriented towards higher professional qualifications but not providing background for direct admission to further academic studies.

When applying the university type/ non-university type approach, the academic programs and these professional programs based upon academic degree standard should be attributed to university type while the applied professional programs - to the non-university type.

Academic higher education (ISCED level 5A). Academic higher education programs are based upon fundamental and/or applied science; they usually comprise a thesis at the end of each stage and lead to degrees *Bakalaura* (Bachelor) and *Maģistrs* (Master). Bachelor degree is awarded after completion of the first stage of studies. Duration of Bachelor programs may be 3 or 4 years at different institutions. The 4-year *Bakalaura* degree is seen as a complete academic qualification, while a 3-year *Bakalaura* degree is rather an intermediate qualification before choice between professional programs or Master studies.

*Maģistrs* degree is awarded after the second stage of academic education and requires total duration of university studies 5-7 years.

In medicine and dentistry (6 and 5 years of studies respectively) bachelor and master degrees are not applied.

Degrees in medicine and dentistry, however, are considered equal to master.

Doctoral studies. The degree of *Maģistrs* (or the equivalent) is required for admission to doctoral studies. The degree *Doktors*, which usually is internationally recognized as a Ph.D., can be achieved at public defense of a doctoral thesis. Doctoral studies last four or (more seldom) three full-time years. They include advanced studies of the subject as well as a research towards doctoral thesis. Publications in internationally quoted scientific journals are required before defense of the doctoral thesis. In the past, especially while most research institutes in Latvia were outside the universities, an equivalent amount of independent research and passing of the appropriate doctoral examinations while working at a research institution very often replaced doctoral studies. At present, regular studies in doctoral study programs at the universities and having thesis research as an integral part of study program is becoming the main way.

A second-level doctoral degree - the degree *habilitēts doktors* still exists in Latvia. Until the end of 1999 this degree is a formal prerequisite for a full professorship. However, according to the changes in national legislation, the degree *Habilitēts doktors* will not be awarded after January 1, 2000. Instead, new procedures have been designed for selection of full professors to ensure that the pretender who should be holder of degree *Doktors* has a sufficient scientific competence and pedagogical experience.

Professional higher education. The Law on professional education (1999) provides for higher professional programs of two levels: college programs leading to Level IV professional qualifications and professional higher education programs leading to Level V professional qualifications. In a number of professional fields it is possible to establish college programs as the first cycle of professional higher education.

College programs are of at least two-year duration and are considered as the first cycle of higher professional education. These programs lead to Level IV professional qualifications (theoretical and practical preparedness for performing sophisticated executive tasks and for organization and management of other specialists' work) and give credit to one's further studies in the second cycle of professional higher education. College programs are currently being established at both the existing higher education institutions and at the former institutions of post-secondary vocational education. The fields in which college education programs are first being established are engineering, computer science, business administration, nursing, and law (training of business lawyers for SME's). In order to ensure that training in college programs can give credit for further studies in higher professional education, the quality assessment of college programs will be carried out together with the appropriate "full" higher education programs.

Higher professional education programs are aimed at Level V professional qualifications (highest professional qualification of a specialist in a given branch, which provides for practical performance as well as planning and research in the most sophisticated professions).

As mentioned above, there are both university-type and non-university type professional higher education programs in Latvia:

University-type professional programs (ISCED Level 5A) are based upon an academic degree. As shown in the diagram of education system in Latvia, they can be either relatively short programs on top of a *Bakalaura* degree, or independent programs providing higher professional education but including a standard of *Bakalaura* degree. The graduates of these programs are eligible for further academic studies.

Non-university type professional higher education programs (ISCED Level 5B) are mainly aimed at acquiring of professional skills and acquiring of Level V professional qualifications. They are of at least four-year duration and they can, where possible and feasible, be organized in two cycles having a college program and Level IV professional qualification as the first cycle.

**Latvia ENIC / NARIC (Academic Information Center), Education in Latvia**

[http://www.aic.lv/en/enic/ed\\_in\\_Latv.htm](http://www.aic.lv/en/enic/ed_in_Latv.htm)

2.2.1. In fact, Latvia has a weak tradition in vocational education and practically no tradition of this type of education at the tertiary level, which in other European countries comprises between 18% and 63% of total enrollment (Figure II.1). Moreover, its development has been weak during the last years (Figure II.2), with only 8% of total enrollment, at all levels, attending vocational training programs. In the case of HE, only a small fraction of students was enrolled in vocational programs, despite the Government's efforts to modernize and make more attractive vocational education and training (Latvian National Observatory 2001) (See also Box 8). Up to 1999, only a small proportion of students graduating from upper secondary vocational schools chose to continue studying at the tertiary level (Figure II.3).

**Box 8**

**The need for hard skills**

In the framework of the EU Phare Program "Vocational Education and Training 2000" surveys of the information technology, telecommunications and electronics (ITTE) sector and construction sector were carried out. They present data on future labor force needs in these sectors.

It is considered that the demand for ITTE specialists will increase more than twice in the following 3 years. The number of university graduates in the ITTE field must be expanded as much as possible - at least by three times. According to the study of Latvia's ITTE companies, specialists with fourth level vocational qualifications are in greatest demand. The results of the survey of Latvian ITTE companies show that the largest increases in staff numbers can be expected in these professions: software designers, software project managers, system analysts, software product testers, ITTE consultants, computer network and system administrators and others related to development and servicing of software and Internet applications.

The survey of Latvian construction companies shows that an increase in staff number can be expected at all levels of qualifications. The greatest increase of demand (30%) in the next three years is expected for specialists having vocational qualifications of level 4 and 5. The increase of demand for low qualified workers is expected to be only by 5%.

**Latvian National Observatory (2001)**

2.2.2. First level higher vocational education (college education) programs are implemented by colleges and HEI. College education provides qualifications of level four (see Box 7). The length of studies within these programmes is 2-3 years following completion of general or vocational secondary education. The *Diploma of First Level Higher Vocational Education* (which has been conferred only as of 9 June 2000) attests that the qualification achieved pertains to level four (theoretical and practical training to perform complicated tasks as well as to organise and lead the work of others). In the 2000/01 academic year 3% of students attending vocational education establishments were enrolled in these programmes.

2.3. Distribution of graduates. The total number of graduates for year 2001 was 20.308; 3 times more than in 1991 (Figure II.4). Separated by degree and qualification levels, 45% of all graduates correspond to bachelor's level, 38% to professional qualification level, 17% to M.A. level and 0,2% to the doctoral level (Figure II.5). These numbers show a relatively high degree of internal efficiency, measured as the ratio of enrolled students per one graduate in the same year. While in 1991 that ratio was 7.9:1, in 2001 it had improved to 5:1. But as was repeatedly stressed during the interviews, the distribution of graduates by knowledge area shows a high degree of concentration in the social sciences, with 57% of all graduates in academic year 2001 / 2002, while engineering and technology presently account for only 7% of graduates, and agriculture 0,7% (Figure

II.6). Although the participation of science and engineering enrollment has been decreasing during the last years, already around 1997 Latvia had a low indicator in this vital knowledge-based economy component when compared to the rest of Europe (Figure II.7).

2.4. Labor market relevance. HE must conform to changing labor market demands. Although most graduates seem to be finding employment opportunities, there are signs of divergence between HE outcomes and employment requirements. For example, according to one study, based on a survey comprising 120 large and medium size companies in all basic sectors (i.e., banking and finance, auditing, trade, production, services, marketing), a mismatch of priorities set by HEI and employers was found. “While educators pay more attention to teaching theoretical principles to students and not adequate attention to social skills, employers rank social skills and the application of theoretical principles higher than theoretical principles”. On average, “the knowledge of young specialists [...] was rated at a level that was higher than the rating of their ability to put the knowledge to use”.<sup>21</sup>

2.4.1. One other study conducted in the University of Latvia informs that “many students report that once they enter the labor market, they find the things they have been taught at the university are not in compliance with the demand of the labor market; the body of knowledge which is taught is simply too academic”.<sup>22</sup>

2.4.2. At the level of vocational education it has been suggested that programs are not in line with labor market demands. “Approximately one third of the graduates of vocational schools do not work in their chosen profession, while more than half require additional training”.<sup>23</sup> Study programs need to be adjusted, employers have to be consulted during the design process of new curricula, colleges require funding for equipment, and teachers must be trained in accordance with new standards and content. Moreover, the OECD team that reviewed the state of education in Latvia concludes that “despite the high priority for reform of vocational and professional education [...] no higher education-based initiative to train a new generation of teachers for this field” could be identified.<sup>24</sup>

### Quality of teaching

3. International experience shows that in any rapidly expanding HE system, particularly when material and financial resources do not increase at the same rate, issues of quality arise that must be confronted.

3.1. Forecasts based on demographic trends, graduation rates at higher secondary level and student demand for HE show that tertiary enrollment will continue to expand in Latvia. In this respect, two separate set of quality-issues stand up as the most important.<sup>25</sup>

3.2. On the one hand, availability of a high-qualified faculty. A well-qualified and highly motivated faculty is critical to the quality of higher education institutions (Box 9). In fact, “higher education institutions rely on the commitment of their faculty. Their consistent

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<sup>21</sup> Both quotations from Pauna and Kreslins (2001)

<sup>22</sup> Tora, Jaunzeme and Popova (2001:33)

<sup>23</sup> Krievins and Lesins (2001:99)

<sup>24</sup> OECD (2001:155)

<sup>25</sup> See Cimdins (2000) and Minister for Special Assignment (2002)

presence and availability to students and colleagues have an enormous influence in creating

**Box 9**  
**Quality in HE**

Higher education institutions clearly need well-designed academic programs and a clear mission. Most important to their success, however, are high-quality faculty, committed and well-prepared students, and sufficient resources. Despite notable exceptions, most higher education institutions in developing countries suffer severe deficiencies in each of these areas. As a result, few perform to a consistently high standard.

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an atmosphere that encourages learning”. On the contrary, in most developing countries “many faculty work part-time at several institutions, devote little attention to research or to improving their teaching, and play little or no role in the life of the institutions employing them. Faculty members are often more interested in teaching another course [...] than in increasing their presence and commitment to the main institution with which they are

affiliated”.<sup>26</sup> In Latvia’s case, there are two particularly serious problems.

- 3.2.1. The ageing of teaching staff. In fact, the average age of professors is 56 years and the number of them older than 60 years is rapidly growing; 33% of professors are older than 60 and the average age of newly appointed professors is 55 years.<sup>27</sup> Two thirds of all faculty members in HEI is 40 years or older (Figure II.8).
- 3.2.2. The very small number of Ph.D. graduates, well below the number needed to renew the teaching staff at HEI. Presently, 51% of faculty in state HEI holds a doctor’s degree. Most of them are in the older age groups and will need to be replaced in coming years. According to the Higher Council of Education, 300 new Ph.D are needed per year.<sup>28</sup> Despite the general consensus on this matter, only 37 students graduated from Ph.D. programs in the academic year 2000/01, still less than in previous year (Figure II.9).
- 3.3. On the other hand, the need to find adequate balances in the orientation and organization of study programs between theory and practice, general and specialized education, teaching and learning, and between studying and working.
  - 3.3.1. The government’s Concept paper on Development of Higher Education recognizes that “academic and professional programs lack clearly distinctive futures”. In general, both are perceived to be too narrowly defined, with specialized curricula that do not guarantee a solid general education.
  - 3.3.2. On the contrary, in a rapidly changing society and in times of expanding and changing knowledge platforms, specialization needs to be grounded on more general foundations of knowledge and the ability to learn (Box 10).

<sup>26</sup> Both quotations from The Task Force (2000:23-24)

<sup>27</sup> See Rivza (2001:11) and Minister for Special Assignment (2001:20)

<sup>28</sup> See Rivza (2001:13)

**Box 10**  
**General Education**

A general education is an excellent form of preparation for the flexible, knowledge-based careers that increasingly dominate the upper tiers of the modern labor force. With knowledge growing at unprecedented rates, higher education systems must equip students with the ability to manage and assimilate greatly expanded quantities of information. A specific expertise in technology will almost inevitably become obsolete. The ability to learn, however, will continue to provide valuable insurance against the vagaries of a rapidly changing economic environment.

A general or liberal education has been defined as “a curriculum [or part of a curriculum] aimed at imparting general knowledge and developing general intellectual capacities in contrast to a professional, vocational or technical curriculum.” It is characterized by its focus on “the whole development of an individual, apart from his occupational training. It includes the civilizing of his life purposes, the refining of his emotional reactions, and the maturing of his understanding of the nature of things according to the best knowledge of our time.” A recent formulation describes such a person as someone who:

- can think and write clearly, effectively, and critically, and who can communicate with precision, cogency, and force;
- has a critical appreciation of the ways in which we gain knowledge and understanding of the universe, of society, and of ourselves;
- has a broad knowledge of other cultures and other times, and is able to make decisions based on reference to the wider world and to the historical forces that have shaped it;
- has some understanding of and experience in thinking systematically about moral and ethical problems; and
- has achieved depth in some field of knowledge in the long term as they continually refresh their knowledge in formal and informal ways, through the process of lifelong learning.

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Institutional-support arrangements

4. HE relevance and quality need to be supported by adequate infrastructures and means.

4.1. Latvia’s HE faces severe problems related to the provision of these infrastructures and means.

Probably this was the more frequently mentioned topic during the interviews conducted for this report. Major shortages are to be found in four areas: general infrastructure (maintenance and renovation of buildings, heating); teaching infrastructure (teaching laboratories and equipment, libraries, access to electronic, specialized data bases), research infrastructure (research laboratories and equipment) and management infrastructure. During the last decade funding for these purposes has been scarce. As a result, there exists a repressed demand and a growing pressure on government to finance investment programs in state HEI.

4.2. As stated by the Task Force on Higher Education and Society, “Many tools for improving higher education work best when developed centrally and shared widely. Such tools include management information systems, standardized tests, curriculum, and “knowledge banks” (repositories of information accessible through electronic means). They effectively and efficiently spread the financial and technical burdens of higher education development, allowing multiple institutions to work together [...] A learning commons would permit more effective use of outside higher education resources and permit some institutions to teach scientific subjects that they would not otherwise be able to offer. These commons would need to be located in strategic places throughout the country and be adequately maintained and staffed. They could also serve as focal points for public information, and contribute in this way to strengthening civil society”<sup>29</sup>.

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<sup>29</sup> The Task Force (2000:52 )

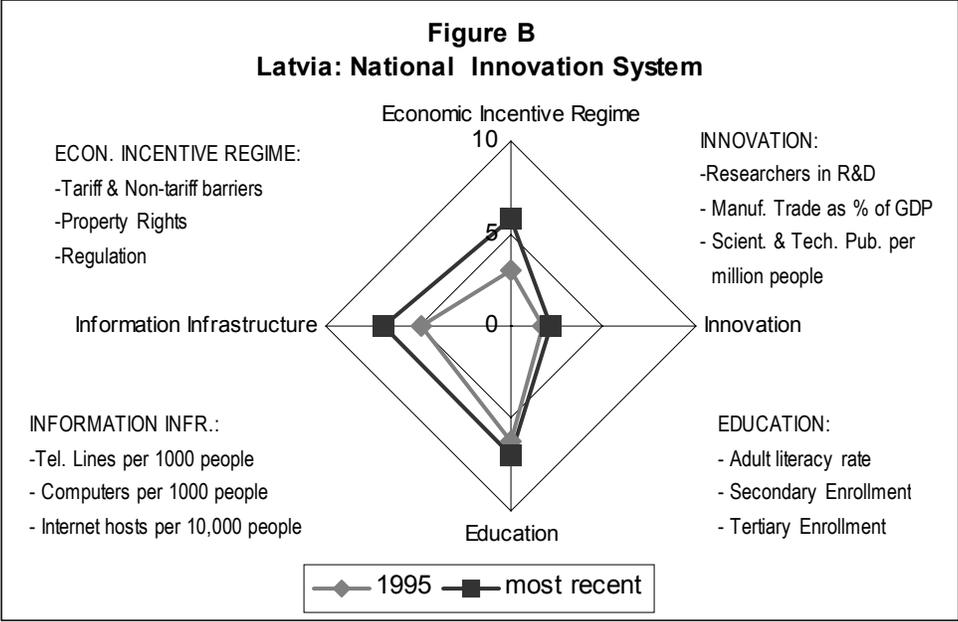
- 4.3. Also technology is an especially important system-wide resource. HEI, both public and private, need to incorporate computing and communications technology into their administrative structures, their teaching, and their research. Integrating computers into learning is a necessary task if graduates are to be prepared for jobs in the private and public sectors. In turn, web-based education can facilitate the transition towards learning-centered methods which have the potential to bring high-quality educational materials to all HEI.
- 4.4. Information and communication technologies should also make possible and increase the HE system's capacity for networking and cooperation. This is a particularly important topic in Latvia whose HE system "is fragmented into many small, specialized institutions, except for the University of Riga".<sup>30</sup> In fact, many HEI face problems of isolation and scale, integration between teaching and research, lack of inter-institutional cooperation and thus the need of establishing "learning commons".

#### Innovation system and the role of R&D

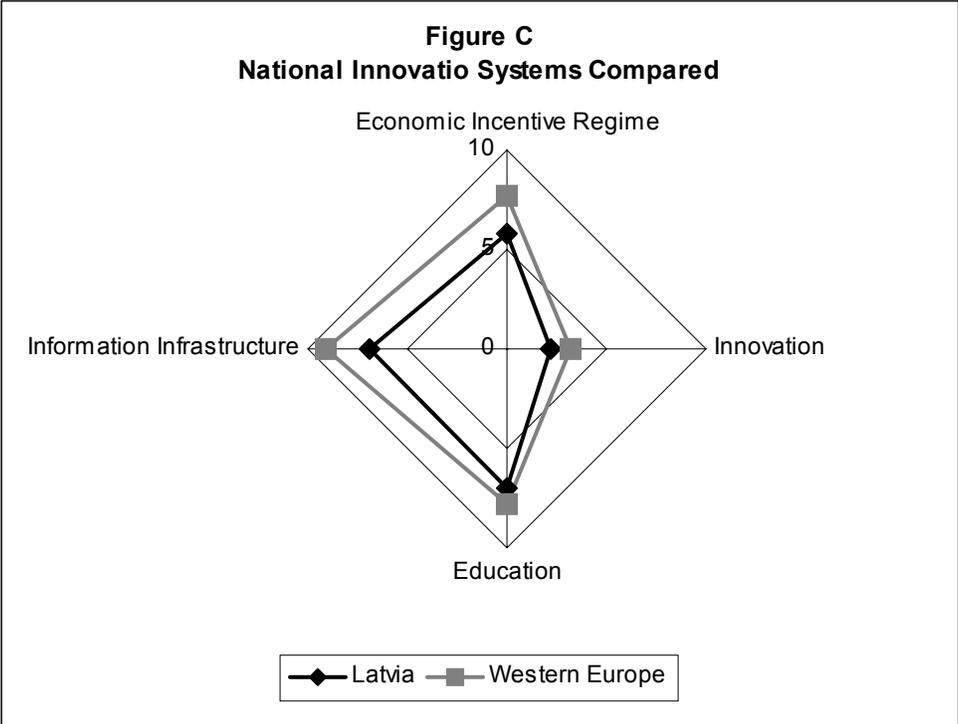
5. Future development of Latvia's economy and society crucially depends on the ability of its enterprises, government and people to create, import, adapt and disseminate knowledge. The NDP for the period 2003-2006 strongly emphasizes the need of knowledge, skills and innovation in the more dynamic sectors of the economy: i.e., the forestry and fishing industries, metal-fabricating and machine-building sectors, electronic and electro technical sectors, communication and information technologies.
- 5.1. A National Innovation Systems (NIS) is the organization designed to meet these requirements. From an analytical point of view, it consists of four interrelated components: an adequately deployed economic incentive structure, institutions that are in charge of producing and transmitting innovations, the HE system that provides the necessary skills to create, adapt and apply knowledge, and a well developed information and communication infrastructure.
- 5.2. Using the Knowledge Assessment Methodology of the World Bank Institute, Dahlman and others have created a framework to measure and compare progress of NIS. Figure B shows that Latvia has improved its innovative capacity during the last five years, particularly with respect to three of the four above mentioned components. Only the fourth component, i.e., the capacity to produce and disseminate innovations measured through three proxy indicators (number of scientists and engineers in R&D in relation to the national population, scientific and technical publications per person, and weight of manufacture trade within GDP) is lagging behind.

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<sup>30</sup> OECD (2001:153)



5.3. Nonetheless, when compared to Western European countries (not pertaining to the G7 Group), Latvia shows distinctive shortfalls in all four fronts, as shown in Figure C.



5.4. This apparent underperformance is not only caused by low expenditure in R&D (Figure I.6.1). It also reflects a more generalized weakness in the development of R&D capacities and their link with industry, especially high tech industry<sup>31</sup>, as shown in Table 1.

**Table 1 Innovation Infrastructure and Capacities**

	<b>Scientists and engineers in R&amp;D</b> (per million people)	<b>Technicians in R&amp;D</b> (per million people)	<b>Science and engineering students</b> (% of total tertiary level students)	<b>High Technology exports</b> (% of manufactured exports)	<b>Royalty and license fees</b> (Payments \$ millions)	<b>Patent applications filed</b> (Residents)
Norway	4095	1836	26	17	391	1731
Denmark	3240	2643	25	21	..	3339
Estonia	2164	540	27	30	8	14
Slovenia	2161	877	26	5	49	292
Ireland	2132	589	31	48	7899	1226
Lithuania	2031	632	31	4	12	86
Hungary	1249	485	32	26	257	787
Latvia	1090	301	23	4	12	94

Source: The World Bank (2002a)

5.5. Of particular concern is the age structure within Latvia's scientific community. Only 3% of its members are younger than 36 years old. The average age of researchers is 55 years (Figure II.10)

5.6. One additional problem is the fragmentation of the institutional basis of R&D. Although Research Institutes have been formally attached to universities, there persists a tension between these two structures and in some cases Institutes are still relatively isolated units.

#### Funding mechanisms

6. As shown above (Part I, 3 and 6.4.), public expenditure in HE and R&D presently stands at around 1% of GDP. Although private financing both of HEI and R&D has increased during the last years, there is also need to expand state financing in both directions. "The system as a whole needs to benefit from the vigor and interest of the market and the state. At the same time, it must not be dominated by either. Too close a reliance on market forces reduces public benefits, a danger that may be magnified by the globalization of investment opportunities, thereby introducing priorities at odds with long-term national needs. However, the private benefits, both to individuals and in the aggregate, are a powerful and legitimate justification for higher education. No system of higher education should forego the advantages of the compelling logic of private investment for private benefit".<sup>32</sup>

6.1. The Law on HE establishments stipulates that state HEI shall be financed by funds from the state budget and income from other sources, while private institutions must be funded from private sources. State HEI receive funding through a mechanism described as normative cost of student places, whereby an optimal cost for each student place is set by the authority for the different study programs<sup>33</sup>. The calculation of these costs includes faculty salaries and, in addition, an estimated amount to pay for public utilities, taxes, maintenance of infrastructure,

<sup>31</sup> For a detailed description of Latvia's NIS see United Nations Economic Commission for Europe (2002)

<sup>32</sup> The Task Force (2000:45)

<sup>33</sup> See The Cabinet of Ministers (2001)

and research or creative activity in the arts. The mechanism also determines a coefficient formula whereby the optimal unit cost for a student in social sciences, economics and administration study programs receives a value of 1, and places in all other programs are then multiplied by the corresponding coefficient (up to six times). Lastly, the state, through the Council of HE and MES, decides on yearly basis the number of student places it will grant for each HEI.

- 6.2. In practice, however, the principle of normative costs does not work, mainly because of limited public funds. In fact, government is forced to apply “compressed” coefficients, so as to reduce the actual amount allocated per student place. The consequence is that the principle of linking the amount of the subsidy given per student to a normative cost, thereby creating an incentive for institutional efficiency on the part of HEI, is abandoned in practice. Moreover, “the ‘compression’ of coefficients occurs because of the size of the state subsidy, not because the subsidy has been calculated on the basis of coefficients which have been ‘compressed’ in relation to all study programs. This means that the ‘compressed’ coefficients have been determined on an arbitrary and subjective way”.<sup>34</sup> As a result, practically no study program has enough resources to apply the optimal coefficient.
- 6.3. In addition to the above mentioned funding mechanism, HEI, both public and private, are legally entitled to receive tuition fees from students. In the case of state HEI, each institution determines the number of paying students it will admit and determines the amount of tuition fee it will charge. On average, tuition fees in state HEI are well below the actual cost of imparting the corresponding study program, thus creating an additional pressure on the ‘compressed’ subsidies allocated by the government. “In other words, the insufficient subsidy is divided up even more, and this has a definite effect on the quality of education”, as stated in one report.<sup>35</sup>
- 6.4. The need to pay tuition fees, and in the case of non-paying students the need to cover their living expenses, is believed to be forcing an ever increasing number of students to opt for a half time schedule of studies. Furthermore, interviewed faculty and HEI authorities declared that an increasing number of full time students were now being forced to work besides studying, thus becoming *de facto* part-time students.
- 6.5. Recently a loan scheme was established to support students in public and private HEI who cannot pay a tuition fee from their own or family income. At present the loan scheme is administered by the private banking sector. The student who asks for a credit must produce two guarantors and the state subsidizes the interest rate and acts as a guarantor of last resort. In year 2001, 30 thousand loans were issued, with an average of Ls 350, amounting to 8.3% of total state budget allocation to HE<sup>36</sup>. Student representatives interviewed for this report complained about lack of information on loans and about bureaucratic procedures to obtain loans, difficulty to produce two guarantors, and uncertainty of being able to repay the credit in the future. Meanwhile, a student survey carried out by the Latvian Student Union (LSU) jointly with a/s Hansabanka in December 2001 and January 2002 shows that 42% of respondents do not foresee difficulties to repay their loans, while 34% think there may be “certain difficulties” and 10% that it will be “very difficult”.

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<sup>34</sup> Kasa and Loza (2001:21)

<sup>35</sup> Kasa and Loza (2001:21)

<sup>36</sup> See MES (2001:Table 7.11.1)

### Governance and coordination

7. “An effective system of higher education relies on the active oversight of the state. The government must ensure that the system serves the public interest, provides at least those elements of higher education that would not be supplied if left to the market, promotes equity, and supports those areas of basic research relevant to the country’s needs. The state must also ensure that higher education institutions, and the system as a whole, operate on the basis of financial transparency and fairness. However, the government must also be economical in its interventions. It should only act when it has a clear diagnosis of the problem, is able to suggest a solution, and has the ability to apply this solution efficiently”.<sup>37</sup>
- 7.1. A further requirement for effective and efficient government intervention and system coordination is the existence of a state-body endowed with the authority, instruments and resources to carry out these functions. In most countries, the Ministry of Education fulfills these missions. Latvia’s situation is more complex in this respect and has come under criticism. Not only does the MES exercise responsibility in the sphere of HE, but also five additional Ministries (of Agriculture, Welfare, Interior, Culture and Defense). According to the OECD sector-review, “the fragmentation of Latvian higher education is mirrored at the level of state agencies”.<sup>38</sup>
- 7.2. For expedient policy design and action, the MES also needs to strengthen its supervisory, information and management capacities. Latvia’s HE system and NIS have become both too complex and vital for the future of the nation and its economic development to be managed in less than at the highest professional level. As already advised by the OECD Review Report, there is a need to “develop the capacity at the level of the MES for nation-wide policy leadership and coordination of tertiary education, including the developing non-university college sector”.<sup>39</sup> Particular importance should be given to further develop policy-analysis capacities. It is also essential to build up, together with the Council on HE, an information system that could provide a more transparent relationship between state and HEI, based on shared statistics, well defined performance indicators and impact-evaluation studies. Guiding the system “at a distance”, or using a ‘light touch’ to coordinate its complex interactions, requires sophisticated information and allocation instruments.
- 7.3. On the contrary, in some cases state regulations tend to be too rigid and detailed, limiting the capacity of state HEI to act in a more flexible and timely way. For example, budget allocations, already limited in their amount as seen above, are considered by HEI to be too bureaucratically regulated, inhibiting a more flexible and efficient use of resources. Narrow specifications of how and when state-allocated resources should be spent curtail the institutions’ ability to rationalize expenditures, monitor price changes and save money in order to invest in alternative objectives.<sup>40</sup>

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<sup>37</sup> The Task Force (2000:53)

<sup>38</sup> OECD (2001:156)

<sup>39</sup> OECD (2001:158)

<sup>40</sup> See also Kasa and Loza (2001)

## IV. Policy Options and Instruments for Change

International experience shows that HE systems face both the new challenge of supporting knowledge-driven development and the old challenge of promoting quality, efficiency, and equity in tertiary education. To address these challenges three interrelated conditions must be fulfilled<sup>41</sup>:

- Establish a coherent policy framework
- Create an enabling regulatory environment
- Offer appropriate financial incentives.

### Coherent policy framework

Although no rigid blueprint exists that is valid for all countries and institutions, a common prerequisite may be the formulation of a clear vision for the long-term development of a comprehensive, diversified, and well-articulated tertiary education system. This implies at least three dimensions: (a) outlining how the tertiary education system can most effectively contribute to national growth in the context of a globally articulated knowledge-based economy; (b) agreeing on the roles of different types of institutions within that system; and (c) determining the conditions under which the new technologies can be harnessed to improve the effectiveness and expansion of the learning experience.

### Enabling regulatory environment

Key dimensions of sector regulation include the legislative framework governing the establishment of new institutions, especially private and virtual universities; quality assurance mechanisms for all types of institutions; the administrative and financial rules and controls to which public institutions are required to conform; and legislation on intellectual property rights.

### Appropriate financial incentives

Government funding is likely to remain the dominant source of financing for tertiary education institutions in most countries. Financial incentives can be applied creatively to steer tertiary education institutions more effectively toward compliance with quality, efficiency, and equity goals. To create incentives for fiscal efficiency, many OECD members and some developing countries have abandoned the traditional approach of “negotiated” budgets, which are generally based on historical trends and political influence. These countries now favor alternative mechanisms that link funding to performance in one way or another. A more transparent and objective way to distribute funds for recurrent expenditures uses a formula linking the amount of resources spent on inputs such as the number of students or professors to some indicator of institutional performance such as the number of graduates.

In the case of Latvia, bearing in mind the particular problems and challenges identified in Part II, policies for implementing change must be agreed to in the following areas:

- Relevance and quality
- Governance
- Innovation
- Funding

In what follows, a list of alternative policies and instruments is outlined for each of these thematic areas and offered as a starting point for discussion<sup>42</sup>.

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<sup>41</sup> What follows is taken from The World Bank (2002)

### **A. Relevance and quality**

- Maintenance of high levels of access to and improvement in equity in HEI through the reform of present per-student place subsidy system in state institutions (see below). (State-funded students continue to receive living allowances in addition to free instruction, while other students, including part-time students, pay fees and do not receive living allowances. While there are no household survey data to permit a precise assessment, equity has probably improved with the increase in enrollment rates, the introduction of student loans, and the distribution by local authorities of financial aid to needy students. This trend must now be sustained and further improved on).
- Increase access of disadvantaged sections of society to technical tertiary education.
- Increased labor market linkages through collection of data on graduates and labor market surveys; information system on graduate supply and demand (Box 11).

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<sup>42</sup> Eith inputs from the World Bank (2002) and OECD (2002)

## **Box 11**

### **Labor Market Information**

Canada's **Job Futures** is a career tool to help you plan for your future. It provides useful information about 226 occupational groups and describes the work experiences of recent graduates from 155 programs of study. The 226 occupational groups in Job Futures cover the entire Canadian labor market, except military occupations. **Methodology:** (i) Economists at Human Resources Development Canada analyze data about the current world of work (also called **labor market conditions**) from different sources such as Statistics Canada. (ii) Based on this analysis as well as consulting with businesses, unions, and other employment organizations, the economists determine how easy or hard it is for a person to find stable employment in an occupational group. (iii) The economists then analyze key economic factors such as the supply of new workers and demand of employers for employees. They combine this information with their expertise in economic forecasting to predict labor market conditions five years into the future for that occupational group.

#### **What can be learned from the general employment trends presented?**

##### **Employment growth**

Rapid employment growth usually means more job openings

##### **Unemployment rate**

A low unemployment rate usually means more job openings. An above-average unemployment rate suggests that a new job seeker can expect to have difficulty in finding stable employment. A consistently above-average unemployment rate (i.e., over a number of years) indicates that this occupational group has, generally, experienced limited employment opportunities.

##### **Full-Time/Part-Time Employment**

A low proportion of part-time employment may mean few opportunities for part-time work. A high proportion of part-time work may indicate more opportunities for part-time work or that full-time employment is more difficult to find.

##### **Self-Employment**

A high proportion of self-employment may mean good opportunities for people who want to be their "own boss."

##### **Earnings**

Above-average earnings usually mean that employers are having difficulty in filling job openings. When this occurs, higher earnings are offered to attract qualified job seekers and may be compensation for higher levels of training. It's important to remember that full-time, full-year earnings do not include other forms of compensation such as retirement benefits, stock options or expense accounts, but do include net self-employment income.

##### **Age**

A high rate of young workers usually indicates that the group is comprised of entry-level occupations that are open to new entrants. A high rate of older workers usually indicates that the group is less likely to be comprised of entry-level occupations. However, deaths and retirements may create employment opportunities for younger job seekers

##### **Men/Women**

A low proportion of women in an occupational group may indicate that opportunities exist for women in that group, or that this group has not been attractive to women seeking work.

#### **What do the occupational Work Prospects ratings mean?**

**Good** means that opportunities for finding work are relatively strong, chances of employment loss are relatively weak, and earnings are relatively attractive as compared to those of other occupational groups.

**Limited** means that new workers and those re-entering the work force will have difficulty finding stable work and/or that earnings are not attractive compared to those in other occupations. For new workers, such as school-leavers (i.e., graduates and drop-outs) and immigrants, "Limited" usually means they have a low probability of finding permanent work and, if they find a job, relatively low earnings. For employed workers, "Limited" will often mean a higher probability of loss of work, a higher probability of experiencing unemployment spells, and lower earnings. **Fair** falls between "Good" and "Limited." For example, jobs may be more difficult to find, the probability of unemployment may be higher, or earnings may be lower than in comparable occupational groups that are rated "Good." Conversely, jobs may be easier to find, unemployment less likely, and earnings higher than in comparable occupational groups that are rated "Limited." Ratings are estimates only. Factors such as technological change and social and political conditions can evolve rapidly, creating new data that can affect labor market conditions.

<http://jobfutures.ca/en/home.shtml>

- Further diversification of HE programs and strengthening of vocational programs (Box 12). Initiative to train a new generation of teachers for this field<sup>43</sup>.

**Box 12**

**Reforming vocational education and training in Australia**

The guiding approach to reforming vocational education and training in Australia is the so called outcome-based approach. Programs are conceived as learning outcomes based on competence and developed according to industry plans (employer-led). This means that qualifications are focused on the requirements of work processes. The individual learner can acquire a full or partial completion of a program in very different ways, for example through formal face-to face teaching programs, through non-formal or informal on-the-job, in-the-community or even on-line learning. The system allows a range of forms of access to the certification of his or her skills. Qualifications are distinguished by content and level of difficulty and related to each other and to the general educational certificates from the school and higher education system using a nationwide framework. This in principle opens up extensive progression routes to the individual learner which he or she can use depending on demand and situation.

The outcome-based approach indeed allows very different forms of delivery and acquisition of professional qualifications. However, the question remains whether there are indeed clear and practicable criteria for evaluating professional competence, especially for medium and higher level jobs, which allow quite different types of learning to be registered and certified. If this is possible then it is indeed unnecessary for the state education policy to deal with the contexts in which qualifications are acquired. However, if this is not the case because competence can be defined and assessed in many different ways, then the question arises whether certificates have the same value and the same recognition on the labor market as within the educational system. In other words, these are questions regarding the coherence of an educational system.

Jochen Reuling (2001) "Vocational training and lifelong learning in Australia: Observations and conclusions from a German perspective". In Gerald Burke and Jochen Reuling (Eds.) *Vocational training and lifelong learning in Australia and Germany*  
[http://www.australiacentre.org/Vocational\\_Training.pdf](http://www.australiacentre.org/Vocational_Training.pdf)

- Establishment of a competitive fund to allocate resources to improve quality in undergraduate programs in public and private HEIs, selected by transparent and objective procedures (Statement by the Minister of Education, Sweden: *A university education must have a scientific base and be of high quality. It must encourage an independent, critical attitude in the students and be provided in a creative and dynamic environment. The quality of the education provided must be regularly evaluated by the National Agency for Higher Education. In cases where a program or a course fails to live up to requirements in terms of quality, the institution concerned must take steps to improve the quality. If this is not done, the Agency is entitled to revoke its right to hold examinations for the studies concerned. A rigorous external assessment of the quality of the education provided is to be combined with a greater say for the students themselves. The students have an important role to play in improving the quality of university studies*<sup>44</sup>).
- Quality improvement in instructional programs to cover curriculum, teaching, and academic inputs and facilities through government planning and line-specific budgeting. Promotion of initiatives for faculty training.
- Improvement of inter- an intra-university information technology networks and establishment of a modern library systems.

<sup>43</sup> See OECD (2001)

<sup>44</sup> Thomas Östros, Minister of Education and Science, Sweden (2001)  
<http://utbildning.regeringen.se/ostros/pdf/thomasostroseng.pdf>

- Correction of faculty salary scale to make entrance into academic career more attractive and produce needed rejuvenation of faculty.
- Competitive grant scheme to support excellence in engineering (Box 13).

**Box 13**

**Excellence in Engineering**

An essential aspect of engineering is concerned with impact on society through wealth creation and improvement to the quality of life. High quality engineering research whilst producing scientific knowledge also produces a complex set of outputs that address particular social and economic needs. These are found in the development of the networks and processes that constitute the means of exploitation.

These additional dimensions which distinguish engineering research from scientific research have been well expressed by Gibbons et al [*The New Production of Knowledge*, Sage, London, 1994) who recognize changes in the very nature of research itself. They assert that a new 'mode' of knowledge production is emerging, which they call 'Mode 2' research. They consider that Mode 2 research has evolved out of the disciplinary structure of Mode 1 "and continues to exist alongside it". This new mode of knowledge production, which is making research more transdisciplinary (or interdisciplinary) and more socially accountable, "calls into question the adequacy" of familiar research systems and institutions, since Mode 2 research often "may not fit easily into any one discipline". To explain the differences and relationship between Mode 1 and Mode 2 research, Gibbons writes:

*"For many, Mode 1 research is identical with what is meant by science [...] its problems are set and solved. . . by the largely academic community. In contrast, Mode 2 research is transdisciplinary. . . carried out in a context of application...and includes a wider. . set of practitioners, collaborating on a problem defined in a specific and localized context."*

This new mode of research is "intended to be useful to someone whether in industry or government, or society more generally, and this imperative is present from the beginning"[4]. Mode 2 research therefore plays a central role in engineering, although the situation is more complex, in that many engineering disciplines also give rise to Mode 1 research. Mode 1 and Mode 2 are therefore complementary activities. The Royal Academy of Engineering considers it particularly important that both modes exist alongside each other in an appropriate balance.

The Royal Academy of Engineering, United Kingdom (2000) *Measuring Excellence in Engineering Research*; January 2000 [http://www.raeng.org.uk/news/publications/reports/pdfs/Measuring\\_Excellence.pdf](http://www.raeng.org.uk/news/publications/reports/pdfs/Measuring_Excellence.pdf)

**B. Governance**

- Creation of enabling environment by state in which state and private HEI can autonomously develop within a policy framework set by government (Box 14).

**Box 14****Major government responsibilities**

Higher education analysts have developed a common taxonomy regarding major government responsibilities towards the HE system. Responsibilities typically include:

- budget development and recommendation to the legislature,
- academic program review and approval,
- appointment, evaluation, and removal of system and institution heads,
- resource allocation,
- mission determination,
- auditing/assessment,
- coordination of centralized services,
- advocacy at the institution, state, and federal levels, and
- policy analysis and strategic planning.

Oregon University System Review of Alternative State-level Higher Education Governance Structures  
<http://www.ous.edu/aca/governance-ex-sum-12-01.html>

- Integration or better coordination of single-purpose or small-scale institutions into multi-faculty university or colleges.
- Rationalize the structure of HE system-governance through unification or better coordination of the various intervening ministries and public bodies. Strengthening institutional capacity of MOE to effectively carry out analysis, diagnosis, and policy formulation to address key issues in the system; establish a management information system for national HE; design and test financing formulas and resource allocation mechanisms; implement programs and projects; engage in electronic networking with other national HE public bodies and MOE within the EU (Box 15); monitor and evaluate policy results; and to build strategic planning capacities, budget and management competence.

**Box 15****International Coordination of HE Governance**

Already the Regional University Network on Governance and Management of Higher Education in South East Europe is encouraging: (i) Stronger national institutional capacities and skills, strategic management and policy making in higher education; network of the authorities and institutions involved in higher education through which good practice on academic governance, policy making, strategic and financial management in higher education can be exchanged; and (ii) New structures and mechanisms for financial management, based on the principles of university autonomy and accountability, while encouraging the establishment of links with civil society and local economy.

UNESCO-CEPES Regional University Network on Governance and Management of Higher Education in South East Europe  
<http://www.cepes.ro/hed/policy/see/outcomes.html>

- Changes in internal university management including government bodies and computerized information systems.
- Government encouragement of expansion of private sector institutions thus enabling legislative and financial incentives; quality of private HEI ensured through accreditation process.

### C. Innovation

- Assess Latvia's preparedness for the knowledge economy and prepare a 10 year plan to develop knowledge and innovation capacities within the framework of the national long term development strategy.
- Skills for competitiveness; need to expand S&T fields and recruit qualified researchers in priority areas.
- Improve quality and relevance of selected postgraduate programs, with an emphasis on S&T. Establish a Research Training Scheme (RTS) to recognize and reward those institutions that provide high-quality research training environments and support excellent and diverse research activities (*In Australia funds are provided to eligible institutions based on a formula that reflects each institution's research performance. The formula takes into account higher degree by research completions (50%), research income (40%) and research publications (10%)*<sup>45</sup>
- Change in enrollment structure through measures to increase enrollment in priority S&T fields.
- Investment in S&T capacity building to be combined with fostering the use of that capacity by enterprises, producers, government, and society as a whole
- Setting specific targets to increase national investment in R&D and innovation. Increased targeting of S&T funding to specific fields and sectors. Specific mechanisms to fund ICT and bio-technology research. Competitive Fund for Scientific Excellence: first rate internationally competitive centers or science nuclei. (*Finland has designated centers of excellence in research since 1995. The aim of this strategy is to promote creative and efficient research environments which are conducive to research of the highest international standard. A centre of excellence is a unit of research and postgraduate education consisting of one or several high standard research teams which is, or has the potential to become, a world leader in its field. The centre of excellence program covers all fields of science and scholarship. The six-year program launched by the Academy of Finland in 2000 comprises 26 units in different disciplines. The program will be expanded by another 16 new units between 2002 and 2007*<sup>46</sup>).
- Adoption of comprehensive policy framework to guide developments in priority areas, particularly aimed at upgrading of infrastructure and facilities, accelerating the commercial application of new ideas and developing and retaining skills.
- Strategy design for a complete and productive integration of research institutes into universities, providing performance-/merit-based funding mechanisms for the former.
- Stimulating private sector R&D and innovation through public funding programs; e.g., competitive scheme of grants and loans to help firms, SMEs in particular, undertake and commercialize R&D; technology partnerships between university and enterprise; providing matching grants for joint industry-academy projects; funding directed at established companies that plan to undertake their first R&D projects; subsidy or loan based schemes for funding innovation, promoting start ups and innovative firms; more favorable tax treatment of business R&D. (*In Finland, the private sector plays a major role in both funding and conducting R&D. Its share of R&D funding rose to nearly 70 per cent in 2000. The number of businesses carrying out R&D was around 2,500. R&D funding increased especially rapidly in the electronics industries, which represented over half of corporate R&D spending in 2000. Cooperation between Finnish universities and business grew substantially in the 1990s, and business tripled its input into universities. Towards the end of the nineties,*

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<sup>45</sup> Department of Education, Science and Training (DEST) About the Research Training scheme <http://www.dest.gov.au/highered/research/rts.htm>

<sup>46</sup> Research in Finland [http://www.research.fi/research\\_in\\_finland.pdf](http://www.research.fi/research_in_finland.pdf)

corporate R&D funding and competitive public funding represented half of university research funding. University-business cooperation is seen to improve economic competitiveness by stepping up the transfer of research findings. This cooperation is promoted by the national R&D and technology programs and joint research projects and by science and technology parks and centers of expertise located in the vicinity of universities<sup>47</sup>. Australia has set up an initiative to support innovative projects in science-related education. Through this initiative the Government seeks to achieve the following objectives: (i) to assist universities to develop courses to meet the needs of established and emerging industries; (b) to attract students into science-related courses to meet the needs of industry through the development of innovative approaches to course design and delivery; and (iii) to encourage industry to invest in its own future through investing in education and training. This initiative assists universities or consortia of institutions, in partnership with industry to develop innovative approaches to science-related education, including the establishment of university lectureships and innovative course development. To qualify for funding, the projects must involve partnerships between universities and industry, with industry contributing funding in cash or in kind<sup>48</sup>.

- Focusing support on young researchers with funding for starting academic positions and support for independent research. Also, some countries are attempting to boost the S&T workforce by attracting more women.

#### **D. Funding**

- Diversification of funding sources. Requires more autonomy in budget management on the part of HEI, improvement of operating efficiency, enhancement of capacity for resource generation, encouragement of entrepreneurial activities on the part of the faculty and / or institution, continuation and expansion of cost-recovery policies complemented by student financial assistance, and effective public information procedures and accountability mechanisms (Box 16).

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<sup>47</sup> Research in Finland [http://www.research.fi/research\\_in\\_finland.pdf](http://www.research.fi/research_in_finland.pdf)

<sup>48</sup> See DEST Science Lectureship Guidelines  
<http://www.dest.gov.au/highered/sciencelectureships/guidelines.htm#Background>

**Box 16****Funding: A Strategic Model**

Countries should consider moving to a more strategic model of financing higher education that links funding, tuition fees, and student aid policies with overall economic trends. It is also important that government policies for higher education finance take economic trends into account and remain flexible enough to respond to changing economic conditions. A more strategic model along these lines might include the following features:

It would reward those institutions committed to addressing areas of high national priority rather than providing the most funding to institutions with the highest cost per student. In most countries, the funding of institutions is based on government funds in combination with student fees. A strategic model would have governments establishing funding formulas that reflect the setting of priorities based on national and regional needs.

Overall tuition levels at public institutions would be set as a percentage of measures of ability to pay--such as median family income or income per capita--rather than on the basis of cost per student. Fees are typically thought of as a means for financing institutions. As a result they are likely to increase over time at a rate that is different from people's ability to pay for college. Under a strategic approach, fees would increase over time in line with economic conditions rather than institutional growth.

If tuitions vary by field of study, the variation would be a function of national priorities and labor force needs more than cost differentials. In countries where fees are not uniform across all fields of study, they typically are set on the basis of which programs cost the most. But cost differentials among fields of study may bear little relationship to relative labor force needs and shortages. In a strategic model, countries would set fee differentials to encourage students to enter fields of high national priority, including meeting current and projected labor force shortages.

Institutions should receive more funds for the disadvantaged students they enroll than for higher-income students. Most countries make no distinction among groups of students in the funding of institutions, relying instead solely on student aid to provide access to disadvantaged groups of students. More progress on access would be achieved if a portion of institutional allocations were access based as well.

Government officials would explicitly consider what proportion of public funding for higher education should be devoted to student aid. Typically, student aid levels are now a residual of many other decisions. To be strategic, fee increases should be accompanied by some policy that explicitly reduces the amount of government funding of institutions and at the same time deliberately increases student aid funding.

Student aid policies should be designed to provide a safety net for the most disadvantaged students when tuitions increase for whatever reason. The formulas in most student aid programs do not fully match the increase in fees, thus adversely affecting access for the most disadvantaged students. Student aid policies should instead be designed to protect the most disadvantaged students from the adverse effects of higher fees.

Countries should recognize the impact of the economic cycle on higher education funding by reserving a portion of funds in good economic times to be used when less public funds are available. The financing of higher education in most countries essentially ignores the reality of the economic cycle by failing to plan for economic downturns. Conversely, countries should consider borrowing funds during economic hard times to be repaid once the economy recovers.

Arthur M. Hauptman (1998) "Linking Funding, Student Fees, and Student Aid: An Alternative to Cost Recovery" *International Higher Education, Fall 1998*

- Rationalization and improvement of funding allocation mechanisms for state HEI (Box 17). In particular, adjustment of normative cost and coefficient formula to fund student places by way of introducing performance-/merit-based criteria and incentives. *(In Finland, some 65 per cent of the universities' budget comes from the State budget through the Ministry of Education. In addition to the university budget set by the State, the universities are increasingly procuring external funding and expanding their chargeable services. The Academy of Finland and the National Technology Agency (Tekes) are among the main sources of funding. Especially funds provided by businesses and abroad have increased. The operating expenditure agreed upon in the result negotiations between the Ministry and the universities comprises basic funding (c. 85 - 90 per cent) , earmarked funding for national responsibilities and programs, project funding and performance-based funding. Performance-based funding is used to reward universities for high-quality education and research. The State university budget is allocated according to a formula. This formula-based funding system has been gradually implemented since 1997 and it will be fully operational in 2003. The formula allocates basic funds to universities primarily according to their target*

numbers for Master's degrees and doctorates weighed by field of study. Lagging behind the targets is also taken into account in the formula)<sup>49</sup>.

**Box 17**

**Input and output funding**

Input funding refers to the financial means made available to institutions to cover distinct costs such as staff salaries, building maintenance, or various other so-called "costs to continue." These costs can also be effected by the institutions level of activity and the number of students. Output funding, on the other hand, is tied to specific teaching or research outcomes, or to some indicator of institutional performance. Funding on a performance basis is generally believed to provide more incentives for efficiency than input funding. Examples of output indicators may be found in the number of graduates, the number of degrees conferred, the number of research papers, or the number of publications in academic journals. Other variables of a more qualitative character might also be used, like test scores and success in attracting research grants.

Efficiency and the shift to output-oriented funding is also related to what are called "normative allowances." These are allocations calculated on the basis of general and objective criteria, applicable to all institutions or students involved - as opposed to "allowances by reimbursement" which are amounts based on individual requests and approved by authorities on the basis of individual assessment.

Normative allowances imply greater incentives for efficient behavior, provided the norms are well founded and spending decisions are left to those receiving the money. Furthermore, there is the issue of fairness; in a normative funding system there is no possibility for the funding agency to pay attention to special circumstances because all units are funded according to the same principles - those funded cannot plead for special circumstances. To remedy disparities amongst institutions, the funding agency can increase the number of different funding bases, thereby incorporating more characteristics of the organizations (or individuals) applying for funding; i. e. *fine tuning* the funding system. Fine tuning will invariably lead to a system of input funding (presumably because the system ends up having to cater to the needs of its institutions). An example of fine tuning, which he labeled alternative, is to have all HEIs receive the same kind of treatment as far as funding is concerned, and to make special (non-core) funds available to separate HEIs to ensure that their needs are met. However, both the fine tuning and the input-by-creating-special-funds solutions will have a negative effect on the transparency of the system because complicated mechanisms do not produce clear signals in terms of incentives and objectives, and may even run the risk of producing conflicting signals to receiving parties.

P. Maaseen, Public Resource Allocation <http://www.osi.hu/hesp/download/respub.pdf>

- Need to rework and improve student loan scheme on the basis of universal access for all eligible tertiary students, enhanced user information and operational de-bureaucratization (Box 18).

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<sup>49</sup> See Ministry of Education, Higher Education Policy in Finland <http://www.minedu.fi/julkaisut/Hep2001/Edusys/5Finance/>

**Box 18****Australia's HE Contribution Scheme (HECS)**

HECS is a way of ensuring that students contribute to the cost of their higher education. HECS provides a loan that is indexed to maintain its real value but is otherwise interest-free, with deferred income contingent repayment. The deferred payment arrangements mean that students are not prevented from participating in higher education if they are unable to pay the contribution up front. The money collected through HECS is spent on the higher education system. HECS is administered by the Department of Education, Science and Training, the Australian Taxation Office and higher education institutions.

All students that are enrolled in a HE award course, which has been funded by the Commonwealth Government, and offered at a HEI, the Australian Defense Force Academy; the National Institute of Dramatic Art; or the Australian Film, Television and Radio School pay HECS. HE award courses include degrees, diplomas, associate diplomas, graduate diplomas, graduate certificates, masters qualifying courses, masters courses and doctoral courses.

Students commencing a new course of study after 1 January 1997 are required to pay differential HECS contributions. The amount you pay is based on the individual units you study, not on your overall course. Units of study are divided into three bands and the amount you pay for each unit depends on the band and the weight of the unit within a course.

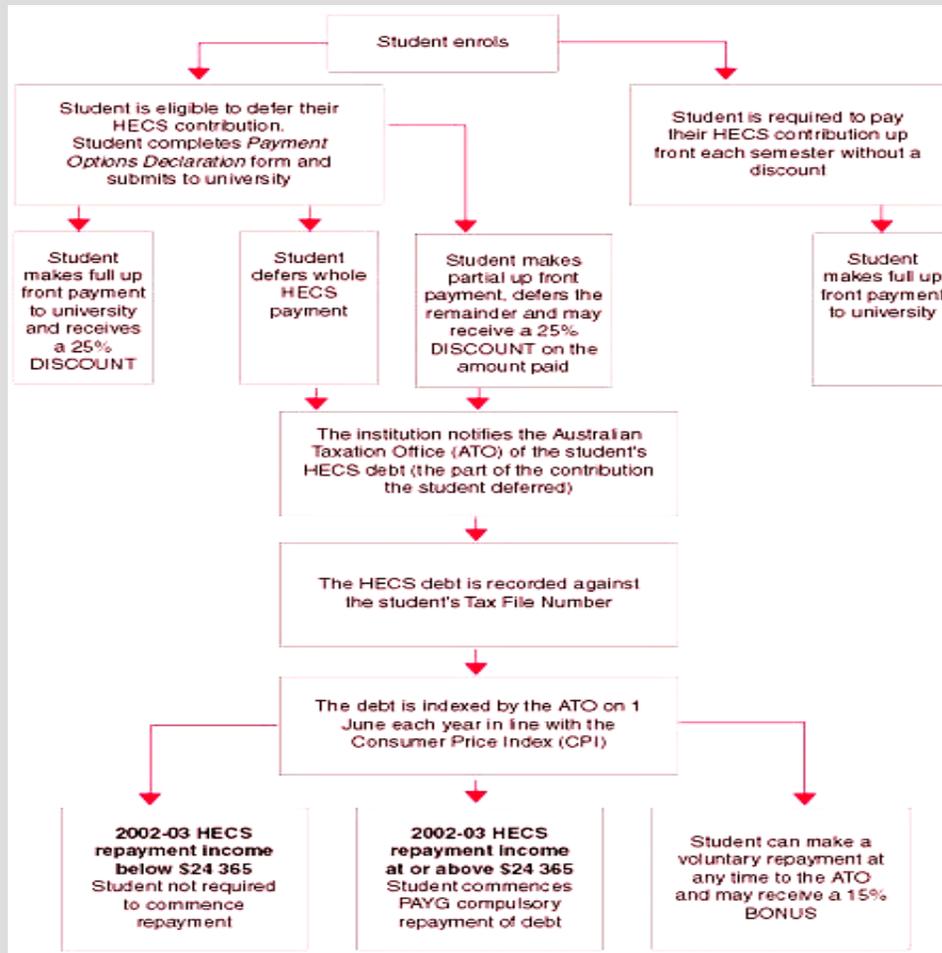
In 2003, the full-time full year contributions for each band are:

Band 1	\$3 680	Arts, Humanities, Social Studies/ Behavioral Sciences, Education, Visual/Performing Arts, Nursing, Justice and Legal Studies
Band 2	\$5 242	Mathematics, Computing, other Health Sciences, Agriculture/Renewable Resources, Built Environment/Architecture, Sciences, Engineering/Processing, Administration, Business and Economics
Band 3	\$6 136	Law, Medicine, Medical Science, Dentistry, Dental Services and Veterinary Science

HECS is charged on a semester basis for every semester of the course in which you are enrolled. Most students have three choices as to how they pay their HECS. These are:

- Paying all of your HECS up front and receiving a 25% discount;
- Paying at least \$500 of your HECS contribution up front and deferring the remainder. You will only receive a 25% discount on the amount you pay. (Note: Institutions may limit the number and size of individual payments that can be made and may choose not to accept partial up front payments that total less than \$500. Contact your institution for information about making an up front payment);
- Deferring all of your HECS contribution payment and repaying your contribution when your income reaches the income threshold.

## How HECS Works



HECS <http://www.hecs.gov.au/hecs.htm>

For other countries information on student loan schemes see:

[http://www.gse.buffalo.edu/org/IntHigherEdFinance/publications\\_SLoanBibli.html](http://www.gse.buffalo.edu/org/IntHigherEdFinance/publications_SLoanBibli.html)

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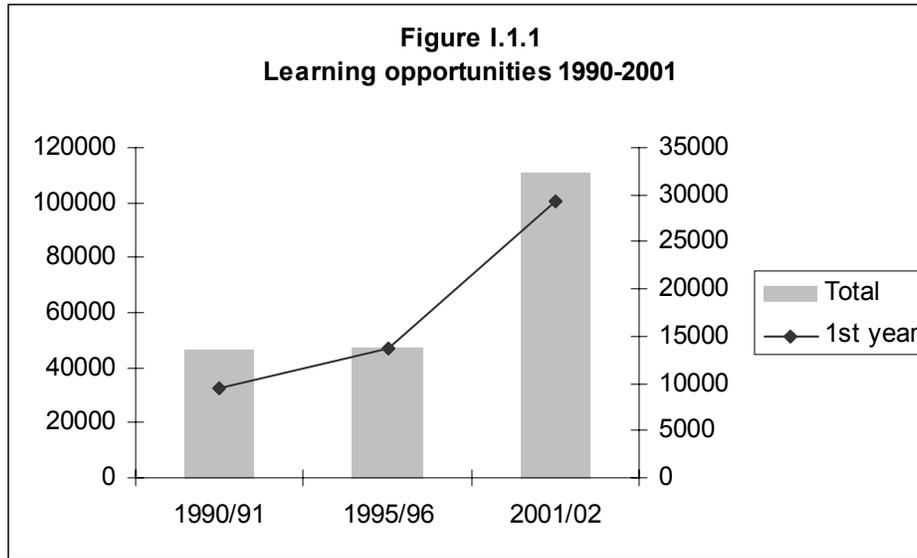
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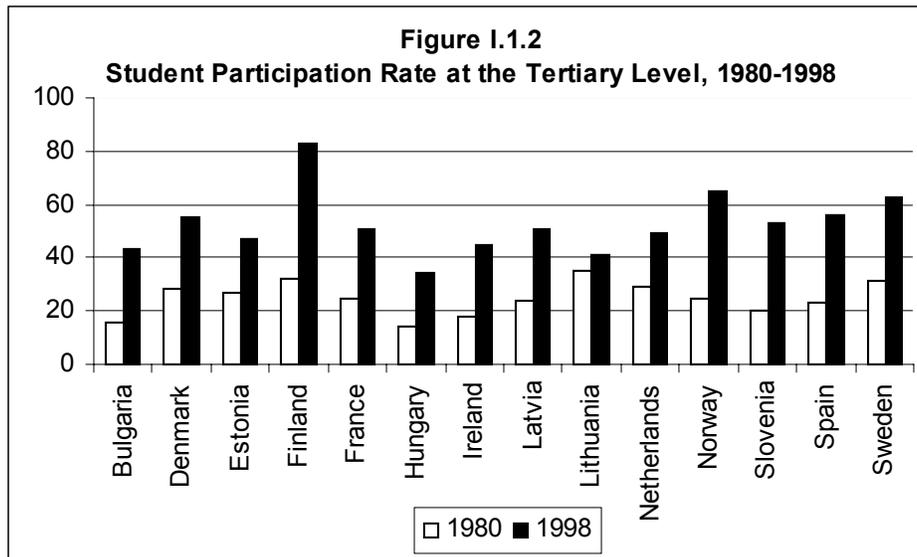
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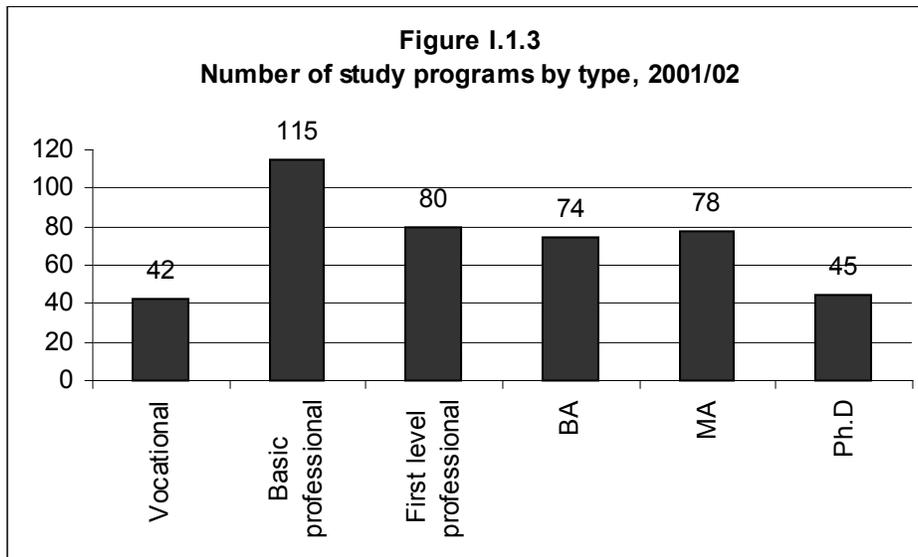
## VI. Figures



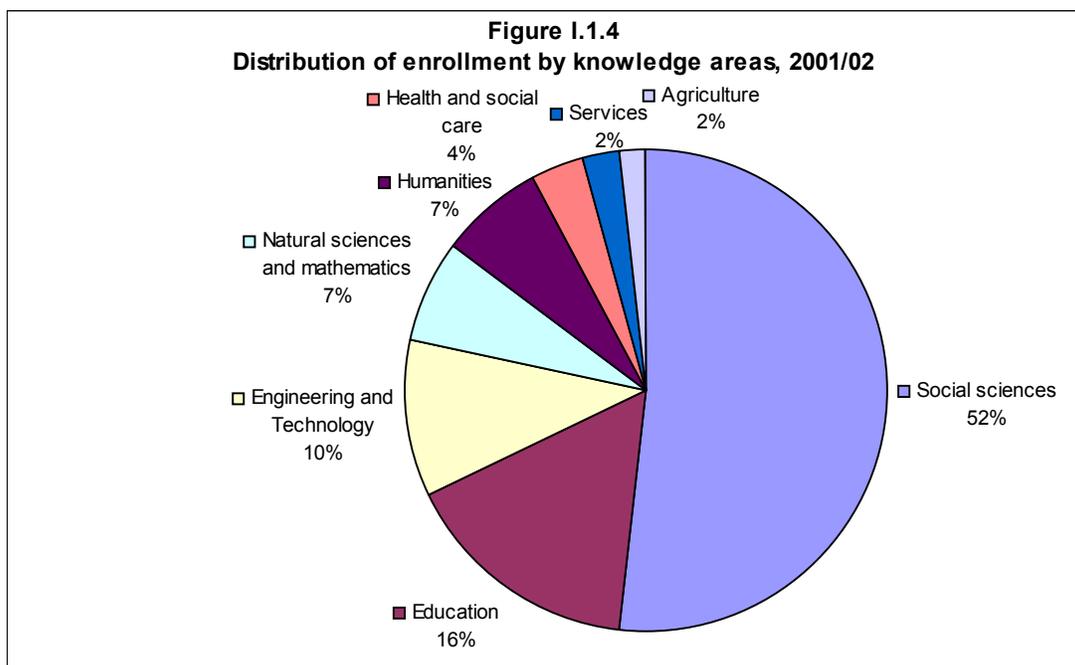
Source: MoES (2001)



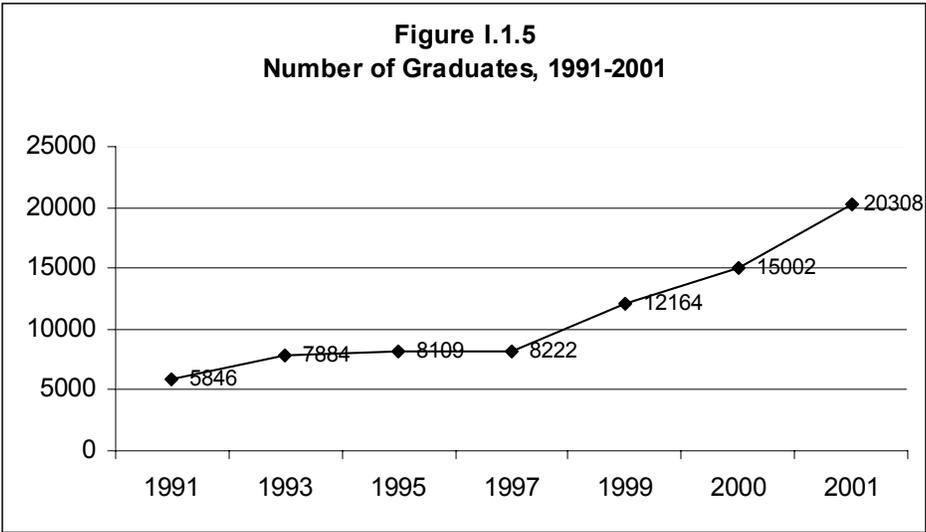
Source: The World Bank (2002a)



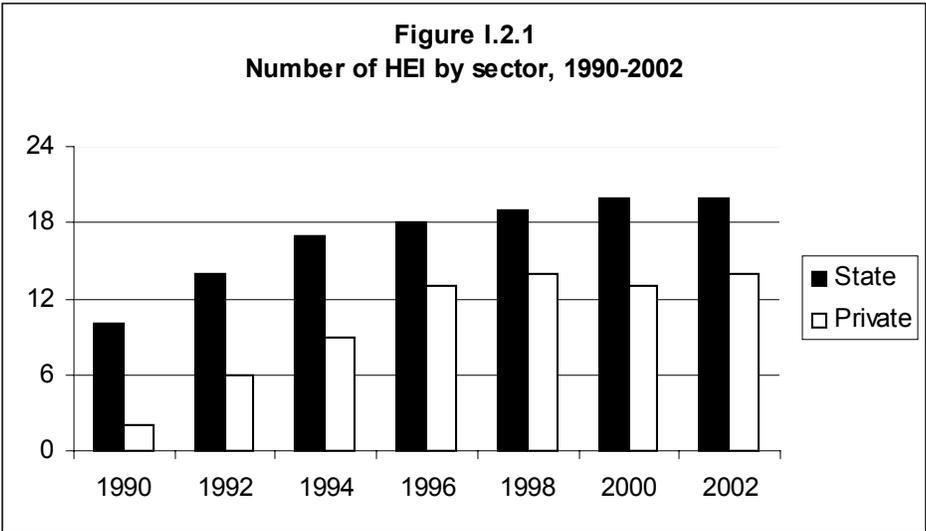
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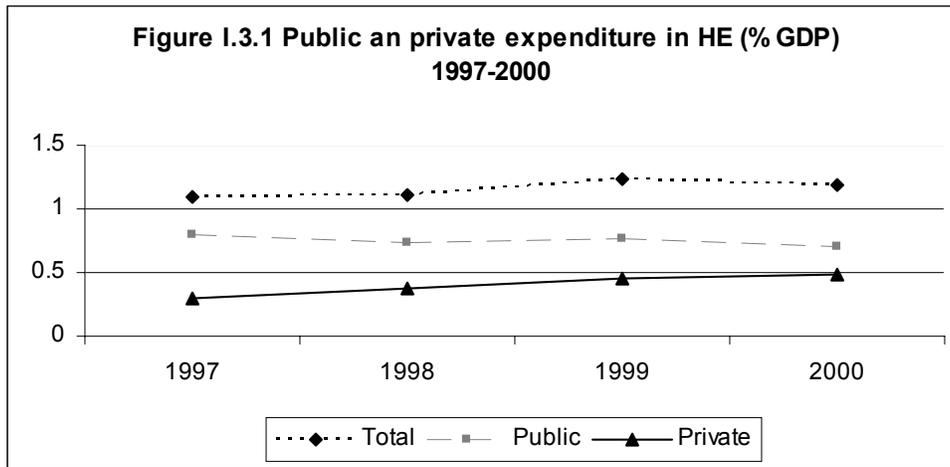
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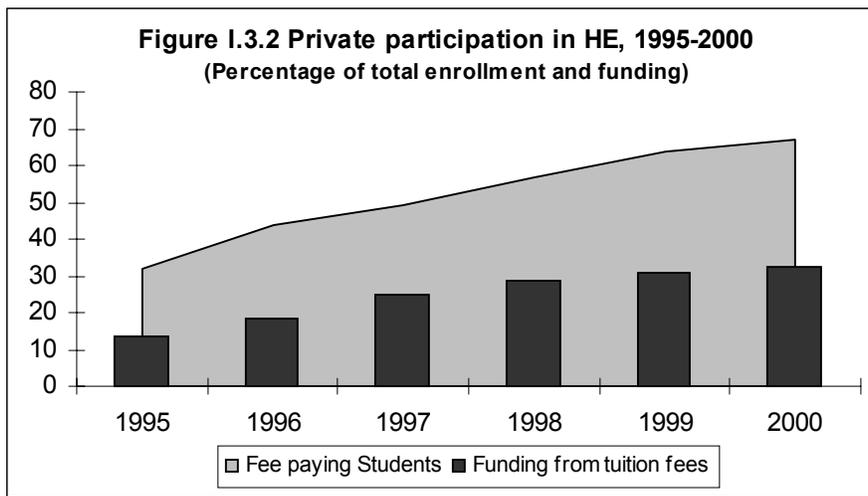
Source: MoES (2001)



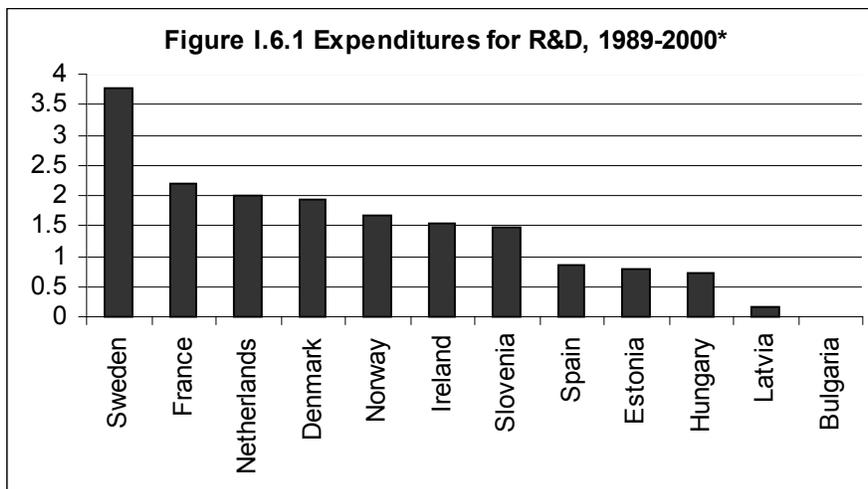
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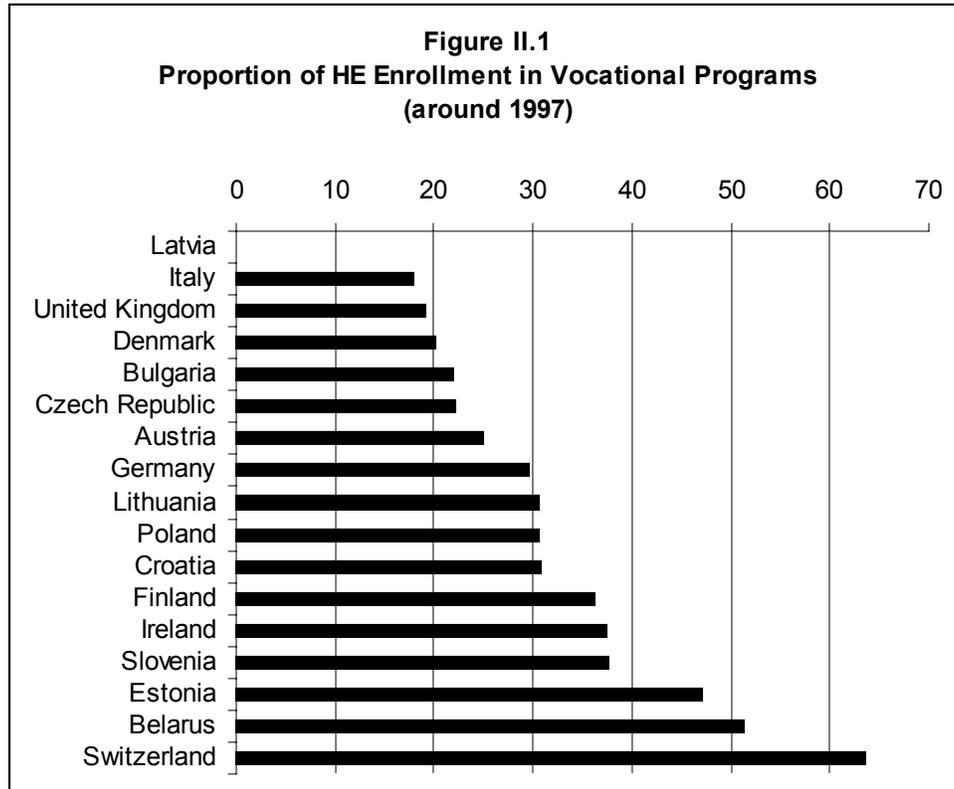
Source: MoES (2001)



Source: Based on MoES (2001) Tables 4.2.2 and 7.8

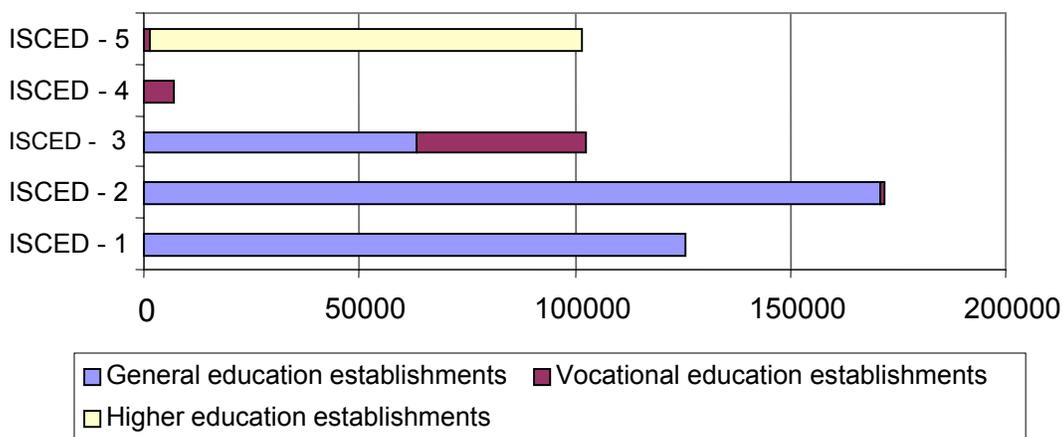


Source: The World Bank (2002a) and MoES (2001)  
\* Data are for the latest year available



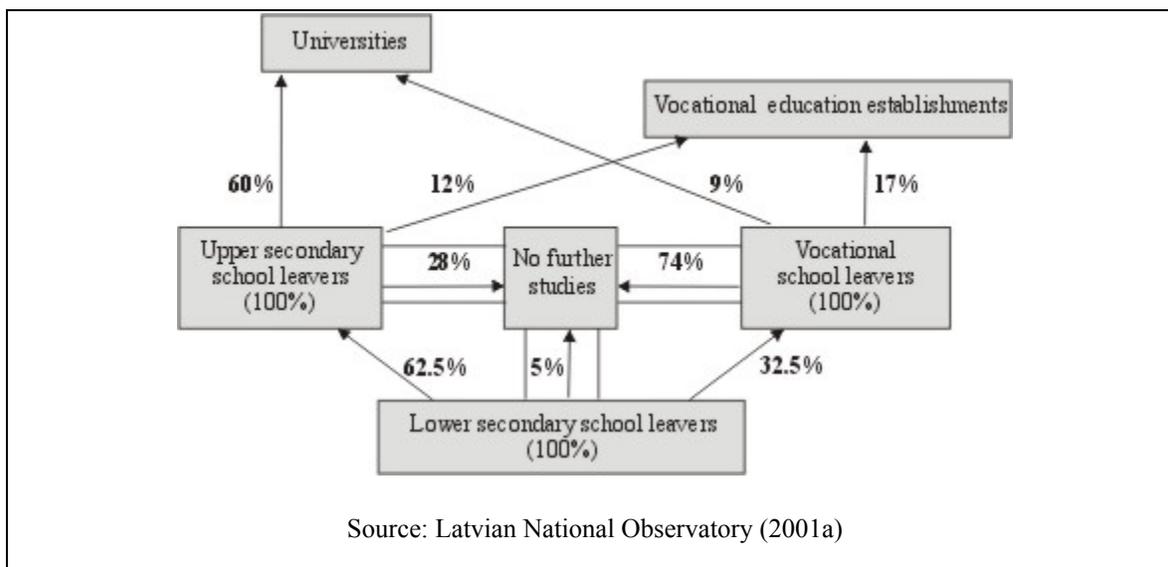
Source: UNESCO; Statistical Yearbook 1999

**Figure II.2**  
**Enrollment by ISCED-97 Levels: Number of Students**  
**(2000 / 2001)**

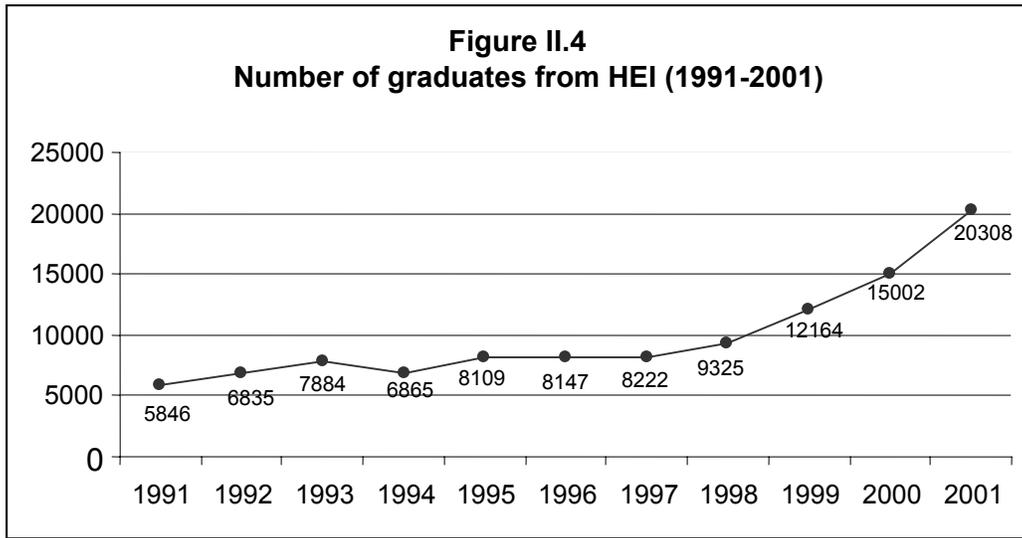


Source: Latvian National Observatory Report 2001 <http://www.aic.lv/en/>

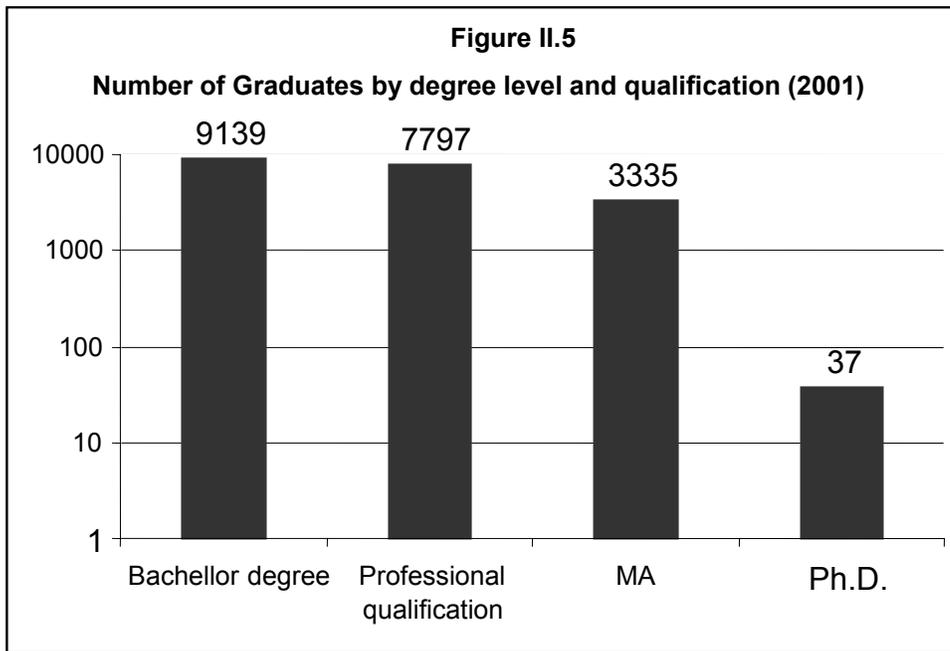
**Figure II.3.**  
**Study paths chosen by students in 1999**



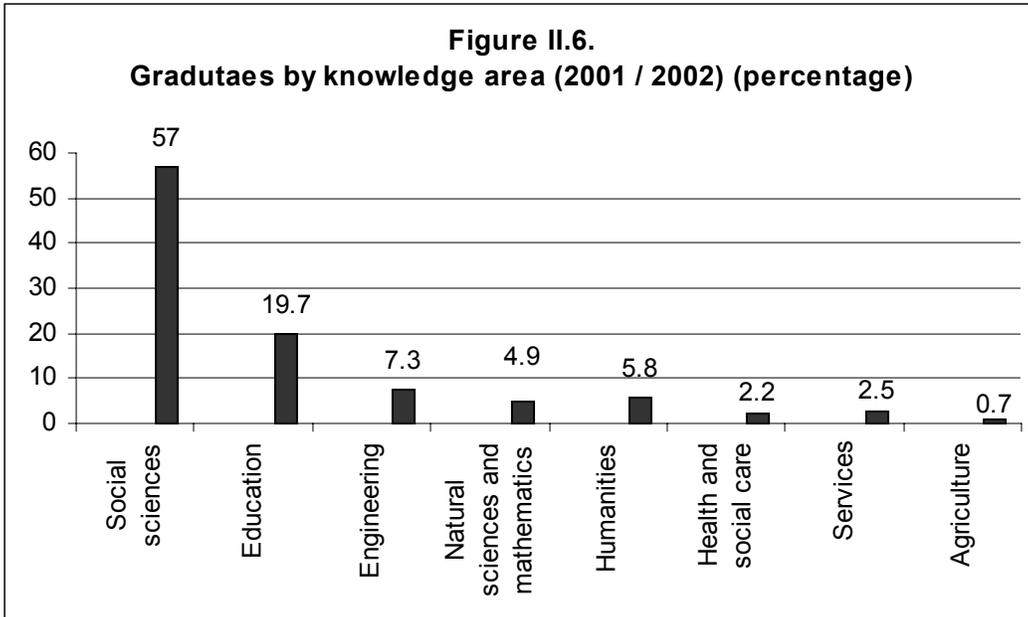
Source: Latvian National Observatory (2001a)



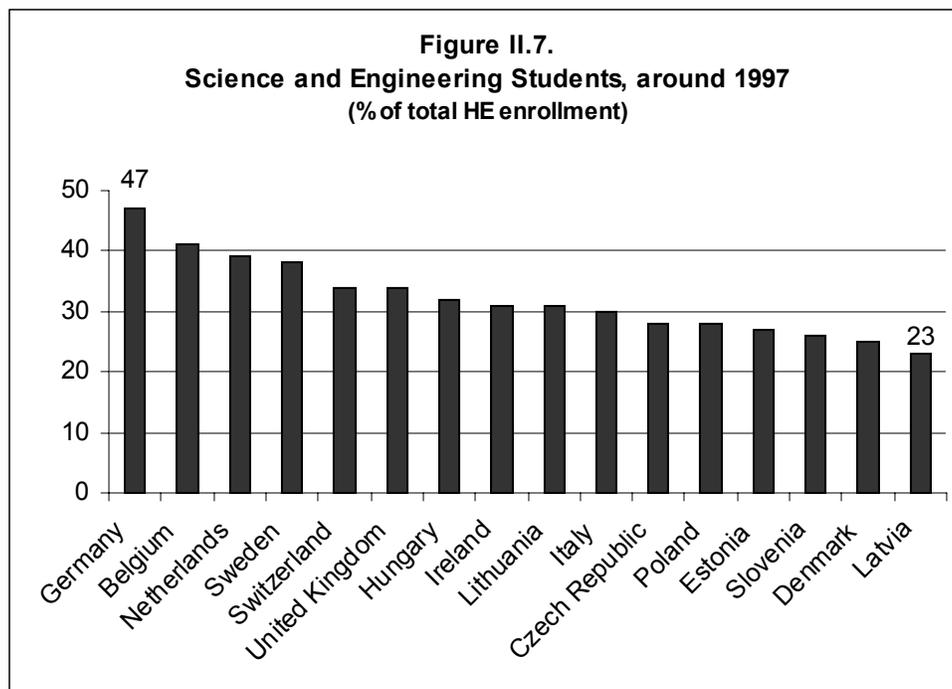
Source: MoES (2001)



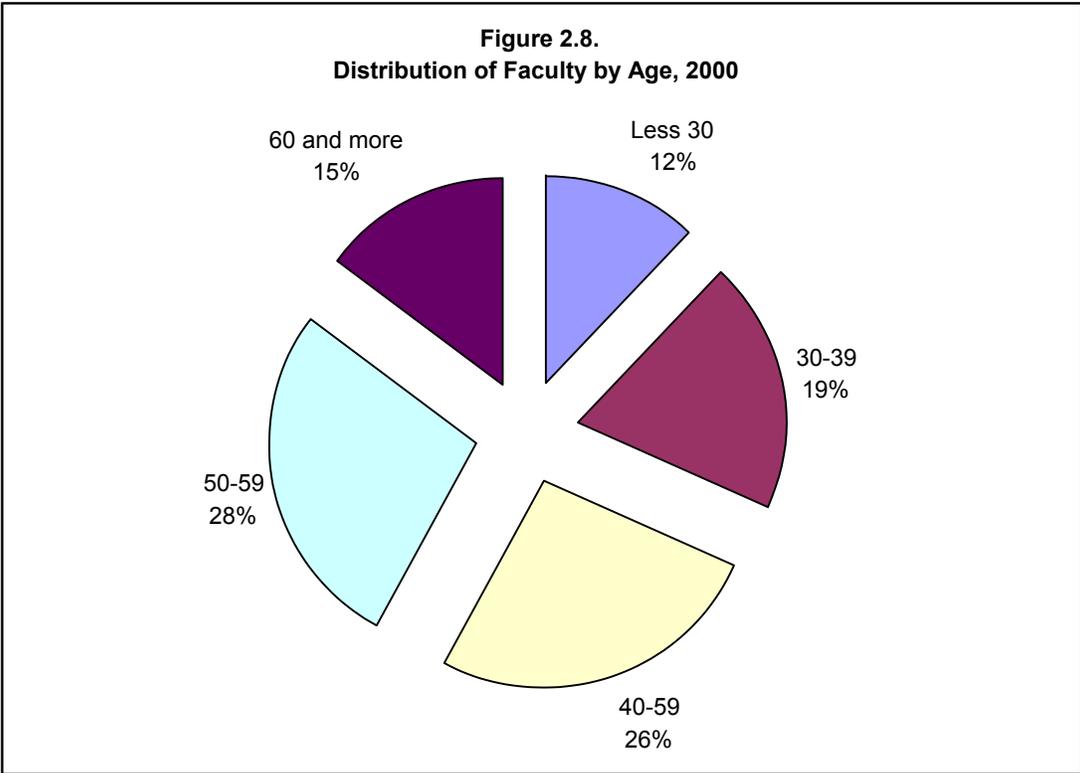
Source: MoES (2001)



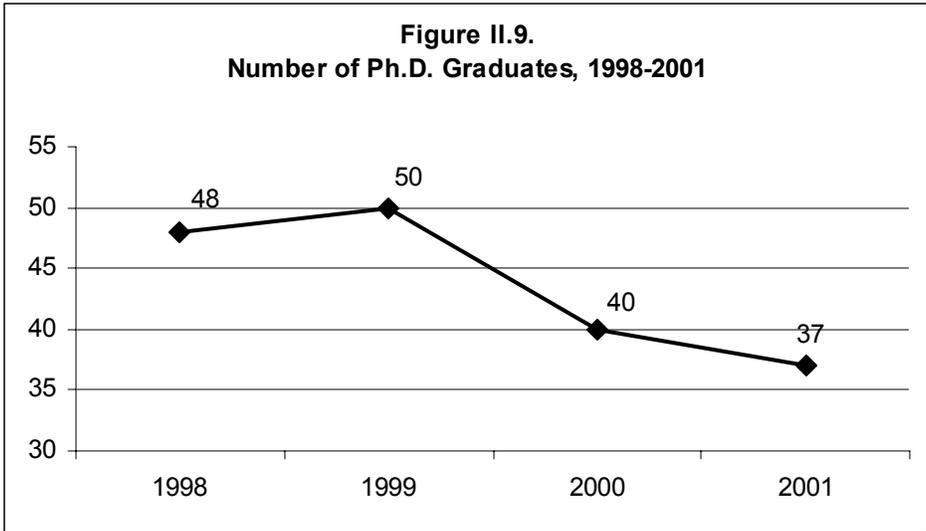
Source: MoES (2001)



Source: The World Bank (2002a)

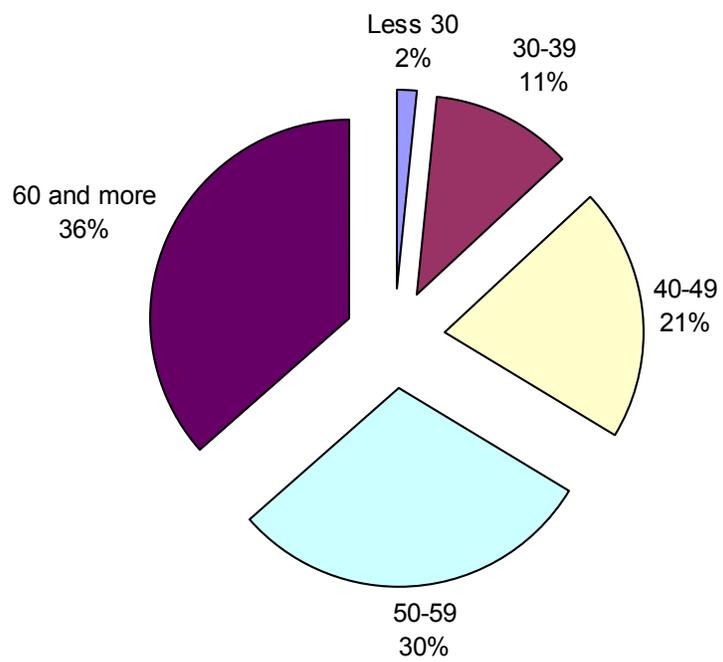


Source: MoES (2001)



Source: The World Bank (2002a) and MoES (2001)

**Figure II.10.**  
**Distribution of Researchers by Age, 2000**



Source: MoES (2001)

## VII. Appendix

### DIRECTORY OF INTERVIEWED PERSONS\*

#### GOVERNMENT OF LATVIA

##### Ministry of Education and Science

Karlis Greiskalns	Minister
Andris Sarnovics	State Secretary
Valdis Egle	Deputy State Secretary on Science Issues Director,
Janis Karkliņš	Director, Department of Education
Janis Cakste	Director, Department of Higher Education, Science and Research
Velta Vikmane	Head, Higher Education Division
Marina Meksa	Head, Financing and Credit Division
Agnis Zarins	Head, Strategic Planning Division
Juris Dzelme	Director, Higher Education Quality Evaluation Center
Janis Juliks	Project Manager, Education Improvement Project

##### Ministry of Finance

Inguna Sudraba	Deputy State Secretary
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##### Ministry of Economy

Andris Liepins	Deputy State Secretary
Edvins Karnitis	Commissioner, Public Utilities Commission

#### HIGHER EDUCATION INSTITUTIONS

##### University of Latvia

Ivars Lacis,	Rector
Indrikis Muiznieks	Prorector for Research
Andrejs Geske	Associate Professor, Faculty of Education and Psychology
Andris Kangro	Dean, Director of Institute for Education Research, Faculty of Education and Psychology
Andris Grinfelds	Head, Department of Educational Informatics, Faculty of Education and Psychology
Erika Sumilo	Head, Department of International Economy and Business; Director, Center for North America Studies

##### Latvia University of Agriculture

Peteris Busmanis	Rector
Juris Skujans	Vice-rector
Peteris Rivza	Vice-rector

##### Liepaja Pedagogical Academy - Liepaja

Gunta Smiltneiece	Rector
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\* Interviews were kindly arranged by Lilita Sparane and I benefited also from the advice and company from Toms Baumanis.

**Vidzeme University College - Valmiera**  
Peteris Cimdins Rector  
Richard Baerug Vice-Rector  
Inita Sakne Vice-Rector

**Ventspils University - Ventspils**  
Janis Vucans Rector  
Juris Zagars Vice-Rector  
Mara Leitane Pro-Rector

**Turiba Business Administration High School**  
Aldis Baumanis, Rector; Chairman, Association of Private Universities

**Stockholm School of Economics in Riga**  
Diana Pauna Pro-Rector  
Karlis Kreslins Assistant Professor  
Evita Lune Research Associate

## **COUNCILS**

**Latvian Council of Science / Academy of Sciences**  
Juris Jansons Chairman  
Elmars Grens Member, Scientific Director, Biomedical Research and Study Center

**Higher Education Council**  
Ivars Knets Member, Rector Technical University of Riga  
Juris Ekmanis Member  
Juris Borzovs Member

## **STUDENTS**

Erik Samuls Chairman Latvian Students Association  
Members Latvian Students Association  
Members Students Council of Latvia University of Agriculture  
Members Students Council Ventspils University

## **TRADE UNIONS**

Astrida Harbacevica President, Education and Science Workers' Trade Union of Latvia  
Ilze Trapenciere Member, Latvia University Education Workers Trade Union

## **OTHER**

Indra Dedze Program Coordinator, The Soros Foundation Latvia  
Aija Tuna Program Coordinator, The Soros Foundation Latvia  
Andris Aukmanis Deputy Director for Development, The Soros Foundation Latvia  
Viesturs Pauls Karnups Head, Latvian Legislation Translation Division, TTC