

REAL-TIME SYSTEMS

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

Jon File and Leo Goedegebuure (Eds.)

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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2. The Czech Republic

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A Short Sketch of Developments

Charles University, founded in Prague in 1348 by the Czech King and Holy Roman Emperor Charles IV, was the first university in Central Europe. The university consisted then of four faculties: law; medicine; theology; and arts. A second university, established in Olomouc in 1573, was later abolished but then re-established after the Second World War. The first Czech university of technology, the Engineering School, was founded in 1707. It was often renamed during its existence and is now known as the Czech Technical University. Other old institutions include the Academy of Fine Arts, established in 1799, and the Brno University of Technology (its present name), established in 1849. Over time, new institutions were added to the system, some institutions merged, and some university branches became independent. The period between the promulgation of the independent Czechoslovak Republic in 1918 and the start of the Communist Period in 1948 was relatively stable in terms of growth of the system: only about ten new institutions were established.

Higher education was heavily influenced by communist ideology and policy throughout the communist regime up until November 1989. The state authorities used directive methods of control, and research and teaching activities were based on Marxist-Leninist ideology. New institutions were established, but the growth of the system did not keep pace with the developments in student numbers. Particularly in the 1980s this lag was seen as a response to the general crisis in society, eventually leading to the abolition of by the communist regime.

The transition to a more market-driven economy was marked by the ratification of a new higher education act (No. 172/1990) by the Federal Assembly of the Czech and Slovak Federal Republic in May 1990. This Act instituted a quite different organisation and management of higher education. Higher education institutions were considered autonomous institutions which were based on principles of self-government and academic freedom and which were leading centres of education, of independent knowledge, and of creative activity. The Act emphasised the role and the responsibility

of higher education institutions in the development of education and particularly their role in the cultural, social and economic development of society.

This rapid development, strongly influenced by international dynamics, implied additional changes in society in general and in higher education in particular. Adjustments to the legislation, accepted in April 1998, enabled the step-by-step integration of the Czech Republic into European structures. The 1998 Act, more detailed than the 1990 Act, should be viewed as the result of a long period of discussion and negotiation. It was adjusted in 2001 to reflect the implications of the Bologna Declaration (the Bachelor-Master structure is obligatory for all study programmes with a few exceptions; and life long learning has been given specific attention in the regulations). The most recent changes are reflected in a number of important policy documents: the 2000 White Paper (National Programme for the Development of Education in the Czech Republic), the Education Strategy of Tertiary Education Development up to the year 2010, and the 2001 Long Term Plan on Higher Education Development.

The Basic Structure of the System

Before turning our attention to the different types of higher education institutions, we present an overview of the quantitative developments of these types of institutions. There are different ways to distinguish the types of higher education institutions in the present Czech higher education system. Two dimensions play an important role: the distinction between university type and non-university type institutions and the distinction between private and public institutions. The classification of higher education institutions (university and non-university types) stems from the 1998 Act and in particular relates to the new three-level structure of study programmes (Bachelor, Master and PhD). Up until 1999, institutions mainly provided study programmes comparable to the Masters level and only rarely were Bachelor's study programmes offered (although the 1990 Act did allow for such programmes). In the following sections, we outline the distinction between university and non-university types of institutions, acknowledging that the public-private dimension is equally important and relevant. Table 1 illustrates the increased number of higher education institutions (university and non-university) during the last decade. It is clear that the number of institutions (particularly private, non-university institutions) has grown considerably.

Table 1: Number of university and non-university institutions

Type of higher education institution	1989	1999	2001	2002
Universities (multi-field)	3	9	10	10
Technical universities (multi-field)	2	4	5	5
Technical universities (specialised)	5	1	1	1
Veterinary universities	1	1	1	1
Universities of economics	1	1	1	1
Agriculture and forestry universities	2	2	2	2
Universities of education	-	1	-	-
Universities of arts	4	4	4	4
State higher education institutions	4	4	4	4
Non-university institutions	-	9	14	25
Independent faculties of education	5	-	-	-
Total	27	36	42	53

In addition to the change in the number and nature of institutions, the internal composition of these institutions also changed. Whereas in 1989 there were 69 faculties, in 2002 the number of faculties and similar units grew to 113. The new faculties and units reflect both the interests of the students and the requirements of the regions.

The establishment of new higher education institutions and faculties has also had a considerable influence on the regional structure of higher education. The proportion of students studying in the traditional university centres of Prague and Brno has dropped by roughly 4%, in favour of the regional centres of Ostrava, Olomouc, Liberec, České Budějovice, Pardubice and Ústí nad Labem. About 40% of students now study in Prague compared with more than 43% in 1989, and 19% are in Brno compared to the earlier 23%. Opava has become a new seat of higher education and detached faculties of universities have been established in Cheb, Zlín, Karviná and Jindřichův Hradec. The last important change in the structure was the establishment in 2001 of the University of Tomas Bata in Zlín, including faculties previously belonging to the Brno University of Technology.

Age is an important distinction between public and private higher education institutions. While the public higher education institutions mostly have a long history, the private institutions were all established after 1998. The general view is that this sector should be complementary to the public sector. The number of students in private institutions is estimated to reach about 10% of the overall number of higher education students.

The private sector is very young and still in basic and substantial development (see Table 2). It is expected that some of these institutions will compete well with public sector institutions and will develop quality education and related creative activities. Others are expected to struggle for their existence and potentially even collapse due to a variety of reasons (e.g. lack of students, lack of qualified teachers, and lack of money in general). The Accreditation Commission has developed and initiated a specific

programme to evaluate the extent to which the goals of ‘projects’ submitted several years ago by private higher education institutions were reached. The programme will result in recommendations as to whether the project activities should continue and, if so, how. It is anticipated that after a reasonable period of time, more concrete data on the private sector will become available and this will allow for a more thorough evaluation.

Table 2: Developments regarding applications and state approval for private institutions

Year	1999	2000	2001	2002	2003	Total
Number of applications for state approval	13	20	19	19	1	72
Number of private HEIs. with state approval	5	9	11	2	-	27
Number not granted state approval	8	11	8	14	-	41
Number of applications still under discussion				3	1	4

Note: data for 2003 refer to February

University-type higher education institutions

The Czech government is of the opinion that the rapid and extensive development of the university type higher education institutions is almost completed. This means that there is no reason to plan an extensive increase of new public institutions of this type. Priority is to be focused on the improvement of infrastructure, i.e. building maintenance and construction, ICT operation, library improvements, and the development of social and sport facilities for students.

These institutions focus on three levels of study: Bachelor’s study programmes which lead to a *bakalář* degree and last three to four years; Master’s study programmes which lead to a *magistr* degree and last one to three years (exceptionally, those not based on a Bachelor’s programme may last four to six years); and doctoral study programmes which lead to a PhD degree and last three years. The size and range of disciplines varies. In 2002, there were 15 multi-field institutions and 12 mono-disciplinary institutions. The largest institutions are Charles University in Prague (39,500 students in 2000), Masaryk University in Brno (20,100 students) and the Czech Technical University in Prague (20,600 students). Other institutions vary between those having a few thousand students and those, particularly in the arts, which mostly have a few hundred students. Almost all university-type institutions are public institutions, only three are state higher education institutions (the three Military Academies under the Ministry of Defence).

Bachelor’s degrees are awarded on due completion of a study programme and by a State final examination. Part of this examination usually involves the presentation of a Bachelor’s project or thesis. At present, Bachelor’s programmes are offered by most higher education institutions, except in disciplines such as medicine, pharmacy, and veterinary medicine.

Master’s programmes are aimed at presenting new theoretical findings based on scientific knowledge, research and development. Students are required to master the application of these findings and to develop skills for creative and scientific activities.

Study results are evaluated by examinations, supervised written work, project work or colloquia. Master's programmes are completed with a State final examination, and in most cases with the presentation of a diploma thesis. The length of programmes differs by discipline. The awarded academic degree differs for various study fields and is precisely stipulated by the Act. After the Master's degree, students may continue working towards the doctoral degree (PhD). These programmes focus on scientific research and independent creative activity and have a nominal length of three years. Students follow an individual study plan under the guidance of a supervisor.

In order to award degrees in a specific programme, the programme must be accredited. The institution sends the relevant materials to the Ministry and the Ministry is obliged to ask the Accreditation Commission to judge the programme and to issue an expert opinion. Should the Accreditation Commission issue a negative opinion, the Ministry is bound by the Act to withhold accreditation. In the case of a positive opinion, the Ministry may refuse accreditation but only in specific situations listed by the Act (e.g. insufficient financial, material or technical backing for the programme). Accreditation is valid for a maximum period of double the nominal length of the programme. In the case of the doctoral study programme, accreditation is valid for ten years.

Non-university higher education institutions

These institutions provide primarily Bachelor's study programmes. They may, if they meet accreditation requirements, provide Master's study programmes but they are not allowed to offer doctoral programmes. There are 26 of these institutions: 25 private institutions and one state higher education institution (the Police Academy under the Ministry of the Interior, established in 1992). Following the 1998 Act, the newly established private higher education institutions were strongly recommended to submit (primarily) their Bachelor's study programmes for accreditation and they are all, at the present time, of the non-university type of institution.

A private higher education institution may come into existence on the basis of an accredited study programme(s) and state permission awarded by the Ministry. The Ministry passes a resolution on the state permission in accordance with the Accreditation Commission's positive expert opinion.

The establishment of a public higher education institution (no matter of what type) requires an adjustment of the law, and thus acceptance by Parliament. There are some 'applicants', mostly very good and ambitious state tertiary professional schools which would like to become part of the higher education sector. It means that such a tertiary professional school could become a kind of 'stepping stone' for the establishment of new public non-university higher education institutions. The state's intention is to support this development and, in the case of the Accreditation Commission's positive ruling, to submit the law enabling the establishment of the respective higher education institution to Parliament. The process is quite demanding and time-consuming but it is expected that several non-university public higher education institutions will come into being in the near future.

While the government is of the opinion that there are sufficient higher education institutions, it is anticipated that interest among private legal persons to establish non-university higher education institutions will not decrease for some time and so that this development will continue. The Czech Republic will, however, not follow the case of some other Central and Eastern European countries where the number of private higher education institutions has grown tremendously and where that number has caused significant problems for the state authorities and relevant stakeholders. There is already some concern regarding the unequal situation between public and private providers. In addition, as mentioned above, several public non-university higher education institutions may come into existence in the near future.

The study programmes of the non-university higher education institutions focus particularly on economics (56%), law (11%) and the arts (11%). Most of the institutions offer programmes in a restricted number of fields, such as banking and business studies. At present, there are some 3,000 students enrolled in the Bachelor's programmes in the non-university higher education institutions; the total number of students is about 8,500. It follows that most of the institutions are relatively small and – due to the fact that some are very new – have not yet had students complete the three-year study programmes. The largest institutions are the European Polytechnic Institute in Kunovice (800 students) and the Hotel College in Prague (400 students). The state higher education institution (the Police Academy) had 2,300 students in 2000.

Access

The regulations regarding access apply to both university type higher education institutions and to institutions of the non-university type. To enter a higher education institution students need a qualification from a gymnasium or a technical secondary school. In exceptional cases arts applicants may be admitted to art study without having completed secondary education. Holders of foreign secondary school leaving certificates apply to the relevant regional school authority for recognition. If an international agreement on recognition of equivalence exists, confirmation of the equivalence is issued by the higher education institution.

For access to the “continuing” Master's programmes, graduation from a relevant Bachelor's programme or its equivalent is required. According to the Act, students should be able to demonstrate not only the required level of education but also the necessary ability and motivation to pursue higher education studies. Methods of examining and selecting candidates are the competency of the higher education institution and the conditions of acceptance are approved by the Academic Senate of the institution. In practice, there is usually a written examination, an interview or both. For art schools and programmes in education, architecture, sports and dentistry, part of the examination is a test of talent or practical skills. There are no stipulated restrictions on admissions, however, institutions can utilize selective measures if required by limited capacity and financial resources. Admission to a doctoral programme is conditional upon graduation from a Master's programme. Applicants are required to take a special entrance examination or take part in an interview.

Participation

The number of new entrants in 2002 was 43,181 which is lower than the maximum of 53,464 in 1998, but considerably higher than in 1989 (26,786 first year students). The total number of students also increased substantially. In total there were about 244,000 students in 2002, which is almost double the number in 1989 (112,980 students). Engineering (about 25%), economics and teacher education (each about 20%) are the largest disciplinary fields. Smaller percentages of students enrol in agriculture (approximately 4%) and arts (about 3%) programmes.

Figure 1 shows development of student numbers by discipline since 1994. Even though the total number almost doubled over the decade there is still significant unmet demand. This is valid throughout the tertiary sector of education including tertiary professional schools and other educational institutions.

Figure 1: Enrolment in higher education by discipline

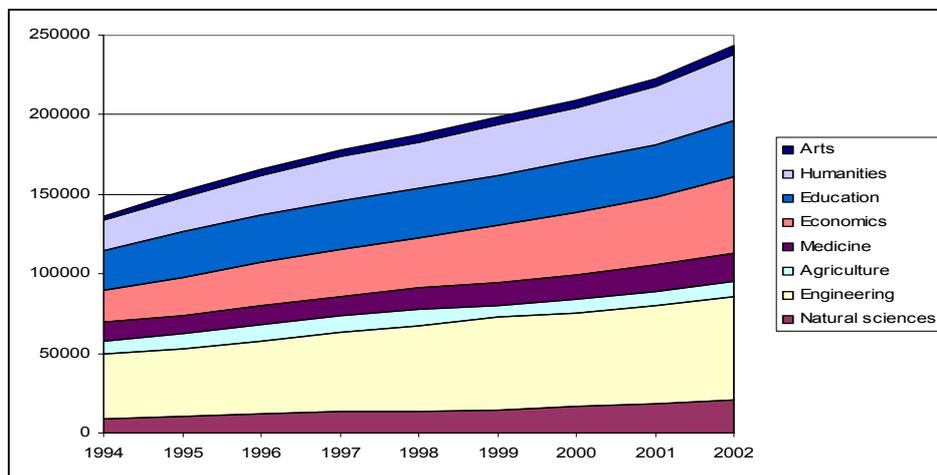


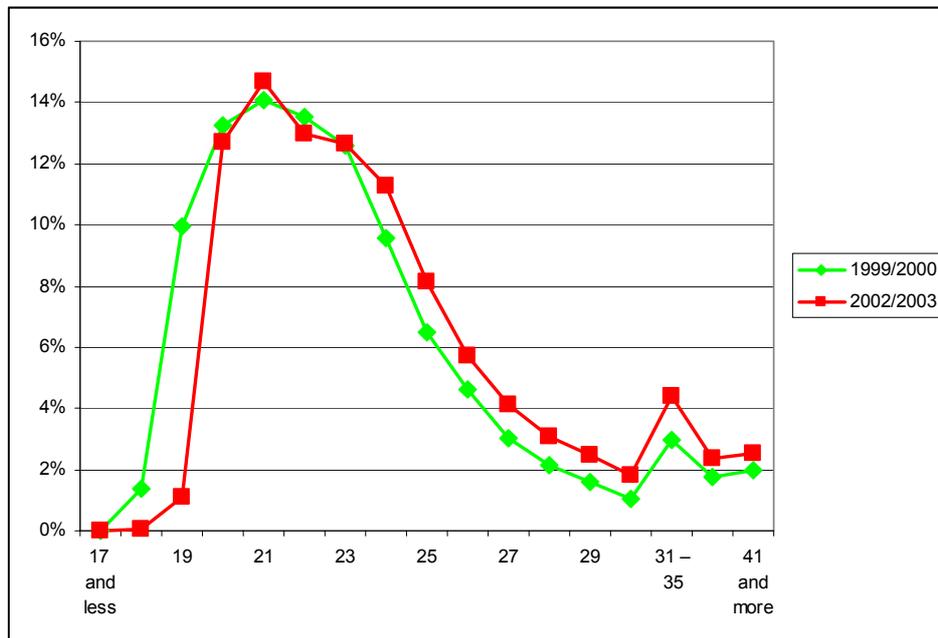
Table 4 shows the number of students per type of programme. The large number of Master's students is still a remnant of the situation before the (almost) completed introduction of the Bachelor-Master structure. In addition, it must be stressed that many stakeholders (not only the academics themselves, but also employers and students) must still become accustomed to the idea of shorter programmes after having been used to longer programmes over the past decades. It is therefore not yet fully accepted to leave higher education (even temporarily) after a Bachelor's programme. The 2001 White Paper aims to have 50% of graduates enter the labour market after a Bachelor's programme.

Table 4: Development of student numbers by programme type

Year	Bachelor's students	Master's students	PhD students	Total
1989/1990		112,980		112,980
1990/1991		118,194		118,194
1991/1992		111,990	1,664	113,654
1992/1993	12,628	101,557	3,452	117,637
1993/1994	15,624	106,832	4,681	127,137
1994/1995	28,147	101,306	7,113	136,566
1995/1996	34,821	104,953	8,659	148,433
1996/1997	36,668	119,200	10,267	166,136
1997/1998	39,410	122,963	11,453	173,826
1998/1999	41,433	132,796	12,910	187,148
1999/2000	33,872	150,082	15,007	198,961
2000/2001	40,186	157,302	17,719	215,207
2001/2002	46,120	155,117	17,969	228,635

Figure 2 provides some insight into the age structure of students enrolled in higher education. In 2002, about 32% of the 19-year-old cohort of the population enrolled in higher education. The percentage of first-year students (as a % of 19-year-olds) increased considerably over the last decade (from 15.3% in 1990 to 22.3% in 1996).

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



Outflow

Approximately 31,200 students graduated from higher education institutions in 2002. The distribution across the disciplines is similar to enrolment patterns in those disciplines: economics and engineering programmes produced the most graduates while agriculture and arts programmes produced the smallest share of graduates.

The number of unemployed higher education graduates in April 2002 was 2,222 or 3.5% of the total number of graduates and in September 2002 the number was 5,045 or 8.3% of the total number of graduates.

Table 5 shows the rates of unemployment related to various fields/disciplines in 2000. The total average unemployment rate in the Republic is slightly more than 10%. It is evident that the unemployment rate of higher education graduates is significantly below this rate.

Table 5: Unemployment rates by field (April 2000)

	Total (%)	Technology (%)	Agriculture (%)	Health (%)	Humanities (%)
Vocational education	26.4	28.3	31.7		22.6
Secondary education	16.1	21.3	18.3	4.8	15.7
Higher professional education	12.0	23.1		2.7	12.9
Higher education	5.4	7.2	9.9	2.9	4.5

Personnel

In total, there were approximately 26,600 staff members employed by higher education institutions in 2001. A little more than half of the staff members (52%) were academic staff. This number has remained relatively stable over the last decade. Academic staff members carry out teaching, research and development, and artistic/creative activities. Academics may achieve the rank of professor after successfully passing a procedure in which their education and scientific or artistic qualifications are approved. The prerequisite for starting this procedure is prior nomination as an associate professor on the basis of the *habilitation* procedure. Professors are appointed by the president of the Czech Republic upon approval of the scientific board of the higher education institution. Admission to employment for all staff is confirmed by a work contract and the working conditions of higher education teachers are governed by general labour laws.

Table 6 gives an overview of the development of staff over the last decade. The increase in student numbers is not reflected in a comparable increase in the number of staff. The number of staff increased until the mid 1990s, decreased for some years, and recently has remained relatively stable.

Table 6: Staff at higher education institutions (full time equivalent)

	Total staff	Academic staff	Non-academic staff
1989	27,970	11,644	16,326
1990	28,247	11,839	16,408
1991	27,428	11,958	15,470
1992	27,784	12,105	15,679
1993	29,266	12,561	16,705
1994	28,936	12,625	16,311
1995	29,280	12,890	16,390
1996	25,514	12,969	12,546
1997	25,809	13,216	12,593
1998	25,809	13,292	12,518
1999	26,285	13,579	12,706
2000	26,050	14,800	11,250
2001	26,578	14,963	11,616

The main aim of Czech higher education is to foster activities which lead to the improvement of its academic staff. Structure and qualification level, it is emphasized, are the most important aspects of long term higher education development. Taking this fact into consideration higher education institutions have analysed the structure of personnel capacity in their units and, on this basis have developed, plans for furthering the professional careers of academics. Developments in this field will be assessed regularly.

A serious problem concerns the relatively high average age of academic staff and the lack of properly qualified younger personnel. The latter leave the educational sector because of very low wages in comparison to attractive occupational fields in the private sector (e.g. banking and computer companies.). The average age of professors is over 60, although a slightly better situation can be found in the associate professor and assistant categories. Most of the higher education institutions intend to broaden and intensify doctoral study programmes with the aim of changing the unsatisfactory age structure and of employing young PhD graduates. They also plan to improve the conditions of research work for young members of staff.

Gender inequality at higher education institutions is not considered a significant problem. Table 7 illustrates that the number of female staff reaches almost half of the total staff. The situation is less positive when analysing the percentage of females in the highest academic positions where the numbers at the rank of professor (as well as at the rank of academic leader) are not so balanced. Only four women occupy the rector's position at public and state higher education institutions.

Table 7: Number of female staff at higher education institutions (headcount)

	1998	1999	2000	2001	2002
Total staff	33,609	34,035	36,005	33,054	36,121
Female staff	16,832	16,975	17,894	16,844	17,838
Total academic staff	15,763	15,939	15,782	18,040	17,809
Female academic staff	5,253	5,284	5,369	6,135	6,022

Note: The percentage of female staff has only been monitored from 1998

The long term plan for the higher education system is to support the professional improvement of all ranks of teachers with regards to up-to-date knowledge in computer science, languages and new interdisciplinary disciplines. In addition, external experts with practical experience will be recruited to become part of the staff.

Tertiary professional schools

Tertiary professional schools are in fact not part of higher education, but they belong to tertiary education. They offer professional education leading to a diploma, mostly in economics (more than 30% of the students) and health care (about 20% of the students). The first schools started these programmes in the mid 1990s. It is anticipated that they will also offer short (one or two year) courses of post-secondary education in the future. Tertiary professional schools can form agreements with higher education institutions and within this framework provide Bachelor's study programmes. It is assumed that this collaboration might, in some cases, be the first step towards the establishment of a new non-university higher education institution.

Table 8 illustrates the development of the number of tertiary professional schools. The number of institutions grew significantly in 1996. This was the consequence of the decision of the Ministry, which led – in the eyes of many in the higher education system – to an unsatisfactory situation. The schools are mostly very small and are of differing quality. These institutions are often schools which focus primarily on secondary education with perhaps only a few dozen students involved in the tertiary sector. Most schools, as shown in the table, focus on economics, engineering and health care.

Table 8: Tertiary professional schools by discipline

Disciplines	1992	1996	1997	1998	1999	2000	2002
Natural sciences	0	3	3	3	4	4	4
Engineering	9	35	36	39	39	40	38
Agriculture	1	10	11	11	10	10	10
Health care	0	36	32	33	33	33	33
Economics	7	57	61	66	64	63	60
Teacher education	2	18	19	20	21	22	22
Humanities and social sciences	2	7	6	8	8	8	21*
Law	1	7	7	12	13	13	
Arts	3	11	12	14	14	14	17
Total number of schools	25	158	156	168	167	166	171

Note: *Humanities and social science and Law professional schools are classified in one category as of 2002

The White Paper and the Tertiary Education Development Strategy delineate the requirement to re-structure the tertiary professional school network, to redirect their future development, and to provide the schools with a suitable legislative framework.

Table 9 shows student enrolments at tertiary professional schools from 1996 (data before 1996 are not comparable as these schools were run on an experimental basis with only a very small number of students). The continuing interest of students is evident even if there has been some decrease in the last two academic years. The reason for the decrease stems from the government's decision in 1995 to prolong obligatory schooling which meant that the number of secondary education graduates consequently dropped in 2000. The influence of demographic changes will most probably be felt in the future as well.

Table 9: Number of students at tertiary professional schools by discipline

	1996/1997	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002
Natural Sciences	104	228	263	278	193	243
Engineering	2,440	3,447	4,332	3,670	2,834	3,109
Agriculture	343	671	855	1,070	823	848
Health Care	2,509	4,556	6,100	6,754	5,951	6,248
Economics	5,768	9,079	11,445	11,362	9,045	8,566
Teacher Education.	999	1,190	1,279	3,873	3,754	3,722
Law, Humanities and Social sciences	2,459	3,764	4,615	3,365	3,319	3,262
Art	309	591	677	701	686	682
Total	14,931	23,526	29,566	31,073	26,605	26,680

Other educational institutions

Tertiary education is composed of the various state recognised courses which require a completed secondary education as an entrance condition. That means that there are courses covering a wide spectrum of additional training, re-qualification, and general interest activities which contribute to lifelong learning in general. It is expected that secondary schools will also provide certain courses which allow for continuing education after the *Maturita*, the final qualification of secondary education. Reliable data on the numbers of institutions and students are not available.

Co-operation between institutions

It is anticipated that co-operation in joint study programmes will take place mainly among the research institutions of the Academy of Sciences of the Czech Republic and higher education institutions (particularly those of the university type). This co-operation would focus preferably on doctoral study programmes and, if possible, also on those programmes leading to the Master's degree. Close collaboration in joint study programmes has already started and may evolve further – also between tertiary professional schools and higher education institutions. Such partnerships seem especially relevant for small tertiary professional schools. These types of co-operation – as well as partnerships between private and public institutions – are allowed by

legislation (although full mergers between higher education institutions and tertiary professional schools can be problematic given possible differences in national and regional regulations and policy objectives).

The Research Infrastructure

The Act of 1998 requires that higher education institutions maintain and disseminate acquired knowledge, and cultivate scholarly, research, developmental, artistic or other creative activity according to its type and objectives. Most importantly, the Act ensures the connection of educational activities with research activities. The different types of higher education institutions and their units are characterised by different study programmes and also by different types of research: developmental, scientific, artistic, and creative. It is expected that natural development will allow for the distinction of perhaps three significant or basic faculty groups in university type higher education institutions, as expressed in the White Paper:

- Faculties with a focus on Master's and doctoral study programmes providing outstanding staff involvement and significant student involvement (preferably in doctoral study programmes) in research teams.
- Faculties with a high level of research connected to only a limited amount of study programmes while the others would focus more on applied research and collaboration with the business sector.
- Faculties and higher education institutions with a focus primarily on Bachelor's study programmes that are concerned with applied research exclusively and that work closely with the regions, taking into consideration their needs.

It is commonly agreed that it is necessary to respect, and to take fully into consideration, the various paths of such development. It is important to emphasise that none of these groups should be considered of a higher quality than others. Tertiary professional schools are not obliged to connect teaching with research and development, but their teachers are expected to be involved in creative activities responding to the needs of the regions, to collaborate with potential employers of graduates, and to transfer their experience to the students.

Higher education institutions are encouraged to collaborate with other research institutions in the country, especially with the Academy of Sciences of the Czech Republic. The rules for the allocation of research funds support the very important organisational structure of collaboration – the establishment of Research Centres (see Chapter 6).

Trends and Policy Issues

Most of the current policy issues and trends have a history dating back to the 1990 transition. The 1992 OECD review identified issues such as a diversified structure, long-term strategic planning, and the renewal of academic staff. Čerych (1997) has pointed to the role of pre-war models and traditions and the heritage of the communist regime as important factors in the period of transition.

On the other hand, in the period from 1990 to 1998, a significant effort was devoted to the preparation of new regulations for higher education. The intention was to discuss strategic issues in parallel to the work on the relevant regulations. It was expected that the required (and agreed upon) changes would be implemented and assured by means of new legal provisions. This approach indicates that the Czech reform process was to a considerable extent meant as a process of modification. Some codification elements can also be observed where positive reform experiences during the first years after the "Velvet Revolution" were kept and reformulated in the provisions of the 1998 Act.

At the same time, recent years have been characterised by high levels of activity relating to the reconceptualisation of the educational sector. The draft of *Education and Development of the Educational System of the Czech Republic* was prepared during the year 1999 and its main goals were approved by the Czech government. It involves the entire sector of education and, naturally, it is relatively general. Its further elaboration resulted in the National Programme for the Development of Education (White Paper) based on a nation-wide debate and accepted by the government in 2000. *The Strategy of Tertiary Education Development until 2005* was finalised at the end of the 2001. The strategy paper takes into consideration ideas from the White Paper and elaborates more concretely on the particular goals and the instruments needed to reach them.

Parallel with the above mentioned national activities, each higher education institution was asked to work out a long-term strategic plan to update it annually and to make it public. These plans and the subsequent mutual agreements (between the government and the institutions) play a decisive role in the allocation of the state budget. In addition, negotiation on ministerial and institutional plans leads to a better understanding of important topics and issues at both the state and institutional level. All the national documents, their updates and their implementation incorporate the main ideas of the international development expressed in the Lisbon Convention, the Sorbonne and Bologna Declarations, and the Prague Communiqué. The main aim for the near future is to create a distinctly diversified tertiary education sector with sufficient capacity to lead to an overall balance between applicant demand and available study places. In accordance with one of the main goals of government policy and the White Paper, the aim is to have half of the 19-year-old population group participating in one of the existing types of tertiary education by the year 2005. This idea, generally considered attainable, is based on an estimation of institutional capacity as influenced (quite strongly) by new study structures and by demographic developments. A sufficiently diversified higher education structure will enable an individual to reach the highest level of qualification matching his or her abilities without a decrease in the quality of education. It should also contribute to a significant decrease in drop-out numbers.

The three level structure (Bachelor, Master, PhD) of higher education will be introduced in accordance with the most important objectives of the Bologna/Prague process. This will be well coordinated with tertiary professional education programmes which play an important role in the regions and are based on regional needs.

The structure of the tertiary system of education is described below. Most of the elements currently exist but some are still under construction and require considerable attention in terms of regulations (e.g. post-*maturita* courses and tertiary professional education programmes possibly being offered by higher education institutions).

University type higher education institutions focus on the three levels of higher education studies as well as on all courses in the framework of lifelong learning.

Non-university higher education institutions primarily provide Bachelor's study programmes and, quite rarely, Master's study programmes (if they meet accreditation requirements). These institutions are also expected to play a significant role in the field of lifelong learning.

Tertiary professional schools offer professional education leading to a diploma; they may collaborate closely with higher education institutions and are also expected to also offer short (one or two year) courses in post-secondary education.

Other educational institutions may offer various courses of tertiary education covering a wide spectrum of educational possibilities. It is expected that secondary schools will also provide some courses which allow for continuing education after the *Maturita* (this is suggested by the new act on education which is currently under debate in the Czech Parliament).

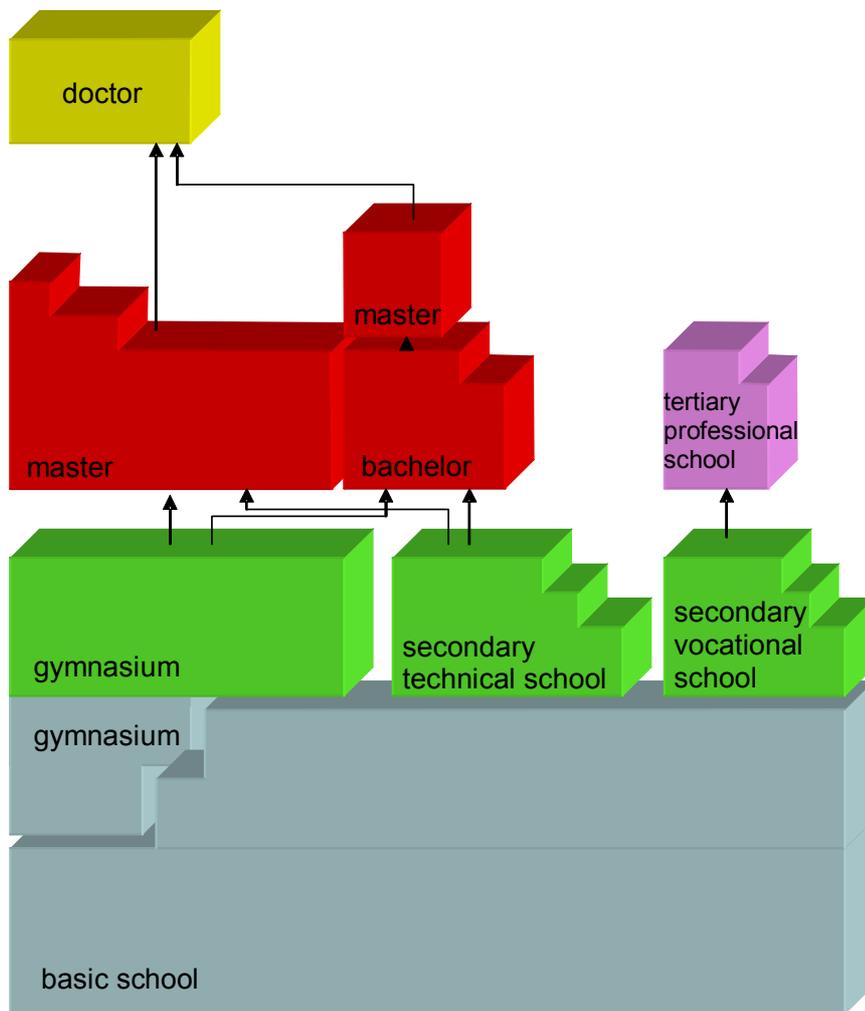
One of the most important goals for the near future is to support the ability of students to transfer from one type of institution to another in the tertiary system of education. The new approach to the recognition (acceptance instead of equivalency) of higher education studies or their parts (Lisbon Convention) taken externally to the initial framework of higher education (Bologna Declaration) seems extremely innovative but there is still hesitation about how and to what extent to adopt it. There are considerable problems to be solved in this field, but the general attitude towards these new goals has been gradual acceptance.

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