

REAL-TIME SYSTEMS

Reflections on Higher Education in the Czech Republic, Hungary, Poland and Slovenia

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Real-time systems (*An ICT definition*)

In real-time multiprocessing there is the extra requirement that the system complete its response to any input within a certain critical time. This poses additional problems, particularly in situations where the system is heavily loaded and is subject to many simultaneous demands. Real-time systems are always dedicated. Most systems are not real-time.

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3. Hungary

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A Short Sketch of Developments

The history of Hungarian universities goes back many centuries. After unsuccessful attempts to found a university in the 13th century, the first Hungarian university, with faculties of law and medicine, was established in the town of Pécs in 1367. It survived for only a decade. In 1435 another university was founded in Óbuda with four faculties, which existed for a quarter of a century. The University of Pozsony (in present day Bratislava, Slovakia) was founded in 1467 and survived only a few years.

The next development took place a century later in Transylvania where Prince István Báthory established a university. In addition to universities, colleges and academies also contributed to an increase in the number of scholars, as did the traditional custom of attending universities abroad. The founding of the University in Nagyszombat (in present day Trnava, Slovakia) in 1635 brought a change in higher education. Bishop Péter Pázmány re-organised the Jesuit College into a university, starting with faculties of theology and philosophy, and later extending to include a faculty of law and, in 1769, a faculty of medicine. This university has operated continuously since its establishment; first in Nagyszombat, from 1777 in Buda and since 1784 in Pest.

The bourgeois-democratic revolution required an educated middle class, which promoted the development of Hungarian higher education, as did the fact that ministers of public education and religion were aware of the need for intellectuals. An important figure was József Eötvös, who dealt with the statutes of the university and defined the requirements of academic freedom in 1848.

The founding of the University of Kolozsvár (in present day Cluj-Napoca, Romania) was proclaimed in Act XIX of 1872 under the ministry of Ágoston Trefort. In addition to these universities, colleges of dramatic art, music, trade and veterinary science were also established. In 1912, an act declared the founding of the universities in Debrecen and Pozsony (Bratislava). The number of university students had significantly increased: in 1866 there were 4,955 students; by 1913 this number had risen to 18,899.

Due to the enormous territorial losses imposed by the Peace Treaty of Trianon, great effort was made to preserve the universities of Kolozsvár and Pozsony for Hungary. The university in Kolozsvár was moved to Szeged and the one in Pozsony, to Pécs.

In the period between the two world wars, the standard of university education was equal to that of the general quality in Europe; however, participation in the various sciences was not proportionate. In the academic years of 1937 and 1938, almost half of the 11,747 students graduated in law and theology, with only 11% graduating in medicine and 7.2% in engineering. After the end of World War II, evening and correspondence courses were initiated though many impugned these methods. Women were admitted without limitations.

After 1949, Hungarian universities were forced to undergo a series of reforms aimed at eliminating academic freedom. Soviet schoolbooks and curricula were introduced and Marxism and the Russian language were made obligatory subjects. The principals of admission were based on the ideologies of the administration; therefore, several brilliant lecturers were dismissed by reason of either their noble birth or alternative ideology. The strict central governance eliminated the autonomy of the universities.

New universities were founded: the University of Economics in 1948, the Heavy-Industry and Technical University of Miskolc in 1949, the University of Transport based in Szeged, (later in Szolnok) in 1951. In the same year, the medical universities were transformed into individual institutions. An executive order of 1950 declared the separation of theology faculties from the organisation of universities. The political changes in 1949 lead to a decline of values at the universities and to university students playing an initiating and significant part in the revolution of 1956.

After the suppression of the revolution and the events of retaliation, gradual changes attempted to restore the status of university education. University lecturers, independent of politics, played the major role in this restoration. Certain changes included the abolition of discrimination based on birth in 1963, and the reform of universities' organisational statutes in 1968 (this provided more autonomy to the university councils in which one third of the representatives could be students.)

The undeniable turning point, as in other areas of life, was brought about by the change in the political regime. The principles of the autonomous university and of academic freedom were once again acknowledged. New institutions were founded and new faculties extended the old ones. Of particular importance was the establishment of Péter Pázmány Catholic University and Gáspár Károli University of the Reformed Church in 1993. In the 1990s, amalgamation of the disintegrated institutions became a major policy instrument to strengthen Hungarian higher education. Act 52 of 1999, which reflects the result of integration, outlines the new structure of Hungarian higher education and propels academic training into the next millennium.

The Basic Structure of the System

Hungarian higher education, a binary system, has colleges and universities. The binary divide, however, is not very clear: some colleges are associated with universities as college faculties of those universities; and universities may offer college-level courses. The length of the college level programmes (corresponding to the Bachelor's level) is at least three years with a Maximum of four years. The university level programmes (corresponding to master's level) last at least four years with a maximum of five years (with the exception of medical universities where the programmes last six years). Higher education institutions may also organise short-cycle (two year) post-secondary courses called Accredited Higher Vocational Training (AHVT) courses¹. The AHVT training has a strong practical orientation. These courses do not lead to a degree but to a certificate. The AHVT programmes are offered mainly by colleges and, in many cases, in co-operation with secondary vocational schools. In addition to the Bachelor's and Master's programmes, universities offer PhD courses (taking three years), specialised accredited post-graduate courses (with a normal duration of two years), and various continuing education courses.

According to the Higher Education Law, the definition of a university (and the conditions for an institution to be recognised as a university) is that they: are higher education institutions able to organise training courses in more than one field of science (that is, social sciences, natural and technical sciences, life sciences and theology), and inside a field of science in more than one branch of sciences; carry out scientific research activity; have accredited PhD courses; are empowered for habilitation process; have university professors with a PhD and habilitation.

A college, according to the law, can operate if: it is able to organise more than one training course in a branch of science; it carries out research and development activity, and if its professors have a PhD. Following a binary pattern, Hungarian universities and colleges grant college degrees and university degrees. In order to facilitate international comparison, the Higher Education Law makes it possible for graduates of Hungarian higher education institutions to use the title 'Bachelor' if they have completed a college education, and the title 'Master' if they have completed a university education. The area of study is also indicated.

Doctoral education in Hungary is provided by disciplinary-accredited university doctoral schools for university degree (Master's) holders. Applicants must pass entrance examinations. There are three basic forms of doctoral training: as a full-time student with a state scholarship (state-financed student); as a full-time student without a state scholarship; and as a part-time student.

Doctoral education may only be offered in the framework of PhD schools and DLA (Doctor of Liberal Arts; hereinafter referred to as 'DLA'; or, both together as 'PhD') schools. Doctoral schools may be organised by disciplines and by multidisciplinary fields at a university.

¹ The July 1996 Amendment of the Higher Education Law integrated the post-secondary Accredited Higher Vocational Training into the system of higher education.

Table 1: Number of doctoral candidates and number of PhD graduates

	Mode of enrolment	2001/2002
First year students	Ft	1,814
	Pt	988
Second year students	Ft	1,597
	Pt	698
Third year students	Ft	1,402
	Pt	531
Total	Ft	4,813
	pt	2,217
Students receiving state scholarship		2,587
PhD degrees awarded		834

Source: Statistics of the Ministry of Education (ME), national doctorate records of the Hungarian Accreditation Committee (HAC)

Table 2: University and college data 2001/2002

Type of Institution	Number	Number of students						No. of Academic staff
		AHVT	Bachelor	Master	Voc. training	PhD, DLA	Total	
State Univ.	17	971	81,522	108,567	17,724	6,815	215,599	15,615
Church Univ.	5		1,441	8,539	856	215	11,051	1,111
<i>Total Univ.</i>	<i>22</i>	<i>971</i>	<i>82,963</i>	<i>117,106</i>	<i>18,580</i>	<i>7,030</i>	<i>226,650</i>	<i>16,726</i>
State College	13	3,287	75,660	452	5,362		84,761	3,807
Church Coll.	21		7,144	389	338		7,871	841
Foundation C.	9	217	29,524		278		30,019	1,489
<i>Total College</i>	<i>43</i>	<i>3,504</i>	<i>112,328</i>	<i>841</i>	<i>5,978</i>		<i>122,651</i>	<i>6,137</i>
Total	65	4,475	195,291	117,947	24,558	7,030	349,301	22,863

Although the number of non-state higher education institutions is higher than the state ones, 86% of students study in the latter type.

The number of the institutions and faculties changed in parallel to the political changes of the last century. The modification of the Higher Education Law in 1999 reduced the number through a merger process, but the number of faculties is still rising.

Table 3: Number of HE institutions and faculties

Year	Institutions	Faculties
1990/1991	77	117
1992/1993	91	132
1999/2000	89	143
2000/2001	61	155
2001/2002	65	156
2002/2003	65	161

As with other aspects of life in Hungary, higher education is also capital-centred: more than 50% of students study at one of the Budapest institutions. The main provincial university towns are Debrecen, Szeged, Pécs and Miskolc. These towns, in addition to their role as regional centres of education and culture, are also the biggest settlements in the country.

The Higher Education Law

The Higher Education Law (ratified by Parliament in 1993) places all higher education institutions – with the exception of the national University of Defence and the Police College – under the supervision of the Ministry of Education (previously supervision of higher education institutions had been divided among five ministries).

The Law established two key intermediary institutions to provide professional advice on the development and control of higher education: the Hungarian Accreditation Committee (HAC) and the Higher Education and Scientific Council (HESC). The HAC renders opinions on the establishment or recognition (by the state) of higher education institutions and on the establishment or abolition of fields of study (courses) by accepting the requirements for qualifications of a given course. It also gives permission for starting a course (with the already accepted requirements of qualification) at a given higher education institution (course accreditation). In addition, the Law specified that the HAC must assess the standard of education and research for each higher education institution every eight years (institutional accreditation). The HESC should propose and advise on: priorities in development programmes and research; the establishment and abolition of courses, faculties and institutions; the recognition of non-state higher education institutions; budget distribution; and the size and allocation of student admissions.

The July 1996 Amendment was the starting point for an extensive merger process among universities. The Amendment allowed the formation of higher education federations to become fully merged within two years. The main goals of the integration are as follows:

- Offer a wider range of courses for students and increase the standards of education with an emphasis on the establishment of a flexible educational structure that responds to the changing demands of the labour market;
- Unify intellectual resources (initiating multi-, trans- and interdisciplinary activities),
- Establish higher educational institutions as intellectual centres of regional development, taking into account the tasks related to the inevitable consequences of Hungary's accession to the European Union;
- Improve the stability of institutions as the co-existence of various disciplines should make institutions become less sensitive to swift changes in the market and economy;
- Focus on performance and quality oriented financing as a way to enable institutions to elaborate long-term institutional policies (institutions must make sure that rationalising will not result in decreasing financial support provided from the state budget);

- Cultivate the efficient use of intellectual and infrastructural capacities, thereby eliminating redundant multiple structures, and;
- Develop more efficient income generating activities for the institutions.

Table 4: Number of university and college institutions

Type of institution	1996/1997	2000/2001	2002/2003
State University	25	17	18
Church University	5	5	5
Foundation University	0	0	1
<i>Total University type</i>	30	22	23
State College	31	13	12
Church College	23	20	21
Foundation College	5	6	9
<i>Total Non-university type</i>	59	39	42
Total	89	61	65

Access

The 1993 Higher Education Law regulates admission to Hungarian higher education institutions. All necessary information regarding admissions is available to applicants in a publication entitled the *Higher Education Admissions Guide*, which is published along with the necessary application forms on December 15th of each year. The deadline for the majority of applications is March 1st.

Applications to the standard programmes at Hungarian higher education institutions can be submitted by anyone with a valid high school final examination or the equivalent high school degree (a few exceptions exist at institutions that maintain special requirements). Non-Hungarian citizens may also apply to institutions, though the Ministry of Education must approve their educational certificates.

The National Office of Higher Education Admissions (NOHEA) co-ordinates admission procedures, organises exams including exam preparation and production of test materials, and provides information to applicants about admissions through its publications, World Wide Web page and information service office. It also ensures that all requirements and procedures comply with the Higher Education Law. NOHEA, in co-operation with the higher education institutions, processes all submitted application forms for admission.

The current admission procedures and requirements are strongly influenced by the individual requirements of the higher education institutions themselves. Consequently, there are multiple methods that are utilised when measuring the quality of applicants. A rather complex scoring system is used for calculating an overall score for each applicant. One common method for calculating an admission score involves the so-called 'accumulated score'. This is calculated based on high school achievement (final examination grades, grade point averages, etc.) Another method considers both the accumulated score and the 'achievement score'. This latter method refers to the score obtained on the entrance exam by the applicant. Admission is also possible based

solely on the achievement score. In addition to these methods, higher education institutions can award partial or full exemption from the entrance examinations. This is generally granted as a result of top performance on one of the national study competitions. Extra points can be also given for language exams and certain professional training certificates, etc. Additional conditions or skills may be expected by certain institutions for admission (e.g. artistic abilities). The institutions ultimately generate a final score for each applicant. These are then used to order the applicants by rank.

Applicants may apply for multiple majors and institutions but will ultimately be accepted by not more than one. For this reason, each applicant must rank their preferences when filling out the application form. The necessary score for admissions to each major is determined during the second half of July each year. These scores are published by NOHEA. If an applicant achieves the necessary score that fulfils the requirements of a particular place on the ranked list, he or she is accepted to that place and the lower ranked applications become invalid.

The Ministry of Education is currently developing a long-term plan for the reform of the higher education admissions process. The establishment of a more standardised system is the goal. This system should allow for a more thorough and fair evaluation of the applicants' abilities, promote a more comprehensive measurement of the overall secondary school curricula, and place greater emphasis on the results of the secondary school final examination. As opposed to the very specific admission requirements for particular subjects, the entrance examination of the future will focus on certain subject areas based on the students' interests.

Table 5: Access to higher education

Year of entrance examination	Number of Places available	Number of applicants	Number of new Entrants	Rate of acceptance %
1990	18,470	46,767	16,818	36.0
1991	19,566	48,911	20,338	41.6
1992	24,399	59,119	24,022	40.6
1993	25,000	71,741	28,217	39.3
1994	31,300	79,805	29,901	37.5
1995	33,975	86,548	35,081	40.5
1996	39,553	79,369	38,382	48.4
1997	42,000	81,924	40,355	49.3
1998	43,000	81,065	43,629	53.8
1999	45,000	82,815	44,538	53.8
2000	47,000	82,957	45,546	54.9
2001	49,000	84,380	49,874	59.1

Table 6: New entrants (total and first year students) by entrance qualification

Year	Secondary		Technical high school	Higher Education	Other	Foreign	Total
	School	Trade school					
1997/1998	26,952	13,144	2,157	929	538	1,949	45,669
1998/1999	29,008	14,067	2,406	764	603	2,037	48,886
1999/2000	31,099	14,701	2,257	569	550	2,410	51,586
2000/2001	28,692	15,052	1,690	149	0	1,935	47,518
2001/2002	30,251	16,117	2,035	303	0	2,099	50,805

The majority of new entrants to higher education (over 90%) come from secondary school and trade school. The number coming from trade schools has increased slightly.

Participation

Enrolment in higher education has grown substantially: from 1990 to 2001 it more than tripled. Approximately 90% of all students are enrolled in Bachelor's or Master's programmes. In 2001, 59% of all students were enrolled as full-time students, 3% as part time students, and 38% as correspondence students. Enrolment in correspondence courses has become more popular in the 1990s: in 1990 only 21% of all Bachelor's and Master's students were enrolled in such courses.

Table 7: Students enrolled by type of programme

	AHVT	Bachelor and Master	Postgrad. voc. Training	Doctoral school	Total
1990/1991		102,387	5,989		108,376
1991/1992		107,079	7,611		114,690
1992/1993		117,460	8,414		125,874
1993/1994		133,956	9,077	1,527	144,560
1994/1995		154,660	12,803	2,477	169,940
1995/1996		179,565	12,565	3,456	195,586
1996/1997		199,032	12,353	3,730	215,115
1997/1998		233,657	17,031	4,005	254,693
1998/1999	819	258,315	15,999	4,264	279,397
1999/2000	2,153	278,997	20,250	4,302	305,702
2000/2001	3,464	295,040	22,033	6,752	327,289
2001/2002	4,475	313,238	24,558	7,030	349,301

Table 8: Student numbers in Bachelor's and Master's programmes at higher education institutions by mode of enrolment

Year	Full-time	Part-time	Correspondence	Total
1990/1991	76,601	4,737	21,049	102,387
1991/1992	83,191	4,372	19,516	107,079
1992/1993	92,328	4,298	20,834	117,460
1993/1994	103,713	4,640	25,603	133,956
1994/1995	116,370	5,453	32,837	154,660
1995/1996	129,541	5,764	44,260	179,565
1996/1997	142,113	5,750	51,169	199,032
1997/1998	152,889	6,538	74,230	233,657
1998/1999	163,100	6,566	88,349	258,315
1999/2000	171,612	7,861	99,524	278,997
2000/2001	176,046	8,625	110,369	295,040
2001/2002	184,071	9,665	119,502	313,238

The breakdown by discipline shows that there have been some significant shifts in the interests of students enrolled in full-time Bachelor's and Master's programmes. The proportion of students enrolled in economics has doubled in the 1990s (from 9% to 18%), whereas in education related subjects, enrolment has decreased (from 22% to 13%).

Figure 1: Full-time students enrolled in Bachelor's or Master's programmes by discipline

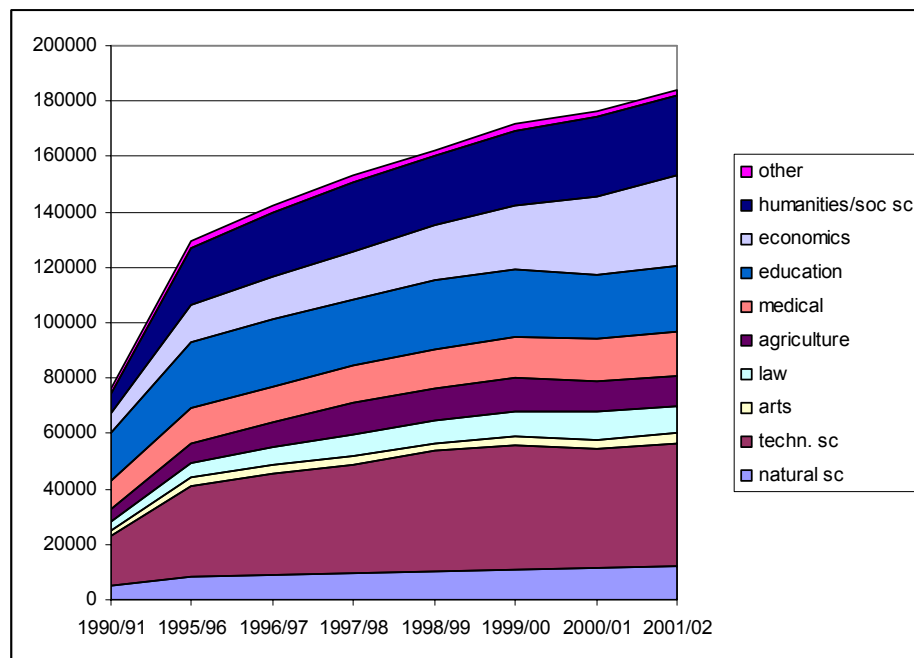
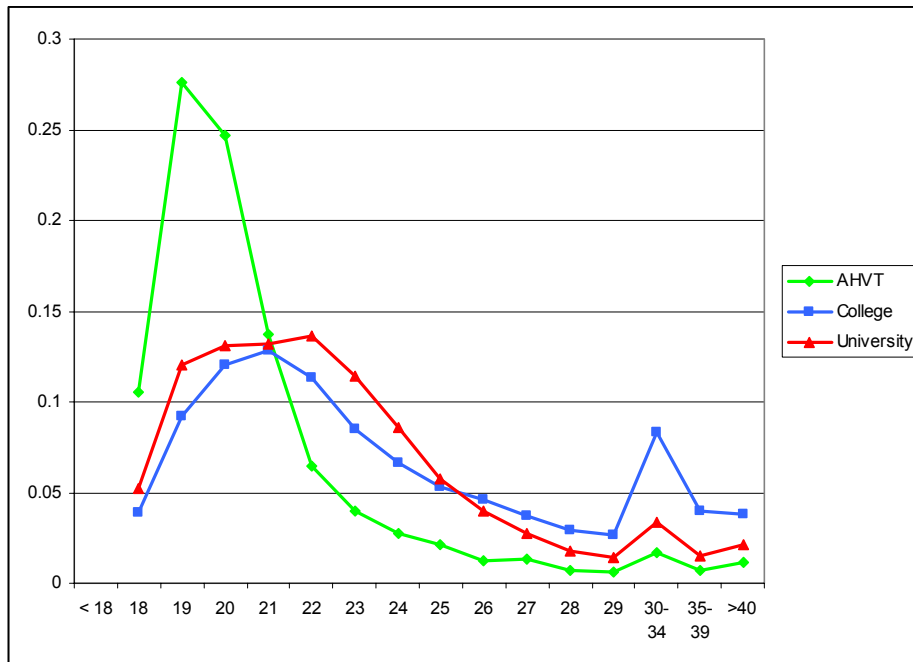


Figure 2: Age structure of students enrolled at higher education institutions



The age structure of the student body differs significantly among the types of institutions and programmes. The youngest students are in AHTV. It is remarkable that students at the colleges (Bachelor's level) are older than students at the (universities Master's- level). The post-graduate courses (vocational training and PhD) clearly have an older student body.

Outflow

The number of graduates of Bachelor's and Master's programmes has doubled in the 1990s. The growth is less than the growth in enrolment (which tripled in the same period). The proportion of full-time graduates (63%) is slightly higher than the proportion of full-time students (59%). The strong decrease in the proportion of full-time enrolment can also be seen in the proportion of full-time graduates although this trend started a few years later.

Table 9: Number of degrees awarded at the college and university level

Year	Full-time	Part-time	Correspondence	Total
1990	15,963	1,294	6,846	24,103
1991	16,458	923	6,267	23,648
1992	16,201	905	5,278	22,384
1993	16,223	1,109	6,283	23,615
1994	18,041	1,024	5,477	24,542
1995	20,024	1,269	4,944	26,237
1996	22,147	1,385	7,778	31,310
1997	24,411	1,807	10,572	36,790
1998	25,338	1,696	11,575	38,609
1999	27,049	1,491	13,811	42,351
2000	29,843	2,114	15,021	46,978
2001	29,741	1,981	15,704	47,436

Broken down by subject, the largest groups are the social science and law graduates (around one third). The second largest sector is education.

The general assumption is that the position of higher education graduates in the labour market is positively related to the level of degree earned. This is considered to be a major stimulus for young people to enrol in higher education. What is remarkable in this context is that the unemployment rate of Bachelor's degree holders is lower than the unemployment rate of Master's degree holders.

Personnel

In the 2001/2002 academic year, the number of academic staff in higher education institutions was 22,863. 16,089 people were employed full-time – church financed institutions employed 899 people and foundation financed institutions employed 472 people. The rate of female employees was 38%, and 8% of the academic staff was younger than 30 years.

The number of academic staff has grown in the 1990s by more than 30%. Despite such growth, the student staff: ratio has risen from 5.9 in 1990 to 13.7 in 2001.

In terms of full-time academic staff, 0.5% were members of the Hungarian Academy of Sciences, 5.1% had academic titles (DSc), 31% had academic degrees (PhD) and 11% had completed their habilitation. Almost 70% had passed one or more language proficiency examinations.

Table 10: Distribution of staff at higher education institutions (full-time equivalent)

	2001/2002	Change 1997–2001
Professor	3,039	+4%
Associate professor	5,255	+ 21 %
Assistant professor	5,457	+ 7 %
Assistant lecturer	3,643	+ 9 %
Foreign assistant	1,324	+ 11 %
Prefect*	3,924	+ 53 %
Other	221	- 12 %
Total	22,863	+ 16 %

Note: * Prefects are teachers, who work in higher education student hostels, usually young people after graduation

The proportion of female academic staff members (fte) is approximately 37% and has remained stable during the last five years.

The Research Infrastructure

Research in higher education

2002 was a breakthrough year for Hungarian research and development. Input into higher education started to grow in 2000 and began approaching the European level. As a result of the increase of earmarked resources under the Széchenyi Plan and the 2001 introduction of tax allowances to benefit the business sector, Hungarian research and development is expected to catch up with leading European countries in the foreseeable future.

The participation of higher education in research and development (R&D) expenditure was 23.6% in 1999 and 24.4% in 2000. In 1999, 58% of the total R&D work force worked in higher education, which corresponds to 34.9% of the full-time equivalent work force. In 2000 these figures were 57.3% and 37.6%, respectively.

In 2000, 63.8% of the total number of research development staff holding a degree worked in higher education, which corresponds to 40.7% of the full-time equivalent work force. An important qualitative parameter is the number of research and development staff holding a PhD. or DLA. With respect to this group, 72.5% were employed in higher education in 1999.

The participation of higher education in research and development projects was 12.6%, and the figure in 2000 was 12.1%. This is considerably lower than the participation of higher education shown by the indices in other fields. Therefore higher education produces the current R&D results by implementing a significantly lower proportion of projects than other R&D sectors.

The following indices express the participation of higher education in terms of output instead of input. The participation of higher education in academic publications greatly exceeds the proportion of input it gets. According to Central Statistics Office (CSO) data, 73.7% of the books published and 67.9% of the academic publications produced by Hungarian R&D sites written at an R&D unit in a higher education institution. There is a specific index in the field of publications in which Hungary is considered the best in the world: this is the number of publications per one million USD expended on higher education or research institutions.

The participation of higher education in the field of inventions is not so strong. Clearly, corporate research and development units take the lead in this area. The participation of higher education in the number of inventions reported from Hungarian research and development sites is 33.3%, whereas its participation is 47.3% with respect to inventions reported abroad.

Trends and Policy Issues

Co-operation between institutions

Within the sphere of their tasks, higher education institutions may co-operate in academic planning and research and development with other higher education institutions and with economic organisations. The conditions under which co-operation takes place are determined by contracts. In the absence of counter provisions, the state subsidy due to the co-operating institute for fulfilling its shared task is to be assigned to it.

Higher education institutions perform their tasks as members of the international higher education and research institutions system, and with the co-operation and support of the state organs, the Hungarian Academy of Sciences, the academic research institutes, and other organisations.

Higher education institutions co-operate with other higher education institutions and with research institutes in the preparation of syllabi and in the coordination of academic research and developmental tasks. They also work together in teaching, in doctoral education, in the adjudication process for the awarding of doctoral degrees, and in the conducting of habilitation processes.

Higher education institutions, under a separate contract, may establish research and educational relationships with the Hungarian Academy of Sciences and its institutes and with other research institutes. The purpose of the agreement may be:

- a) the establishment of research groups within the higher education institution;
- b) the operation of academic institutes and other research sites as departments placed in the higher education institutions; or
- c) the participation of academic institutes in doctoral education.

Policy issues

Reshaping the institutional landscape: setting up an integrated network of higher education institutions

Higher education has recently gone through a major transformation process. This complex process started years ago. Experts say that efforts at integration in the past failed because the network of higher education was under the control of six ministries and co-operation, therefore, seemed impossible due to conflict of interests. In 1993, an amendment to the Higher Education Law established unified control of the institutions. Some say that this was the most important measure taken by the Antall government as far as education is concerned. The Horn government, however, considered institutional transformation essential, due to the strict financial measures of the so-called Bokros Package in which, in place of integration efforts, only costs and the number of those working in higher education were reduced.

The 1996 amendment to the Higher Education Law expected the institutions to accomplish integration on their own by introducing a legal basis for a transitional form of higher educational association and subsidies through tendering. As the above shows, integration is not a new concept at all, and many governments have fostered a vision of integration.

In June of 1999, Parliament passed the 1999 Act LII on Restructuring the Institutions of Higher Education and amended the 1993 Act LXXX on Higher Education. By passing the above laws the number of state run universities and colleges significantly decreased. As of January of 2000 the new network of higher education institutions consists of twelve state universities with various faculties, eleven colleges (under the control of the Ministry of Education), five art universities, one state university (under the Ministry of Defence), one college controlled by the Ministry of Internal Affairs, twenty-six church universities and colleges, and six universities run by various foundations.

The key words of the restructuring process were 'continuity' and 'renewal.' Continuity should be maintained in education and research while new goals, which can emerge as a result of the increased size and new tasks of the institutions, should be formed. The restructuring was the first step towards a comprehensive reform of higher education and towards long-term development. The evolution of a new institutional network promotes the modernisation of higher education and the accomplishment of its tasks undertaken in the development of the society of a new century.

A prerequisite for the effectiveness of the new network of institutions is the gradual introduction of reforms in higher education. Among the most important are: improving the network of residences; facilitating grants from the local governments; improving support provided for talented students; and financing research and libraries. Other important efforts include increasing the number of students; participating in EU research and regional development programmes; and improving salaries for those working in higher education. The implementation and co-existence of the above conditions could guarantee the future development of higher education in Hungary.

Expansion of participation

In 1991 only 12% of the 18-22 age group was accommodated in higher education; recently that ratio changed to 28%. The government plans to increase the ratio to approximately 50%. This does not mean the doubling of the absolute number of students, in light of the dramatic demographic decline in Hungary.

Other Issues

As regards proposals for amendment of the Law in 2000, the Ministry of Education had the following other significant issues on the agenda:

- quality assurance;
- reform of the admissions system;
- distance learning;
- The role of the so-called 'Public Council' in strengthening regional cohesion;
- Equal access of young people to higher education (through the creation of a student loan system);
- Restructuring of the umbrella organisations of higher education (Hungarian Rectors Conference, Hungarian Accreditation Committee, Higher Education and Scientific Council); and
- Introduction of the credit system in all higher education institutions.

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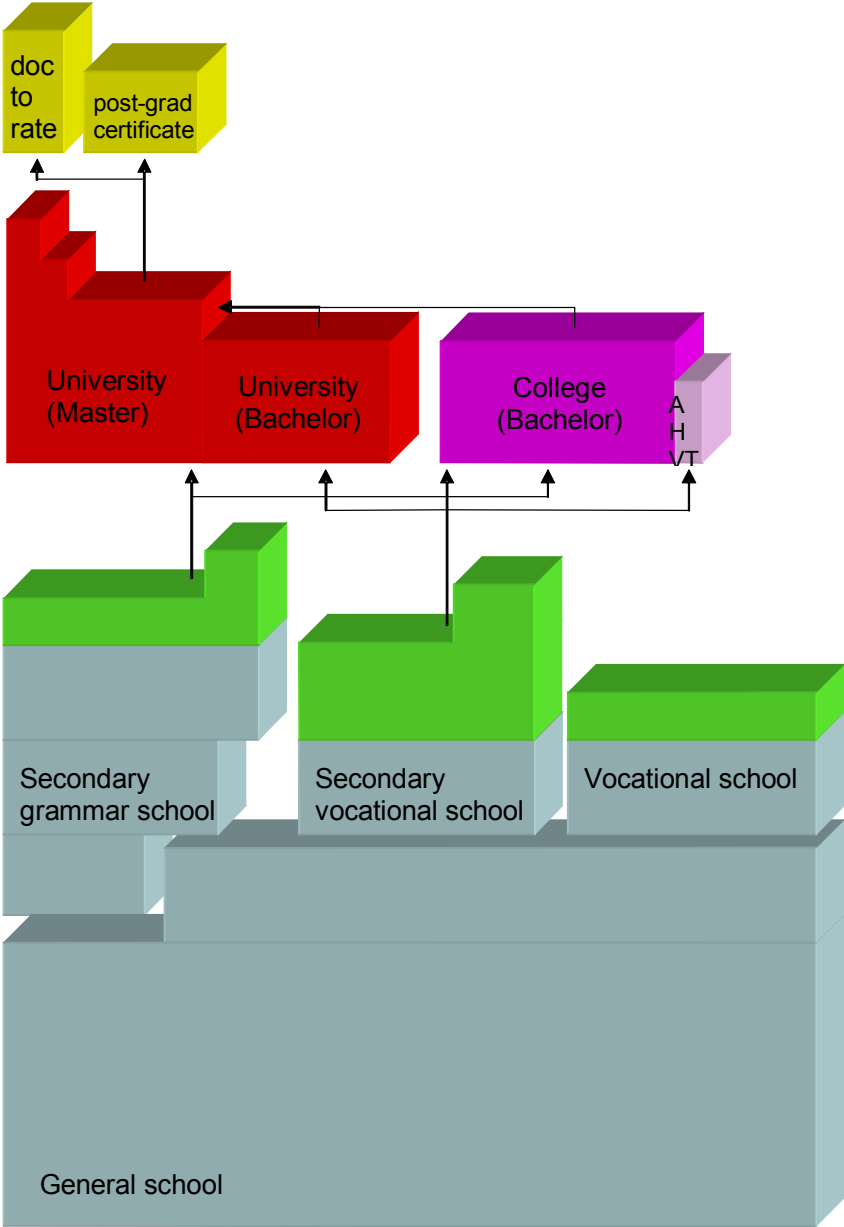
Table 11: Investments in research and development activities in Hungary, with particular attention to higher education in the period of 1992-2000 (billion HUF)

Year	R&D expenditure (GERD)	HE from total Expenditure	R&D expenses incurred from total	Share of HE in total R&D expenditure	R&D investments from GERD	Share of HE from R&D investments	Proportion of R&D expenditure in GDP
1992	31,6	6,6	23,0	5,9	3,4	0,7	1.08 %
1993	35,3	7,8	25,0	6,8	3,6	1,1	1.00 %
1994	40,3	10,3	31,3	8,9	4,7	1,4	0.93 %
1995	42,3	10,2	35,0	8,8	4,7	1,4	0.75 %
1996	46,0	11,1	39,1	10,0	5,3	1,2	0.67 %
1997	63,6	14,2	49,1	13,1	8,1	1,1	0.74 %
1998	71,2	17,3	56,2	15,3	11,4	1,9	0.70 %
1999	78,2	17,5	61,5	15,9	12,7	1,6	0.68 %
2000*	105,4	25,3	99,5	23,1	18,1	2,2	0.82 %

Source: Annual reports of research and development by Central Statistics Bureau (KSH)

* Statistics for the year 2000 are preliminary data of KSH

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