



OECD Reviews of Tertiary Education

FINLAND

**John Davies, Thomas Weko, Lillemor Kim,
and Erik Thulstrup**

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Table of contents

1. Introduction	7
1.1 The Participation of Finland.....	8
1.2 Structure of the Country Note	10
2. The Finnish Higher Education System: Its Evolution and Major Strategic Issues	11
3. The Labour Market, Student Experience and the Educational Process.....	17
3.1 The Background Context	17
3.2 Entry into Tertiary Education.....	19
3.3 Progression and Completion	23
3.4 Flexibility	25
3.5 Labour Market Outcomes	27
4. Equity and Access to Tertiary Education	31
4.1 Introduction: “A Place for Everyone”	31
4.2 System Strengths.....	32
4.3 Equity Challenges Facing Tertiary Education	34
4.4 Recommendations	35
5. Research	39
5.1 Research Funding.....	40
5.2 Human Resource Issues in Relation to Research	42
5.3 Research Training	44
5.4 Connecting Undergraduate Education with Research.....	45
5.5 Evaluation of Research Quality	46
5.6 Issues Relating to Size, Critical Mass, Organisation and Interdisciplinarity ..	47
5.7 Polytechnics Research Positioning and Strategy	50

6. <i>The Regional Role of Higher Education Institutions</i>	53
6.1 The Present Situation and Elements in its Evolution	53
6.2 Reflections on the Evidence Presented in the Visits in Relation to the Above.....	55
6.3 Recommendations Emerging from the Discussion	57
7. <i>Internationalisation and Globalisation and the Implications for Finnish Tertiary Education</i>	61
7.1 General Context for Considering Internationalisation	61
7.2 Strengths of Finland and Finnish Higher Education in the International Context.....	64
7.3 Weaknesses in Relation to Internationalisation.....	65
7.4 Recommendations	66
8. <i>Assuring and Improving Quality</i>	71
8.1 Development and Evolution of Quality Assurance Processes in Finnish Higher Education	71
8.2 Challenges in the field of Quality Assurance and Monitoring	73
8.3 Recommendations	76
9. <i>Resourcing Tertiary Education</i>	79
9.1 Overall Levels of Spending.....	79
9.2 Institutional Support Funding	81
9.3 Adequacy and Sustainability of Tertiary Funding	84
9.4 Student Support.....	88
9.5 Human Resources	89
10. <i>The Shape and Configuration of the Tertiary System</i>	95
11. <i>Planning Governance and Management of the Tertiary System and its Institutions</i>	105
11.1 Institutional Autonomy	105
11.2 Governance and Institutional Status.....	107
11.3 Management of Autonomy	107
11.4 Recommendations	108
12. <i>Conclusions and Reflections</i>	113
References	117

<i>Appendix 1: Members of the Review Team for Finland</i>	121
<i>Appendix 2: National Co-ordinator, National Advisory Committee, and Authors of Country Background Report.....</i>	123
<i>Appendix 3: Programme of the Review Visit</i>	125
<i>Appendix 4: Comparative Indicators on Tertiary Education</i>	133

<p><i>This report is based on a study visit to Finland in December 2005, and on background documents prepared to support the visit. As a result, the report reflects the situation up to that point.</i></p>
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1. Introduction

This Country Note on the Finland forms part of the OECD Thematic Review of Tertiary Education. This is a collaborative project to assist the design and implementation of tertiary education policies which contribute to the realisation of social and economic objectives of countries.

The tertiary education systems of many OECD countries have experienced rapid growth over the last decade, and are experiencing new pressures as the result of a globalising economy and labour market. In this context, the OECD Education Committee agreed, in late 2003, to carry out a major thematic review of tertiary education. The principal objective of the review is to assist countries to understand how the organisation, management and delivery of tertiary education can help them to achieve their economic and social objectives. The focus of the review is upon tertiary education policies and systems, rather than upon the detailed management and operation of institutions, although clearly the effectiveness of the latter is influenced by the former.

The project's purposes, methodology and guidelines are detailed in OECD (2004a).¹ The purposes of the review are:

- To synthesise the research-based evidence on the impact of tertiary education policies and disseminate this knowledge amount participating countries;
- To identify innovative and successful policy initiatives and practices;
- To facilitate exchanges of lessons and experiences among countries; and
- To identify policy options.

The review encompasses the full range of tertiary programmes and institutions. International statistical conventions define tertiary education in

¹ Reports and updates are available from www.oecd.org/edu/tertiary/review

terms of programme levels: those programmes at ISCED² levels 5B, 5A and 6 are treated as tertiary education, and programmes below ISCED level 5B are not. In some countries the term higher education is used more commonly than tertiary education, at times to refer to all programmes at levels 5B, 5A and 6, at times to refer only to those programmes at levels 5A and 6. An additional complication is presented by the practice, in some countries, of defining higher education or tertiary education in terms of the institution, rather than the programme. For example it is common to use higher education to refer to programmes offered by universities and tertiary education to refer to programmes offered by institutions that extend beyond universities. The OECD thematic review follows standard international conventions in using tertiary education to refer to all programmes at ISCED levels 5B, 5A and 6, regardless of the institutions in which they are offered.

The project involves two complementary approaches: an *Analytical Review strand*; and a *Country Review strand*. The Analytical Review strand is using several means – country background reports, literature reviews, data analyses and commissioned papers – to analyse the factors that shape the outcomes in tertiary education systems, and possible policy responses. All of the 24 countries involved in the Review are taking part in this strand. In addition, 13 of the tertiary education systems have chosen to participate in a Country Review, which involves external review teams analysing tertiary education policies in those countries.

Finland was one of the countries which opted to participate in the Country Reviews and hosted a review visit in March 2006. The reviewers comprised an OECD Secretariat member and an international review team whose members are citizens of Denmark, Sweden and the United Kingdom. The team is listed in Appendix 1.

1.1 The Participation of Finland

Finland's participation in the OECD Review was co-ordinated by Osmo Lampinen of the Finnish Ministry of Education. Mr. Lampinen was also responsible for the preparation of the Country Background Report (CBR) for the OECD Review.

The CBR covered themes such as the background and content of tertiary education reforms; the structure of the tertiary education system; the role of tertiary education in regional development, the research effort of the

² The International Standard Classification of Education (ISCED) provides the foundation for internationally comparative education statistics and sets out the definitions and classifications that apply to educational programmes within it.

country, and the shaping of labour markets; the challenges faced in resourcing, governing, achieving equity in and assuring the quality of the tertiary education system. Some of the main issues identified by the Finland CBR, and which are taken up in this Country Note, include:

- How can Finland best widen the internationalisation of its tertiary education system, increasing the intake of international students and researchers to Finnish tertiary institutions?
- What governance and management arrangements are best suited to Finland’s university and polytechnic institutions, providing the nation with an appropriate balance of institutional autonomy and public accountability?
- How can Finland ensure that it has a system of tertiary education in which its centres of research excellence are able to compete at a global level?

The Finland CBR forms an important input to the overall OECD project and the review team found it to be useful in relation to its work. The analysis and points raised in the CBR are cited frequently in this Country Note.³ In this sense, the documents complement each other and, for a more comprehensive view of tertiary education policy in Finland, are best read in conjunction.

The review visit took place from 12-20 December 2005. The detailed itinerary is provided in Appendix 3. The review team held discussions with a wide range of educational authorities and relevant agencies and visited all institutions of tertiary education in the country. Discussions were held with representatives of Ministries such as education and finance; tertiary education institutions; student organisations; representatives of academic staff; the business and industry community; agencies responsible for quality assurance; and researchers with an interest in tertiary education policy. This allowed the team to obtain a wide cross-section of perspectives from key stakeholders in the system on the strengths, weaknesses and policy priorities regarding tertiary education in Finland.

This Country Note draws together the review team’s observations and background materials. The present report on Finland will be an input into the final OECD report from the overall project. We trust that the Country Note will also contribute to discussions within Finland, and inform the

³ Unless indicated otherwise, the data in this Country Note are taken from the Finland Country Background Report (Ministry of Education, 2005a).

international education community about Finnish developments that may hold lessons for their own systems.

The Country Note is the responsibility of the review team. While we benefited greatly from the Finland CBR and other documents, as well as the many discussions with a wide range of Finnish experts, any errors or misinterpretations in this Country Note are our responsibility.

1.2 Structure of the Country Note

The rationale behind the structure of this Report is thus. Chapter 2 lays out the broad general context and background of the system of tertiary education in Finland. Chapters 3 to 5 examine various substantive domains of the activities of tertiary institutions, in terms of strengths, weaknesses and lines of possible future development (the Education dimension in terms of student entry, progression and labour market and related equity considerations and of course, resource and innovation). Chapters 6 and 7 place the above in the broader environment of the regional and international roles of tertiary institutions and derive proposed future directions of development. Detailed consideration is then given to a series of critical infrastructural and support areas which underpin the above trajectories, namely Quality assurance and improvement (Chapter 8); Resourcing Tertiary Education (Chapter 9) the shape and configuration, planning and governance of the system itself (Chapter 10); Planning, Governance and Management of the Tertiary System and its Institutions (Chapter 11). The report concludes, in Chapter 12, with a summary and final reflections.

2. The Finnish Higher Education System: Its Evolution and Major Strategic Issues

The purpose of this chapter is to provide a general background on the principal characteristics of the Finnish higher education system in its broader context, and to identify the major strategic developmental issues which arise and are currently under discussion. This will form a backcloth of perspectives against which the subsequent chapters may be viewed. The review team has attempted to make comment on each as and when appropriate.

The Country Background Report helpfully indicates the salient features of Finland's economic structure. This may be summarised thus:

- An evolution of the economy to a domination of three almost equally important export sectors – electronics and electro-technology; metal and engineering; and forest industry products – which largely account for the massive expansion from 23% of GNP in 1990 to 42% of GNP by 2001. Information technology has clearly been key to this, and in turn this has been made possible by a rapid increase in R&D spending and related innovation and product development.
- The advent of the EU has had a profound effect on opening up markets, but also on greatly increased competition in the food sector.
- About two-thirds of the Finnish population (68.2% participates in the labour force, a rate somewhat above the OECD average, while the rate of unemployment is 8.4% (OECD, 2006). Of the employed, primary production accounts for 6%; industry and construction 27% and 66% in trade and services.
- The rapid rise in the educational level of the workforce is impressive – of the 23 – 34 age group, 40% have a tertiary degree, whilst only 15% of the 55 – 64 age group *i.e.* those entering the labour force now are highly educated.

- Finland has an ageing population with 64+ rising to 26.6% over 40 years, and 15- dropping from 17.6% - 15.6%.

As far as demographic patterns are concerned, the following are relevant:

- Ethnically, Finland has been relatively homogeneous with 91.3% Finnish speakers, 5.4% Swedish speakers and small numbers in other groups. The low volume of foreigners has steadily grown, with Russians as the largest group. The net immigration is likewise steadily growing, but with few refugees and asylum seekers.
- The size of the 20-29 year old age cohort in Finland is forecast to be the same size in 2015 as it was in 2005. If participation rates remain unchanged, aggregate tertiary enrolments should therefore remain unchanged. OECD member countries are facing a 3% decline in this age cohort across these years, with some countries in Eastern Europe and Mediterranean forecast to experience a 20 or even 30% decline in the size of this age cohort. Seen in this light, Finland faces a comparatively stable demand for tertiary study places.
- However, Finland's regional demographic picture is not one of stability. It appears that there will be continued population growth in Helsinki metropolitan area, and significant declines in the tertiary age cohorts of rural (especially eastern) Finland, where it is estimated that the ratio of study places will modestly exceed the number of tertiary applicants (if policy remains unchanged).

As far as the higher education system itself is concerned, the dominant feature is the dual or binary system of universities and polytechnics. In this regard:

- The university sector is characterised by 20 institutions (10 multi-faculty, and 10 specialist) with bachelors, Masters, licentiate and doctorate studies. Universities have the obligation to provide scientific and artistic/humanities education and higher education based on research; to promote free research; to educate students to serve country and humanity - and, as of 2005, to interact with society and promote the social impact of their scientific and cultural activities.⁴ It has evolved as a sector in a number of different phases, marked by an extension of university education to all regions, differentiation of mission and expectations; and an articulation with regional agendas.

⁴ Universities Act, 715/2004, effective August 1, 2005.

- The polytechnic sector now governed by the Polytechnics Act of 2003 comprises 29 institutions, after an evolutionary period of development of a decade. It is dedicated to the conduct of professionally oriented higher education and applied research supporting regional development and adult education principally in engineering, business and health care. A principal feature is work practice as part of the undergraduate and post-experience graduate degrees.
- The duality of the system has been subject to a number of evolving assumptions and choices. Originally, polytechnics were conceived as a means of overcoming the functional shortcomings in the system in 1989 and a means of clearing a vocational and matriculation backlog. During the 1990s, polytechnics continually matured to equal status with a very specific differentiated character to universities, notwithstanding views at the time which largely favoured polytechnics acting as feeders to universities. Implied in this is at least a theoretical choice of alternatives for students of institutions with different profiles.
- As the CBR pointed out, an option would have been to create more universities with very broad missions and responsibilities, which would have raised questions of over-stretching and commitment and perhaps a confused identity.
- The dual system which the review team encountered is thus held to be clearly differentiated in terms of:
 - the nature of the degree structure;
 - the model of governance and administration – state compared with a municipality, joint municipal bodies, or foundations;
 - the profile of funding related to the differentiated mission, and the different priority ascribed to research;
 - the internal cultures, organisational and management practices which on the one hand reflects a collegial and Humboldtian model (universities), and on the other, a more managerial/corporatist model (polytechnics).
- The review team felt it important to assess whether:
 - this conceptual differentiation was actually as evident in practice, or whether there are a series of factors at work in the contemporary scene leading to more convergence (both directions);

- the consensus of universal satisfaction with the dual system was still strong in the perceptions of different stakeholders and if not, what were the policy consequences.

We return to these questions in Chapter 10 and 11, having considered a range of evidence from a number of different themes in a number of different chapters. However, there is certainly no doubt that the dual policy can be seen as an attempt by government to regulate the system, and create stability by limiting areas of latent competition and thus, the possibilities of so-called “academic drift”.

Such is the speed of development of the Finnish HE system that the period during the writing of this Report has been punctuated by various pronouncements and initiatives from the Ministry and other agencies. The review team has done its best to keep up with these and absorb their gist into its reflections. The principal strategic objectives for the system seem to be as follows, all based on the general proposition of the improvement of the international competitiveness and regional accessibility of HE:

- The structural development of the system into new entities of universities and polytechnics, yielding larger concentrations of teaching, research and R&D with differing expressions in the different regions (see Chapters 5 and 10);
- Division of labour and cooperation between universities and polytechnics, with a view to appropriate responses to societal needs, economy in the use of resources, and regional accessibility (see Chapters 5, 6 and 10);
- Development of competitive concentrations of competence, especially in big HE cities to facilitate the emergence of international class centres of science and technology, interdisciplinarity, and the generation of new research openings and initiatives (see Chapter 5);
- The enhancement of the impact and commercialisation of HEI R&D and educational and research services by the setting up of joint enterprises;
- The movement of continuing education to an enterprise based orientation, and the development of the Open university model as a national entity with national coordination by 2010 (see Chapters 5 and 6);
- At basic unit level, to achieve economies of scale and critical mass (university departments of 5 – 10 professors at least; polytechnic

departments of 40 students at least as a starting point. See Chapter 11);

- In terms of quality assurance, the development of a system of university accreditation for Masters degrees; a consideration of how the national QA system could have more teeth, and how it could boost Finland’s international reputation; and the attention to the “queuing” problem for HE, and means of enhancing completion times and percentages (see Chapter 8);
- In terms of resource management, refinement of a funding formula based more on the attainment of results and outputs, and the consideration of tuition fees for international students (see Chapter 9);
- Progressive internationalisation of HEI via the expansion of exchange and foreign students and researchers (see Chapters 5 and 7).

This is a formidable agenda for Finnish HE and one to which, in broad terms, the review team would certainly subscribe on the basis of the evidence considered. It is also worth observing, in the light of the earlier sections of this Chapter:

- The overall goal for 2020 is of 17 500 bachelor start-up places in universities and 22 500 in polytechnics (Ministerial press release 8 March 2006), though “the higher education will not be further expanded” (CBR Chapter 2). If by this, it is meant no more HEI, then the reconfiguration into new entities makes sense. However, the lifelong learning agendas in their various forms almost guarantee an expansion of the system in terms of overall student numbers. It certainly raises the question of the relationship between Open University and mainstream provision, which is left rather ambiguous.
- The regional demographic situation described in above is, of course, a development that has significant implications for:
 - the viability of provision (courses, departments, institutions) in particular regions, which gives added force to the “entities” policy;
 - the policies and procedures currently available to manage reduction gracefully;
 - issues of quality of provision and the learning experience;
 - possibilities of enhanced lifelong learning provision;

- possible issues of equal opportunity.
- Whilst the higher education system appears to be doing a robust job in relation to the current economic profile, outlined earlier, the future is another thing. However, the analyses contained in various publications (Dahlman *et al.*, 2006) give the review team considerable confidence that Finland is well poised to cope with this, assuming these excellent analyses are decanted into institutional strategic planning priorities (see also Chapters 9 and 11).

3. The Labour Market, Student Experience and the Educational Process

3.1 The Background Context

This is a complex area of discussion, deriving perspectives from a wide range of stakeholder interests – students, employers, alumni, various government ministries, university administrations and the academic community for starters. Discussions revealed a justifiable pride in what has been achieved so far – certainly by international comparisons – and the consensus oriented nature of the Finnish policy process gives good grounds for optimism that the issues discussed here will be constructively resolved.

Successful tertiary systems select students likely to benefit from (and succeed at) studies; they support and monitor their progress to the completion of their course or programme, providing flexibility to learners that is consistent with good quality; and they endeavour to ensure that graduates have the skills and opportunity to make productive use of the capacities that they have gained in their studies.

In many respects, the Finnish system of tertiary education has met these challenges with great success. Finland's decentralised system of university entry allow university departments to exercise independence with respect to entry qualifications, and to use this independence to select student whose skills and orientations are well-matched to the demands of individual study programmes. Universities in Finland have responded constructively to the new Bologna degree structure, and have used this opportunity to thoughtfully widen the range of study options available within Finnish universities, permitting students to choose between completing their studies with a bachelor degree and continuing to the masters' level. In addition, there appears to be substantial opportunity for flexibility in university studies, in which students enrolled at one institution may, with permission, combine courses and programmes across separate university institutions. Employment and wage data reveal that Finnish tertiary graduates have

opportunities to make productive use of their capacities, and are well-rewarded for their schooling.

The polytechnic system has widened the range of educational opportunities available to Finns, providing them with a study option that provides earlier and less burdensome entry to study without the queuing characteristics of the university system, progression to degree completion that is comparatively swift, and a pedagogy and curriculum that are clearly focused on professional education, both at the bachelor and master degree level.

A distinguishing feature of Finnish tertiary education is the central role assigned to labour market demand in the allocation of resources for tertiary education. State-funded study places are the central resource allocated by most Ministries of Education, and in Finland these are primarily allocated according to forecast labour market needs. These forecasts of labour market needs, adjusted to reflect policy targets for the government, then become the basis for a national Development Plan, a document that provides a five-year framework for education supply. The Development Plan provides the framework within which negotiations between the Ministry of Education and individual higher education institutions take place. Intake for each field of education - *e.g.* engineering, education, pharmacy, and so on - is agreed between them, and contained in each institution's performance agreement with the Ministry.⁵ Seen in this light, Finland has a system of enrolment resource allocation that is not driven by student demand, but according to forecast labour market demands.

Such mechanisms in other countries have led to misalignments in terms of subsequent market shifts, student choices and employment and to some waste in the allocation of resources (*e.g.* how many biochemists, not enough physicians or whatever). In this event, various adjustment mechanisms by graduates, employers and the system itself, have evolved, and this is a consideration to which the Report returns later.

Also of relevance is the demographic situation, in particular, the substantial downturn in some Finnish regions, the position of women, and the ageing population profile, all of course, call for appropriate policy development.

There are three main elements to this discussion – entry of students to the system (including admissions and access); progression and completion (including flexibility, course architecture and support); and labour market

⁵ An excellent description of the process is provided in the Country Background Report for Finland, pp. 26-29. For an analysis of labour market demands to 2015, see Prime Minister's Office (2004).

outcomes. The following paragraphs treat each in turn in terms of a discussion of the current situation and the evidence presented, and recommendations for future developments in each area.

3.2 Entry into Tertiary Education

3.2.1 Current Position

Given the binary system in Finland, students clearly have a choice not only of subjects, city and institution, but also of sector. Some subjects are not offered in universities, but are in polytechnics – and vice-versa. Some students will opt for the ostensibly “theory based” approach of the university and some for the ostensibly “professional practice based” approach of the polytechnic (this, it is accepted, is a grossly over-simplified categorisation to which the Report later returns, and in any case, the distinction is becoming blurred. At any event, it appears that:

- The careers/higher education guidance offered by schools is not well regarded in higher education.
- Little is known on the patterns of decision-making underlying student choice.

to which we return later.

Finland’s universities have a decentralised system of entry. Finnish universities and individual departments within them are free to establish their own criteria for the admission of students. University applicants are typically admitted based upon an entrance examination and matriculation examination results, the first of which owes its existence to concerns that school success does not necessarily lead to success in higher education (CBR, p. 56).

University entrance examinations typically include material drawn from upper secondary school curriculum and additional materials identified by academic departments. Personal interviews, auditions, or other tests of suitability may also be used (such as classroom leadership skills for pedagogy applicants). While faculties in humanities and social sciences often set different examinations in each university, common entrance examinations have been introduced in natural sciences, engineering, and architecture (Leijola, 2004, p. 18).

Because entrance examinations can often be challenging, students seeking admission to university in high demand fields, such as business or law, often study at some length to prepare for these examinations, or enrol in

private preparation courses offered by private organisations (Leijola, 2004, p. 18-19). Applicants may also choose to retake university entrance examinations in later years if initially unsuccessful in gaining entry to their preferred study field and institution.

Polytechnics (AMKs) are also authorised to establish their own criteria for the admission of students. Matriculation results are typically one criterion for admission, and interviews and test of aptitude or suitability may also be used. However, in contrast to the university sector, the government has established a joint application system for polytechnic institutions.⁶

In recent years about one-half of applicants for tertiary study obtained a study place. The ratio of demand to supply of study places is, on average, substantially higher in the university sector than it is in the polytechnic sector. In 2005 only about one-third of those having started university studies had matriculated the preceding spring. These rates have historically varied widely across study programmes, ranging from 5-10% in fine and performing arts to well over half in some areas of engineering and applied science (e.g. pharmacy).⁷ About 18% of all higher education applicants apply to both a university and polytechnic, hence some who do not gain entry to a university may take up a study place at an AMK institution (OECD, 2005, p.6). Others join a queue of unsuccessful applicants who reapply in later years, in which they appear to remain for two to three years before the market for study places clears. Polytechnic students do not appear to queue for entry, and students appear to begin their studies at an earlier age, typically 19 or 20 (CBR, p. 56).⁸

During this period of “queuing”, and because of the sheer attractiveness of the experience, there appears to be a growing trend for prospective students to:

- Go into a lesser demanding area and transfer later;

⁶ Government Decree No. 353, on the Joint Polytechnics Application System, 15 May 2003.

⁷ Data on applicants, examinees, admitted students, and entrants by discipline is available in Ministry of Education (2005b, p. 30).

⁸ For the AMK sector the number of applicants per student place is not a reliable measure of student demand or interest. In order to retain their right to employment market support, young people between the ages of 18 and 24 who have no professional qualification must apply in the national joint application to at least three polytechnic degree programmes or vocational qualification programmes.

- Undertake work experience first, which potentially adds considerably to the transferable job skills they develop. At present, this bears little structured relationship to subsequent study or job.

While detailed studies of student choices have been undertaken by the University of Jyväskylä, a system-wide view of students' choices has not been developed.

3.2.2 Recommendations

In its 1993-1994 review, *Higher Education Policy in Finland*, the Ministry of Education noted the problem of queuing for university entry - the "matriculation backlog" - and described with disappointment the lack of success that its initiative had in reducing the problem (pp. 76-81). Finns interviewed during the study team's visit noted that this characteristic extended over decades. The Ministry has set goals for proportion of newly graduated secondary students to be admitted to university, and it has explored the development of a unified application procedure to reduce the burden of making separate applications.

The wider use of common entrance examinations among academic disciplines based at different Finnish universities is to be commended and we do reiterate the importance of maintaining a diversified and decentralised admissions system even if applications were to be centralised. This would reduce the likelihood that students will have to prepare simultaneously for many different entrance examinations, while also permitting departments latitude in selecting students likely to thrive in their programmes. We recognise the problem that secondary school matriculation examinations are sometimes not discriminating enough to enable informed admissions decisions to be made in some subject areas, and therefore recommend that:

- The government encourage universities develop common assessment in all areas, as they have done in some. Likewise, the development of a common application form is also to be commended, since it reduces the paperwork burden borne by university applicants.
- The effectiveness of this is providing institutions with sufficiently discriminating information for particular subjects is monitored closely.
- The possibility of a national Central Clearing House for admissions is kept in mind as a future possibility if the above remedies prove unsuccessful.

- There be a systematic study of arrangements at secondary school for careers and academic guidance in consultation with institutional admissions officers to deal with the problems alluded to above.
- The government examine the relationship between upper secondary studies and higher education. Closer connections between upper secondary curriculum and assessment and higher education would permit students to develop a clearer picture of what courses of study are appropriate to them, and reduce the time and cost associated with preparing for university entry examinations.

Nonetheless, it appears that much of the “matriculation backlog” may be rooted in the mismatch between student demand and the supply of study places. The allocation of study places by field of study is set by the Ministry, and based upon a forecast of national and regional estimated intake needs that is based upon labour market demands, completion rates in education, and other parameters (Prime Minister’s Office, 2004). In contrast to many other OECD member nations, all fields of study in Finnish universities apply a *numerus clausus*.

Allocating public spending by a labour-market based planning process helps to ensure that public resources are directed towards economically productive fields of study. However, to the extent that the study preferences of university applicants differ from the supply of study places resulting from this planning process - as implemented by Finnish universities who receive the study places - this leads to a process of queuing in which students repeatedly seek entry to fields of study with very low acceptance rates, such as the fine and performing arts and humanities.

There appears to be no ready solution to this consequence of a supply-driven system for the allocation of study places - unless Finnish authorities are either willing to use public resources of pay for studies that are uneconomic (*i.e.* not linked to labour market demand), or to rely upon a student financing of additional study places that are deemed not to be an efficient use of public resources, whether these places are offered at public universities or at private higher education institutions. In the meantime, students will continue to behave strategically, applying and transferring after enrolment; to steering students to courses that match their attitudes (and to enhanced drop-out), and to a process of matching and costing available opportunities.

While the queuing phenomena has been studied intensively in the past (in the late 1980s), there is not currently a well-developed analysis of queuing and student decision-making on institutional choice. We recommend that this is addressed in any reform of KOTA and AMKOTA not only in terms of available data, but also subsequent analysis.

3.3 Progression and Completion

3.3.1 Current Situation

Among university students who took degrees in 2003 - and who therefore began their studies in a pre-Bologna structure of long master degree system - the average duration of studies was 6 years. Polytechnic study times for 2003 were shorter, the average duration of which was 4.1 years, only slightly longer than the normative four year study time for most bachelor degree programmes (CBR, p. 21). In light of the later entry and longer study times of university students, the median age of completion for master degree students was 27.3 years of age in 2005, while that of polytechnic graduates was 25 (CBR, p. 80). According to OECD's Education at a Glance, the so-called survival rate of tertiary students in Finland - the aggregate ratio of graduates to entrants - is 75%, higher than the average rate of 70% rate for all OECD member states.⁹

Cohort-based rates of completion for university and polytechnic students do not appear to be calculated by the Finnish Ministry of Education. Aggregate annual discontinuation rates show 4.8% of university students discontinuing their studies in 2003-2004, with another 1.7% transferring to another field of study. Of those who discontinue university studies, a small proportion transfer to a polytechnic institution. About 7.6% of polytechnic students discontinued their studies that same year, a small proportion of whom continued their studies at another polytechnic, or began studies at a university. These rates are reported to vary significantly from one polytechnic programme and one institution to another (CBR, p. 21).

As the Ministry of Education observed in the Country Background Report for Finland, study times in the Finnish university system are long, and one aim of policy is to reduce study times to nearer the stated duration of study programmes. The long study times which are characteristic of university graduates are the result, among other things, of the effects of rationing study places, of extensive paid work, and of the grant-based assistance provided to students.

- The rationing of study places leads students to behave strategically, gaining entry to courses where the ratio of places to applicants is

⁹ The survival rate is calculated as $(\text{graduates } Y / \text{entrants } Y-N) * 100$, where graduates Y is the number of graduates at ISCED level 6 in year Y, and entrants Y-N is the number of ISCED 6 entrants in year y-n where n is the typical number of years of full-time study required to complete the qualification (OECD, 2004b, p. 138).

more favourable, and then subsequently switching courses (and lengthening study times).

- About half of Finnish university students work, many of them work extensively. While some of this work is undertaken to meet living costs, many students report that they work in anticipation that paid work will assist them in finding career employment opportunities after university, since work experience provides them with a competitive advantage over those who have only an academic qualification.
- Grant-based study assistance is also thought to contribute to long study duration, since it reduces the direct costs to student of extended study. International comparisons to show that, all else being equal, systems with grant-based assistance for living costs have longer study times than do those that provide loan-based assistance with living costs.
- To alter the incentives arising from rationed study places, extensive paid work, and grant-based assistance the government has introduced both compulsion and rewards: it has established time limits on study eligibility, and it has introduced a tax benefit available to students who complete their studies within prescribed time limits, making payments of the loan deductible from taxes.
- Payments of the loan are deductible from taxes up to 30% of the loan amount exceeding EUR 2 500. Completing one's degree within five years is a condition for qualifying for the deduction.
- The first of these policies is likely to lead to no change in student behaviour, since the policy offers exceptions to the time limit that are easily obtained as to make the policy non-binding. The financial inducements offered may influence behaviour, but are likely to do so only in modest ways, given modest rates of student borrowing and the marginal rate of tax reduction.

3.3.2 Recommendations

We recommend that the government explore the two possible alternatives to the existing lending system. In the first, existing mortgage-style lending would be converted to income contingent loan repayment, collected through the tax system. In the second, all grant-based assistance for living costs would be converted into lending - provided through an income-contingent lending system collect through the tax system. The first of these should make borrowing marginally more attractive (relative to

work) as a means of financing student living expenses. The second should have the effect of providing greater incentives for timely study completion.

Finally, as we noted earlier, the Finnish Ministry of Education is not able to provide a student-level (as opposed to aggregate) analysis of study completion in university and polytechnic institutions. This information is vital both for the evaluation of system performance, and as a means by which to evaluate the performance of individual tertiary institutions. We recommend that the Ministry work in cooperation with tertiary institutions and Statistics Finland to create a unified student record system that permits an accurate picture of mobility and completion within the tertiary system taken as a whole, and which can be linked to labour market information to provide a fuller account of labour market outcomes for those who have participated in tertiary education (see below).¹⁰

3.4 Flexibility

3.4.1 Current Situation

In the autumn of 2005 a reform of Finnish university degrees was implemented in which Finland adopted the European credit system (ECTS), and in which the long degree structure was revised to fit the Bologna 3-year first degree and 2-year master's degree structure.¹¹ While the implementation of this structure has been carried through thoughtfully and swiftly, we anticipate that few Finnish university students appear likely to take advantage of the flexibility made possible by the Bologna degree structure. Students, professors, and administrators in Finnish universities report that employers are not keen to hire students with only a bachelor degree. One the largest employers of university graduates, the Finnish government, has itself been unwilling to accept the bachelor degree as an entry-level qualification for public sector workers, such as school teachers. We do acknowledge that school teachers are a particular case especially given the Finnish reputation for excellence in school education. Predictably, students with whom we met indicated that they planned to continue to the master's degree level - and the reforms introduced in May 2005 tacitly acknowledge this preference for the master's degree. As the Ministry of

¹⁰ The *Equity in Education* Thematic Review Country Note produced by the OECD (Grubb *et al.*, 2005) also presents this recommendation (recommendation 10, section 8.8).

¹¹ Reform of University Degrees, Ministry of Education, Department for Education and Science Policy, University Division, May 2005.

Education notes in its policy statement, “in the main, students will be admitted [to university] to study for both the lower and higher degree, which means that they have the *right* to study for a Master’s degree.”

The new Masters degree in polytechnics, which has been the subject of a well documented study by Pratt *et al.* (OECD, 2003), and appears to be reasonably well differentiated from that in universities.

A further area of potential misgivings relates to the perception by employers that both bachelors and Masters degrees tended to be focused in narrow subject specialisations, which, of course, conformed to subject quotas imposed by the Ministry, and this characteristic is, of course, enhanced by the point that Masters are seen as an almost automatic progression from the bachelors. In an age where, internationally, bachelors are increasingly perceived as a broader base for subsequent specialisation and likely career shift, this early narrow specialisation may be counter-productive in the long-term. There is clearly a balance to be struck between immediate employability after the first cycle and subsequent career flexibility. The two are not necessarily incompatible.

3.4.2 Recommendations

It is evident that the market demand for bachelor graduates may be problematic. We welcomed the insight that there are a number of steps that the Ministry could take to assist in this:

- Reviewing and revising public sector hiring requirements that unnecessarily require a master’s level qualification;
- Working with professional and trade associations to identify occupations in which bachelor degree qualifications are likely to provide skills and capabilities suitable to entry-level working life.

The Ministry and institutions might reasonably give further consideration to a broader conception of the bachelors, *e.g.*:

- The review of the extent to which obligatory transferable skills – research literacy; project management; readership; IT, international experience; languages etc. are sufficiently incorporated into the formal and informal curriculum;
- Exploitation of the credit system to facilitate explicitly interdisciplinary degrees of a flexible nature in areas of new market opportunities;
- Enhancing the recognition and credit given to work related projects as part of a degree programme, including internships. Sufficient

evidence was collected to establish wide variations in recognition, systematic preparations, role in assessment and engagement of enterprises.

It is also evident that considerable exchange of good practice would follow from a system wide dialogue on the evolution of the Masters degree, which, discernibly is exhibiting different expressions *e.g.*:

- As a longitudinal continuation of a bachelors degree, for example, in areas where the bachelor level is not sufficient for professional competence, such as medicine and teaching;
- As a conversion programme away from the subject of a first degree;
- As a professional development programme;
- As a research preparation for the doctorate.

This is clearly an evolutionary situation which the Ministry is recommended to monitor in association with employers, the Academy, FINHEEC and other interests. This evolution may, incidentally lead to some conveyance of university and polytechnic offerings at this level.

3.5 Labour Market Outcomes

3.5.1 Current Situation

In Finland, as in other OECD member nations, tertiary graduates fare significantly better in labour markets than do those without tertiary qualifications. If one compares *all* tertiary graduates to those with secondary qualifications, rates of unemployment are lower, and wages higher. Polytechnic graduates occupied a middle position between secondary and university graduates, both with respect to rates of unemployment and wages. And, among university graduates, the rate of unemployment diminished and wages increased as the level of qualification increased - from bachelor to master, licentiate, and doctorate (CBR, p. 29-30).

Estimates of private returns to schooling calculated in the 1990s by Rita Asplund of The Research Institute of the Finnish Economy show that gross hourly wages rise by approximately 9% with each additional year of schooling, and do not appear to show diminishing returns, even at higher education levels. For secondary graduates the gross and net wage *premia* are broadly similar, while the wage premium of higher education degree is estimated to fall significantly (to 7.5%) when accounting for the progressivity of income taxes (Asplund, 2000). More recent calculations by

de la Fuente and Jimeno estimate that the after-tax rate of return to schooling is 9.98%, slightly higher than the 8.78% rate for the EU-14 nations, and well below that of the United Kingdom, which has the highest estimated rate of any EU-14 nation, 12% (de la Fuente and Jimeno, 2005).

In many respects, Finland's system of tertiary education has connections to working life that are an international benchmark against which other systems might be judged. Those who complete a tertiary degree have high rates of employment, a significant wage premium, and private returns that compare favourably to those of graduates in other nations. This suggests the relationship between the demand and supply of graduates is, on balance, holding up well.

Although Finland's university sector is Humboldtian in its origins, it has many faculties and some institutions - such as the Helsinki Technical University - in which its professors have very close connections to professional life, and in which students routinely acquire valuable work experience. Its polytechnic institutions appear frequently to offer an education that equips students to engage productively in working life, drawing upon instructors who are working professionals, and integrating classroom-based learning and work experience.

3.5.2 Recommendations

Against this background, which comparatively is highly commendable, there are two concerns which are identified for the consideration of Ministry and institutions.

- It is not clear whether the lifelong learning offerings of tertiary institutions in Finland are adequately transparent, institutionalised or developed, or whether the supply of lifelong study opportunities is insufficient to meet current demand. However, it was evident that the needs of adult learners were not a prime focus of the institutions visited. None offered strategies or plans for promoting lifetime learning, even in those instances where they were faced with declining numbers of traditional age students, and none indicating that doing so was an important institutional priority.

One could certainly see an adult education centre which provided a continuing education programme, largely drawing on faculty contributions, but in many cases, there was something of a problem of financial sustainability and the unwillingness of customers to pay. The predominant motivation of such provision seemed to be social equality and opportunity in the eyes of university staff,

whereas this chapter is emphasising an additional priority – lifelong learning relating to career shifts, economic development and an entrepreneurial dimension. Against this, evidence emerged of companies wanting high level continuing education and professional development and tending to provide it themselves.

The recommendation would therefore be for the Ministries of Education, Labour and Trade together with institutions and employers confederations and unions to:

- revisit the existing policy framework for continuing education, professional updating and lifelong learning in the light of the above;
 - assess whether existing arrangements for in-company provision; cooperative education; APEL, APL and accreditation of company provision; and institutional provision meet the needs of a revised framework;
 - develop, if necessary, a revised configuration;
 - incorporate any necessary initiatives into Ministry – institutional performance agreements.
- There is reason to be concerned that polytechnic and university education may be linked in a binary labour market, in which significantly narrower range of careers - and shorter career ladders - are open to the former graduates. Research undertaken some years ago, before the reform of the polytechnic system, indicated that polytechnic graduates from degree programmes that had similar names to those of university graduates (*e.g.* business studies) initially earned significantly lower wages. Whether these differences are due to signalling effects or skills differences between graduates is unclear. The Ministry should consider supporting longer-term analysis of labour market outcomes, examining graduate cohorts over a decade or longer, since understanding differences among degrees - such as wage dispersion - requires longer time frames.

We did not have the opportunity to pursue in detail the issue of the international or global job market, and Finland's preparation of its students in this ever changing context, though it is evident that there are some excellent local institutional initiatives. In this case, there is certainly a connection with Chapter 7 on Internationalisation, and the extent to which higher education curricula are sufficiently thus oriented.

4. Equity and Access to Tertiary Education

4.1 Introduction: “A Place for Everyone”

Equity has been an important force in post-war educational reform in Finland. The accessibility of tertiary education has increased remarkably, mainly through gradual improvement of comprehensive basic education, wide geographical distribution of university education and strong expansion of the polytechnic sector. One of the main arguments behind the expansion has been to include new groups in higher education and to reduce inequalities in gender, place of residence and social class.

As a consequence of this drive for expansion, Finland has among the highest levels of participation in tertiary education of any OECD member country. One third of the population aged 25-64 have a tertiary qualification, and among younger adults (aged 25-34) the proportion is 40%, a level exceeded by only four OECD member countries. Approximately 7% of the population aged 15 or older is enrolled in tertiary education, the third highest proportion of any OECD member country.

In Finland, as in other Nordic welfare states, higher education is seen as a good that should be made available to all citizens on equal terms. There are no tuition fees for degree studies and moderate payment for open learning, and public financial support for student living or maintenance costs is generous (for further discussion of student support, see Chapter 9).

The decades-long drive for expansion seems to have reached its completion. The Ministry’s Development plan for Education and Research 2003-2008 notes that “everyone should have equal right to education and training according to their abilities and special needs and to personal development irrespectively of their financial means”. According to present plans¹² there will be no further expansion of degree studies at tertiary

¹² The recent Government resolution (April 2005) on the structural development of the public research system confirms that the higher education system will not be expanded.

level.¹³ Likewise, the student financing system is also a mature set of policies, subject to incremental modifications. Further achievement with respect to equity by traditional means - by “creating a study place for everyone irrespective of their financial means” has ended.

The review team found that neither national policymakers nor representatives of higher education institutions in Finland expressed a sense of unease or concern about participation among underrepresented groups in tertiary education. Equity concerns were not spontaneously mentioned in meetings, and when questions were raised respondents expressed confidence that current policies were sufficient, and the system’s performance was broadly acceptable.

While Finland has accomplished much, we invite attention to two questions:

- Does the system leave some behind who might benefit from study?
- Are all who enter the tertiary system being provided a suitable opportunity to progress in their studies, complete their degree and to develop skills and competencies that will permit them to advance in professional and scientific lives?

We suggest that the *quality* of results or learning outcomes - as distinct from quantity of entrants or price of studies - may be the key dimension of equity in decades ahead.

4.2 System Strengths

Finland is widely regarded as one of the most advanced countries in the world in terms of equality of opportunity. One important aspect of social equity is Finland’s system of comprehensive education. The OECD’s Programme for International Student Assessment (PISA) reveals that Finnish 15-year-olds were the top performers among all participating nations on the combined mathematical literacy test. Finland was not only the best performing country but belonged to the countries showing the least variation in performance both within and between schools. A closer analysis of the PISA results revealed that the strength of relationship between student’s performance and socio-economic background was very low in Finland. These are all indications of a high degree of equality in Finnish basic education.

¹³ Target numbers for open studies at universities and polytechnics and liberal adult education are set higher than the present level.

Finland's system of student support, among the more generous in OECD member nations, has the effect of removing credit constraints as an obstacle to tertiary study: those who want to study may do so without being deterred by their inability to finance their studies.

There are wide opportunities offered to adults to undertake tertiary studies and the number of students enrolled in adult education is impressive. Open University education is open to everyone, regardless of age or educational background. Universities play a major role in the provision of open-university instruction and courses are offered in almost all fields of study. There are also alternative modes of delivery for those adults prevented to take part in teaching at campus like distance learning and extension studies. Open Universities cannot award degrees, but the credits obtained are transferable and can be used as part of a degree if you later enroll in a university. More than 80 000 students participate in Open University education every year and courses are available at 200 localities throughout Finland. The Third Age University for older people, a special form of Open University, had 14 500 registered students in 2004. Every year Summer Universities enroll nearly 70 000 students, including over 1 500 international students.

The conditions for lifelong learning are in many respects favourable in Finland and may work in favour of equality in the long run. The differences between age groups in educational experience remain high in the Finnish society, and adult education is used as a tool to equalise these differences. The different forms of open learning are well suited to meet the demand for lifelong learning and continuing education in the adult population. Their broad geographical dispersion and flexible organisation enables them to offer an extensive and varied range of teaching. In a sparsely populated country this is an important factor promoting educational equality. Evaluation studies of the Open University and Summer Universities (Piesanen 1998, 2001) has revealed that students can use them as testing arenas and help students to eventually enter university as regular students.

For several decades, women have been in majority in Finnish higher education and their participation rate has been high in international comparison. The introduction of graduate schools in the mid 1990s seems to have favoured female doctorate students and Finland is now ranking among the highest in OECD in female enrolment in tertiary type-6 programmes.

Finland has been very successful in improving the geographical accessibility to tertiary education by regional expansion of the university system and the creation of polytechnic institutions throughout the country. Twenty municipalities have a university (or campus) providing degree studies and polytechnics are now established in 88 different localities. Open

University studies can be pursued in a variety of units within the education network widely spread around the country. In total, 80 out of 431 Finnish municipalities are “university and polytechnics towns”.

4.3 Equity Challenges Facing Tertiary Education

Notwithstanding these achievements, large inequalities in access to tertiary education by social origin still persist in Finland. Participation rates in university education among young students (aged 20-24) differ considerably according to the educational background of their parents. The relative chance¹⁴ of entering university education has remained at least ten times higher during the last decades for those coming from academic home background compared to students from less educated families. The expansion of the tertiary system appears to have narrowed the relative advantage of an academic home background to seven-fold.

There is the potential for students who might benefit from tertiary study to be left behind, most especially in the transitions from lower secondary to upper secondary vocational education, and from upper secondary vocational education to tertiary education. Currently, the transition from vocational streams in secondary school to tertiary education is very low, and far behind the policy targets.

While the quality of provision in many areas of tertiary education appears to be quite high, there are programmes and institutions where room for improvement appeared to us to exist where, for example, students expressed what seemed to us consistent and well-founded criticism about insufficient links between classroom-based study and work activities, or concerns about the currency of knowledge among instructors who had few opportunities to refresh their professional expertise. If there are any deficiencies in professional education, these are felt disproportionately by students whose parents have not completed a university education, and may bear on whether they complete their studies or experience later success in working life.

Finland appears not to have reflected on the targeted policy interventions in which individuals are consciously treated differently - although targeted approaches of this kind exist in many other countries with the same high level of participation as Finland (see *e.g.* Johansson *et al.* 2006). Examples of this could be quota based access for certain

¹⁴ Measured by odds-ratios, in this case the probability of entering university education for individuals (aged 20-24) coming from academic home background compared to someone coming from less educated background (=1).

groups, compensatory and support schemes for students lagging behind or in need of special support. HEIs may also need to be provided with incentives (extra funding) to attract less represented groups and to give special attention to students from disadvantaged backgrounds.

According to present regulations a student can be admitted as a regular university student after completing approximately a third of a degree programme at the Open University. However, not many are accessing degree studies in this way. In 2005 over 80 000 people studied with the Open University, but only 682 students were accepted for degree programmes at universities on the basis of their Open University qualifications. This is well below the target for such transfer. Studying at the Open University is part-time and, therefore, students are not entitled to financial aid or other social benefits for students. In addition, individual students must pay fees for academic Open University courses. This may be economic obstacles for the less well-off.

Finally, there is the question of inadequate data on student enrolment. We were surprised to find that there were no student-level data base available tracking student's mobility between tertiary education institutions, adult education and the labour market. We would also have liked to see more data about the regional flow of students, about enrolment of older age groups (not just the 20-24 age group), about completion rates and student's part-time work - for students from different educational and socio-economic background. Most data presented to us (from the KOTA/AMKOTA data bases) were from the input side. More effective student tracking and cohort analyses would be needed in order to examine the social and economic outcomes of tertiary education.

4.4 Recommendations

Equity and access are clearly important and well established principles in Finnish higher education, and their implementation worthy of commendation. As the Finnish higher education system evolves along the other dimensions analysed in this Report, it is important that the equity and access agendas evolve in parallel. To this end, the following recommendations are offered.

The dual structure of the Finnish tertiary system should be upheld and the different profile of the two sectors should be developed further according to the principle "different but equal". The dual system has manifested itself as an efficient way of making tertiary education accessible to growing parts of the population and at the same time improving the quality and status of vocational education and training. These are important

elements in a policy for equity in education. Instead of blurring the boundaries between universities and polytechnics the vocational side of the tertiary system should be strengthened by further improving postgraduate education and professional continuing education. Transfer between the two sectors should be encouraged. The comparability of degrees from different HEIs should be secured through evaluation and quality assurance (this will be discussed further in Chapter 8). However, the Report also revisits this binary question in Chapter 9, from slightly different perspectives.

The ongoing restructuring of the tertiary sector should be pursued with due consideration to the consequences for equity. Foreseeable changes in the organisational structure like merger of institutions, regional redistribution of intake capacity and the new degree structure (bachelor and master degrees) may have effects on educational equity in social, gender and geographical terms, and these should be carefully monitored. Special actions for immigrant, handicapped and older students may need developing.

Targeted actions and selective funding may be needed for widening participation and support of underrepresented groups such as students from poorer social backgrounds, rural areas and for immigrant and adult students. The principle of equal treatment may not always be valid. The public financing of tertiary education and the financial support scheme should be examined more closely with regard to their equalising effects on educational outcome and life earnings.

Student grants and loans should be available also for part-time learners. This may be important as open learning programmes do charge fees covering their extra costs.

It is important to develop a life-cycle perspective on participation. The main reason for social inequalities in access to higher education is usually traced back to preceding levels of education. Interventions on these levels may be more effective than at the time of transition to tertiary education. Increased attention should be given to career guidance and counselling in the schools (both personal counselling and vocational and educational guidance) and to the marketing of higher education offerings to the students.

The role of Open University should be more explicit in the long-term strategy for lifelong learning and development of tertiary education.¹⁵ More students should be encouraged to take the Open University path to university studies. In the long run the Open University should eventually open up also for degree studies. Students studying on a regular basis should be entitled to financial study support on equal terms with degree students.

¹⁵ The same kind of recommendations was put forward by a Government commission on lifelong learning recently (Ministry of Education, 2005c).

Conditions for immigrant and foreign students need attention (see also Chapter 7). The Finnish ambition to strengthen the international activities and to take part in international competition, networking and pooling of resources in education and research will lead to increased mobility and more immigrant and foreign students. To meet this development preparations are needed on national and institutional level. Change in culture and attitude will probably be needed. Not only curricula have to be revised but also admission procedures, housing, social and financial support and employment conditions for immigrant and foreign students. The introduction of student fees for foreign students must be supplemented by special support schemes, scholarships etc.

Queuing for entrance to university education should be analysed and discussed in more detail. The long term goal set up for participation in tertiary education (50/70% of an age group) seems realistic but the balance between university and polytechnic education may have to be reconsidered in light of the steadily growing number of applicants to the universities.

The admission system should be further developed and the selection process kept decentralised and based on diversified criteria relevant to student performance in different fields of study. Introduction of common examinations by discipline, as has been adopted in some subjects, is to be encouraged. The present matriculation and entrance examinations should be reviewed from the point of equity with the aim of promoting “fair access” for less represented groups of students.

The data base (KOTA/AMKOTA) about student enrolment must be improved so that it can be used for analysing the flow of students within the whole education system and between education and the labour market. Such information is necessary to evaluate the long-term effects of policies for increased equity in education (see also Chapter 9).

5. *Research*

Finland has rightly gained a formidable reputation in Europe for its innovative research and R&D strategies, especially focusing on the Knowledge Economy and the imperative of economic regeneration and the implications of globalisation, but in the specific geo-political context in which Finland is located. Recent years have been marked, not only by the progress indicated below, but also by a series of well thought out reflections, analyses and strategic declarations on research and related matters, some of which have been produced and progressively implemented within the lifetime of this OECD review. Much of the ground which could be covered by this chapter has been well explored elsewhere in penetrating detail, and duplication would serve no useful purpose. This chapter will thus reflect on these publications in the light of the evidence collected by the review group.

The group is well aware that the national agendas are following two tracks – one being the establishment of Finland as a world leader in science and technological research (fundamental and particularly applied), which implies acute international benchmarking, the other, the deployment of R&D in the cause of economic development, especially in a regional context. Neither Finland nor the OECD review team see these as in any way being in conflict, but rather in a symbiotic reinforcing relationship. Similarly, discussions have to be placed in the context of a binary system, where the appropriate roles of each sector are still evolving.

It should be observed that there is widespread public support and concern about the need to sustain high quality research and R&D as evidenced by the volume of government funding and initiatives across various universities; the demands of industry; and the attention of the media (not the least to Finland's position in international rankings – though worries are probably exaggerated). This public interest is a major strength for Finnish research – and, of course, the institutions which deliver it. The fact of the measurable improvements in research quality and efficiency, as documented by recent evaluations (especially when benchmarked against other OECD countries) is clearly reassuring, given the relatively recent research tradition in Finland.

This chapter will now focus on a series of research themes which have emerged in the review group's discussions with national organisations and institutions, and for each, will give an overview of perceived strengths and weaknesses and propose avenues for development.

5.1 Research Funding

During the last decade, Finland has increased its total funding for research and development (R&D) considerably. Most comes from successful Finnish industries (especially Nokia, that accounts for 70% of industrial R&D expenditures), but also HEIs have seen increasing budgets. The annual total amount spent on R&D in Finland is approaching 4% of the GNP, among the highest in the world, and second only to that of Sweden among OECD countries. The Finnish Academy, the main supporter of basic research in Finland, expects to increase its budget by 7% each year in the coming years.

Funding for R&D at HEIs is now above EUR 1 000 million. This is 20% of the total national R&D expenditures and about twice as much as all other public support for research combined. The universities get the lion's share of this, while hospitals and polytechnics each receive less than one tenth of the universities' share. However, the R&D expenditures at the polytechnics have grown fast in recent years, from EUR 27 million in 1999 to EUR 67 million in 2003. This is consistent with a changing role of the polytechnics, which used to be viewed as only teaching institutions. Today R&D activities are included in their formal obligations. This may provide a major boost for research based quality education in the polytechnics, but it is a problem that the basic (core) funding (see below) for research in these institutions does not yet match the ambitious intentions. In recent years major investments have been made in biotechnological fields, with large bio-centres on campuses in Helsinki, Turku and Oulu, but the commercial outcomes are not yet significant.

The HEI research support is divided into core funding and competitive funding. The former is well suited for long-term infrastructure development in the HEIs, while the latter is usually of a time-limited nature and is much less useful for the long-term development of institutional infrastructure. Most of the competitive funding is provided by the Finnish Academy and TEKES and is the part of the HEI support that has grown most in recent years. Core funding for HEIs, that includes expenses for both education and research, has increased much less; in 2005 only 58% of the total support for HEIs was core funding, compared with 75% in 1996.

The decreasing share of core funding may cause problems for HEI research in at least three different respects:

- Undergraduate education is the pipeline for new researchers and may weaken when core funding declines. It is, for example, important that undergraduate laboratories are up-to-date and that equipment used by young students is not outdated.
- Recruitment of permanent HEI staff may suffer when the number of permanent positions is reduced.
- Research equipment, especially the important service equipment that is not dedicated to a single project, is usually not provided through the competitive funding. However, it must be replaced regularly. The present fortunate situation in the HEIs with a considerable amount of relatively new service and research instrumentation will not last forever.

Among these problems the lack of good career opportunities in the HEIs may be the most serious. In particular, the number of post-doctoral positions does not nearly match the efforts made in connection with the production of good Ph.D.s, and even outstanding researchers at the HEIs must often wait many years before they can get a permanent position.

Almost half of the support for HEI R&D from the Academy goes to institutions in the Helsinki area, while only 35% of the support from TEKES (covering mainly support for applied research) ends up in Helsinki. The fact that a high share of the research funding at HEIs outside Helsinki goes to applied research indicates that these HEIs are trying to be supportive of local technological and economical development through their research activities. This is one of the justifications for the placement of many small HEIs in small cities and many examples demonstrate that this regional development strategy may work effectively.

In the light of the above, it is recommended that the national plans to increase further competitive funding may have to be moderated in accordance with the problems that will increase in the coming years, especially in connection with staff, infrastructure and equipment. Furthermore, even within the competitive funding, a higher emphasis must be placed on long term funding, so that planning by individual research groups and individual researchers may be facilitated and strengthened. The replacement of the large number of HEI researchers that will retire during the coming decade must be carefully planned, both nationally and in individual institutions. It is therefore important that the age profiles of both staff and equipment in HEIs are monitored continuously and that plans for renewal are worked out. In order to benefit fully from the large and

successful efforts within Ph.D. training a more satisfactory system of post-doctoral opportunities should be developed again via core funding, but this relates to human resource issues, which are now considered.

5.2 Human Resource Issues in Relation to Research

The R&D manpower in Finland consists of 13 000 staff (40% of them women) of which one third is in HEIs. As a result of the establishment of the graduate schools (and to some extent also the establishment of centres of excellence), the annual production of Ph.D.s has increased in both quantity and quality (as well as in equality) in recent years, from 765 (37% women) in 1995 to 1 422 (49% women) in 2005. Most of the Ph.D.s seek employment in the HEIs; even among engineering Ph.D.s, industry only employs a number comparable to that going to the HEIs. Still, the polytechnics only had 6% staff with Ph.D.s in 2003 (78% have Master degrees or licentiate degrees), but the percentage is growing fast with the increasing emphasis on R&D in the polytechnics.

The low mobility and low internationalisation profile of researchers in Finland is a problem in R&D since exchange of persons is one of the main mechanisms for renewal, both in industry, higher education and research. The low mobility and limited internationalisation are some of the most serious problems in Finnish R&D. Among other it may lead to in-breeding in a system that in most respects is very strong. The mobility problems are reinforced by the (otherwise commendable) specialisation in Finnish HEI research, which often makes it difficult for HEI researchers to find proper jobs within their specialised field elsewhere in the country. It is not uncommon that a (Master) graduate from a department proceeds to Ph.D. studies in the same department and finally obtains permanent employment there. The mobility of Finnish HEI staff is not only low within the country it is equally low internationally. Only about 7% of the Ph.D. students in Finland are foreigners and academic HEI staff members are rarely recruited abroad. In 1998 only 0.6% of R&D staff in Finland was foreigners; although this number has increased a little since then, it is still among the lowest in Europe. Also the number of exchanges with other countries is low, and the number of Finnish HEI researchers that spend longer study periods abroad has even declined in recent years.

Finland is experiencing a net brain drain of researchers that may be directly related to the weak internationalisation of Finnish higher education and research. In 1998 102 Ph.D.s left Finland permanently, while only 52 moved to Finland permanently. Among the latter the vast majority were Finns; only 15 were foreign-born researchers. Overall, the loss of people with tertiary education corresponds to almost 5% of the total work force in

Finland with these qualifications (see Chapter 7). This is a serious problem for a country that is dependent on R&D at the highest international level. Finland should aim for a brain gain of people trained at the highest level; trying to limit brain drain is not enough for the country.

We now turn to the employment of research trained graduates. The total number of Ph.D.s produced since 1990 is about 14 000. Well over half of them were in natural sciences, engineering, and medicine. Most of the Ph.D.s seek employment in the HEIs; even among engineering Ph.D.s industry only employs a number of Ph.D.s comparable to that going to the HEIs. A considerable growth in the number of staff with a Ph.D. takes place in the polytechnics, which in 2003 only had 6% staff with a Ph.D., while 78% had a Master or licentiate degree. This development in staff qualifications is consistent with the increasing emphasis on R&D in the polytechnics.

In the light of the above, the following recommendations are offered:

- There is a distinct relationship between core funding, HEI infrastructure and career opportunities and, as has been previously indicated, this may call for a re-appraisal of the relationship between core and competitive funding.
- The replacement of the large number of HEI researchers that will retire during the coming decade must be carefully planned, both nationally and in individual institutions. It is therefore important that the age profiles of both staff and equipment in HEIs are monitored continuously and that plans for renewal of research and educational equipment, as well as for recruitment of academic staff, are worked out.
- In order to secure better continuity in the replacement of retiring staff, and, in more general terms, for the country to benefit fully from the large and successful efforts within Ph.D. training, a more satisfactory system of post-doctoral opportunities should be developed. This may help attract a larger number of highly qualified foreigners to Finnish research. In this context, the review group welcomes the recent initiatives of the Academy of Finland in respect of:
 - new grants for post docs
 - the scheme for Senior Academic Researchers
- In order to improve international and national mobility, exchanges with foreign countries must be strengthened within research and education in universities and polytechnics. This process should be

part of the HEI planning and must be further supported by funding agencies and the Ministry of Education. The conditions and assistance provided for foreign researchers employed at Finnish HEIs must be improved in order to increase the intake of highly qualified foreign talent (see Chapter 7). In this regard, the review group welcomes the new Academy Scheme for Distinguished Foreign Professors, and the discussion on the priority which should be given to stimulate Ph.D. students over international students in Graduate Schools. Clearly a balance is necessary, but the international agenda is important in the long term.

- National mobility should be strengthened, for example by provision of economic support for relocation of researchers. In order to limit inbreeding it may also be worthwhile to provide incentives for young researchers to move between institutions, or not allowing them to obtain their Ph.D. and later employment at the same institution as the one they were originally trained at, at least, not without a period spent elsewhere.

5.3 Research Training

A previous paragraph has discussed the expansion of the Ph.D. programmes from a human resources perspective. It may also be noted that:

- The gender balance among Ph.D. students has been significantly improved, from 42.6% female in 1995 to 53% in 2005.
- The number of students enrolled in licentiate programmes (pre-doctoral research training programmes, lasting two years) is declining. The reason is that the internationally more relevant Ph.D. degree is increasing in popularity and importance. Presently almost three times as many graduate with a Ph.D. degree as with a licentiate degree.
- There appears to be concern in some quarters regarding the length of time being taken to complete some theses.

The FINHEEC publication (Dill *et al.*, 2006) emerged during the work of the OECD review group, and the latter is pleased to commend its analysis and conclusions in respect of:

- The evolution of the graduate school system as an instrument of generating critical masses of Ph.D.s, of undertaking economic and systematic formal training, and of providing support;

- Systematic university-wide systems of quality assurance, enhancement and review;
- International benchmarking;
- A national fellowship scheme;
- Means of addressing “passive participation” (extended completion times, inactivity etc.);
- Encouraging further internationalisation. In this regard, the Euro-Doc initiative could certainly be better exploited.

In addition, we would recommend:

- Consideration of the abolition of the licentiate degrees which is largely without international recognition or relevance;
- Enhanced monitoring processes for student progress, both within institutions and at a national level in terms of inter-institutional and inter-discipline comparisons;
- Consideration of professional doctorates as an alternative to the Ph.D. in various relevant professional settings, since Ph.D.s have been principally conceived as academic degrees.

5.4 Connecting Undergraduate Education with Research

In addition to the research training that takes place in Ph.D. and Master programmes, the research at the HEIs has a strong, positive influence on the undergraduate training activities. This influence covers many aspects, from facilitating the upgrading of curricula, to include the most recent developments in each field, to allowing “undergraduate research”, *i.e.* students project work at different levels. The integration of undergraduate education with research activities is today an important issue, and addresses the philosophy that students should be placed at the centre of the knowledge creation process, and that the knowledge creation is just as likely to take place within and with industrial partners, as within the HEI.

With this in mind, the review group recommends:

- Further consideration of problem-based learning and research through industry based projects at undergraduate level;
- Fuller utilisation of existing cooperative projects between industry and HEI for this purpose.

There is ample evidence from other countries that the above are not necessarily incompatible with sound academic integrity. Philosophically, this initiative seems to be less problematic for polytechnics than universities, and may reflect wasted opportunities for educational and research renewal, quite apart from student motivation.

5.5 Evaluation of Research Quality

Finland has a long and honourable tradition of research evaluations and other studies of research activities. From a somewhat controversial start by the Finnish Academy in the 1970s evaluations have now become part of everyday life for Finnish researchers. These evaluations are performed much more often in Finland than in almost any other country, and are done at different levels, often on the initiative of the Finnish Academy. Evaluations take place:

- When each single research proposal is submitted;
- At the individual university or polytechnic level, for specific research fields;
- Every three years for the whole HE sector.

In addition, the Academy provides bibliometric studies, and, TEKES provides studies of the impact of research on user organisations from a knowledge transfer perspective. Universities have commenced their own internal research assessment exercises, in order to focus scarce resources on the highest quality area and to realise the potential of emerging fields. International benchmarking is a prime consideration of these exercises, of which that instigated by the University of Helsinki is probably the most advanced. In short, the extensive range of evaluative instruments are used for quality assessments and enhancement; policy-making; and resource redistribution. However, it should be noted that the real costs of the extensive evaluation efforts in Finland are high, primarily in terms of researcher time; many researchers complain about the long hours they have to spend on questionnaires, which they often feel are without any obvious importance.

As far as citation rates are concerned, although those of Finnish Science and Technology research have improved considerably, they are still behind, for example, those in Denmark, a country of similar size, with similar publication rates. Part of this difference may be explained by the delay in citation relative to publication (publication rates in Finland used to be much lower), but also the low international visibility of even good Finnish research is likely to be a leading cause, especially in some research fields.

While Finnish researchers in many fields (Science and Technology, health) overwhelmingly publish internationally, publication in local (Finnish) journals is still substantial in many fields within Humanities (where it is even increasing) and in some of the Social Sciences. The citation rates within these fields are particularly unsatisfactory.

Some recommendations follow from the above:

- The weak publication habits by HEI researchers in some humanities and social science fields may be improved by supporting an internationalisation of Finnish research journals, *e.g.* through mergers with other Nordic journals. In the 1970s and 1980s this strategy was widely used in the natural sciences through the Nordic Publishing Board, NOP-N; the resulting internationalisation of the research fields gave an important boost to Nordic scientific research. Such internationalisation may help strengthen the research quality considerably in the problem areas and is, for example, likely to improve the present very low citation rates in these fields significantly. A targeted study of Finnish research journals and their options in the problem fields may be very useful.
- A rationalisation and co-ordination of the extensive (but also frequently very useful) evaluation efforts within Finnish research should be worked out in order to save valuable time for Finnish researchers between the various national bodies.
- The use of internal research assessment exercises linked to institutional strategic planning and resource distribution is commended as a matter of course.

5.6 Issues Relating to Size, Critical Mass, Organisation and Interdisciplinarity

Creation of critical masses in R&D at the smaller HEIs is frequently obtained through institutional specialisation within specific areas in R&D and research training; this specialisation also has consequences for the undergraduate programmes offered. Specialisation may be achieved, for example, by emphasising certain aspects of health in the medical schools and specific industrial activities in engineering at a given university or polytechnic. This way smaller institutions are still able to compete for research funds, for example from TEKES.

One consequence of the otherwise constructive specialisation of small universities and polytechnics is that the overall international institutional ranking may be relatively low, despite the fact that many would receive

good rankings in specialist fields. The small size of units also limit the possibilities of staff mobility, because of critical mass considerations, and also limit the support services which can be provided for research students.

Finland has been very conscious of the differentiation between Modes 1 and 2 Knowledge Production (Mode 1 is generally defined as academic research undertaken within the academic community according to academic norms and very often single discipline in character. Mode 2 is generally defined as multi-disciplinary research of a problem solving nature, normally commissioned by external agencies and with a strong user orientation). Finland has enthusiastically adopted a strong commitment to a user-based problem solving perspective where real life applications of research tend to take place in the space between traditional fields. One example is biotechnological applications which by their nature are interdisciplinary. However, the traditional (departmental and faculty) structures at HEIs are often poorly suited to accommodate interdisciplinary research and the establishment of centres may thus be useful in this context. In recent years major investments have been made in biotechnological fields, with large bio-centres on campuses in Helsinki, Turku and Oulu, but the commercial outcomes are not yet significant, although the hope of a new “Nokia” in the field of biotechnology still remains. In a recent study by the Academy of Finland both the structural obstacles to interdisciplinary research as well as cultural differences between different fields are discussed. The study attempts to identify ways of promoting important interdisciplinary research and points out, among other, that there are considerable difficulties connected with the evaluation of interdisciplinary research.

All the above point to the challenges of creating critical mass, which is internationally acknowledge to be a prime consideration in achieving genuine international level research, especially in Science and Technology. Various possibilities exist for this:

- Some universities have created Centres of Excellence to fulfil this purpose, under the general competitive approval and oversight of the Academy of Finland, and the general rubric of funding for up to 2 periods of 6 years. They are primarily research organisations dedicated to generating and conducting external contract research; commercialise intellectual property (patents); Ph.D. clustering and support.

While, on the whole very successful, the Centres are vulnerable to a loss of sustainability with resulting dislocation of activities, given the short-term contract funding, the treadmill of continuous grant applications and the possibility of de-designation. This is paralleled by experiences internationally: a normal consequence of a dynamic

competitive research system where successful centre management is of the essence.

- The Academy of Finland has sponsored an impressive Graduate School programme, through a complex approved and support process, which seems to be, nonetheless welcomed by Universities. The activities are primarily inter-institutional across the Finnish HEI sector, and have provided both structure and higher efficiency to the Ph.D. training and support in Finland. They have, for example, lowered the study time and the average age of the graduating Ph.D.s. There are presently 124 graduate schools with almost 1500 salaried positions for Ph.D. students. The largest student numbers are in information technology and biotechnology, with more than 20% of the total in each field. Also students without a position in a graduate school are allowed to take advantage of the graduate school activities, but must find funding, *e.g.* for living costs, elsewhere. In such cases support is often provided by the student's employer. The graduate schools have also helped attract a larger number than before of foreign graduate students (see also Chapter 7 on Internationalisation). The major common activities of graduate schools are to provide common training courses and joint supervision for the disciplines or interdisciplines in question; help young researchers prepare for entry into the academic profession; sustain a high level of quality assurance; and ensure a gradual elevation of quality across the board by systematic benchmarking.
- There are, of course, looser forms of critical mass, achieved through cooperation in terms of staff exchanges, joint supervisions etc., often including research institutes. This is a valuable source of research renewal, especially since the research institutes thereby will be able to increase their present limited involvement in research training and other educational activities. Such involvement has been demonstrated to be useful for the research productivity. Also staff exchanges with research intensive industries may be valuable for both sides. It will often be necessary to facilitate staff exchanges through a system of proper incentives, such as support for travel, relocation, etc.
- Mergers of institutions constitute a more radical critical mass, and we turn to this in Chapter 9.

In the light of the above, the following recommendations/reflections are offered:

- The graduate school initiative should continue to be supported and:

- mechanisms for bridging funding for post docs work should be examined to avoid dislocation when grants come to an end;
 - means of articulating Finnish graduate schools with those of other European countries should be pursued, especially through the Euro-Doc initiative;
 - means of using the graduate schools to help develop the research capacity of polytechnics should be examined.
- The centres of excellence could well explore their relationships with the TEKES Centres of Expertise (of which there are 22) a parallel innovation system.
 - Given the obvious advantages of cooperative approaches, the Academy and TEKES might assess whether their grant/award mechanisms contain explicit incentives and rewards for inter-institutional bids. This is done in the Irish Programme for Research in Third Level Institutions (PRTLII) about to enter its fourth cycle, and has been very successful in this regard.

5.7 Polytechnics Research Positioning and Strategy

In a binary/dual system, it is always an interesting question as to what the research role of the non-university sector should be, and how, if at all, it should be differentiated from that of the university sector. In general, in Finland, it may be said that the current research role of polytechnics is perceived to encompass the following:

- Undertaking applied research/R&D based on cooperation with, and funding from business, industry, public administration and sciences aimed at problem solving (Mode 2);
- Using research and consultancy to strengthen educational activities through underpinning scholarship and investigative, project, pedagogic, and staff Ph.D.s;
- Enhancing the economic, social and cultural development of their regions;
- Developing peaks of excellence in a narrow range of specific institutional strengths.

To date, the external pressure on polytechnics to undertake the above has not been great (as evidenced by the content of performance agreements with the Ministry), though the ambitions and national inclinations of many staff indicate the opposite. Prevailing conditions, however, include:

- Lack of a research tradition and reputation;
- Lack of core funding for research so that support either has to be provided by diverting funds from educational funding or external contracts/competitive funding;
- Absence of incentives and rewards – staff research time; heavy teaching load; promotion criteria;
- Limited critical mass, including staff with Ph.D.;
- Limited support infrastructure *e.g.* Vice Rector for R&D; research development and support office; research support fund etc., research committee, external research advisory group; liaison centres;
- A strong external competitive environment where funding sources historically and understandably geared to university strengths, though still ostensibly open to polytechnic application (the total grant amount provided to the polytechnics is less than 10% of that provided for the universities). TEKES would certainly see itself supporting polytechnics in the knowledge transfer business;
- A strong orientation towards professional practice, continuing education and enterprise engagement which forms a reasonable base from which to develop R&D.

With the above factors in mind, the review team would recommend

- A sector reformulation of the generic research R&D expectations of polytechnics, no doubt encompassing a fresh paradigm which would include:
 - orientation towards Mode 2 with all its many manifestations;
 - professional practice focus;
 - educationally related research – specific problem-based learning and research into pedagogies related to specific disciplines.
- central government/national support for polytechnics in terms of:
 - a certain core funding for research;
 - assistance in capacity development;
 - the possibility that polytechnics could be accredited to offer doctorates, as well as postgraduate professional doctorates, in areas of acknowledged expertise, under appropriate conditions of quality assurance, and attached to an appropriate graduate school;

- readiness of the Academy and TEKES to admit quality proposals from polytechnics in association with universities, or independently;
 - a requirement on polytechnics to develop a robust research strategy as part of a performance agreement.
- Polytechnics should develop a research strategy, appropriate to their traditions, profile, expertise, competence and collaborating partners. An OECD publication (Hazelkorn, 2005) provides an excellent template for the evolution of such a strategy which would be likely to include, *inter alia*:
- research philosophy and positioning;
 - selected prioritised research themes/centres of excellence;
 - a robust human resources strategy for capacity development (including recruitment, staff development);
 - a support budget including use of research time in a focused manner;
 - inclusion of research in under- and postgraduate programmes and research training strategy;
 - research contract generation priorities;
 - essential items of internal research organisation and infrastructure;
 - research collaboration priorities;
 - intellectual property strategy.

This all has clearly to be placed in the broad context of the future shape of the binary system, which is addressed in Chapter 9. We are well aware that debate and action on the Government Resolution on the Structural Development of the Public Research System is well under way, and it is hoped this Chapter will contribute to progress.

6. The Regional Role of Higher Education Institutions

6.1 The Present Situation and Elements in its Evolution

The contribution of higher education institutions to regional development in Finland has been a very prolific field of study in terms of publications of FINHEEC for example, separate studies on Oulu 1993 and 1999; on Turku 2000 and 2003; on the Eastern Finland Universities 1998, by CRE-EUA (as part of a wider European Study 1998); and, most recently, by OECD on the Jyväskylä Region (Goddard *et al.*, 2006) (which has largely run in parallel with this study). All are substantial contributions in their own right, and have contributed greatly to understanding policy development and practice. It is not the purpose of this Chapter to evaluate or summarise these significant contributions, since the role of this OECD group was somewhat different. Nonetheless, the discussions with institutions, a wide range of stakeholders, and national agencies do corroborate many of the findings of, and recommendations emanating from these studies, and cross-referencing is made as appropriate. It is reassuring to detect a broad consensus across these studies, both in terms of the focal issues, but particularly in the consistency of recommendations, though clearly as time goes by, these reflect a growing sophistication of Finnish endeavours.

This growing sophistication is certainly evident in the evolution of regional policy, and various stages are well discussed in the Country Background Report. These are marked by:

- 1960s and 1970s, a focus on the industrialisation of developing areas and the development of public services, with particular emphasis on the role of the university in expanding the regional supply of higher education to these ends.
- 1975 – 1981 saw a target of balanced national development to create parity of opportunity, to which universities responded.

- The late 1980s emphasised regional development of Finnish innovation in the context of international competitiveness and quality which stimulated universities into highly successful knowledge transfer activities.
- The 1990s and 2000s witnessed programme-based regional policy, infrastructural improvement, the advent of EU Structural Funds, and the progressive devolution of central government responsibilities on the regions, paralleled with decentralised universities and polytechnic networks.

The current thinking of the Government as encompassed in the Country Background Report and the March 2006 press release of the Ministry of Education marks out some further priorities, including *inter alia*:

- A halt on new university development, but enhanced networking and cooperation with polytechnics, including “umbrella” type structures in six towns.
- The evolution of the sophistication of polytechnic contributions as a “stem” network of degree provision and “service” network of high quality education and R&D for their regions.
- An enhanced obligation of HEI to engage in knowledge production and transfer within the rubric of a national innovation system led by the Science and Technology Policy Council of Finland.
- A reconceptualisation of the role of the university *vis a vis* stakeholders in terms of “anchor” (stabilisation of business); “magnet” (attraction of new business); and “dynamics” (generation of new business).
- Quality enhancement of teaching and research, and an anchoring of each into local needs, without sacrificing the international competitiveness and quality levels needed in a global environment.
- Expanding enterprise capacity to exploit knowledge transfer.
- A re-affirmation, in the light of the above, of the “third mission” of HEIs and the synergy of R&D and continuing education with mainstream teaching.
- Giving practical expression to the agreeable concept that internationalisation and regionalisation are not incompatible.
- A re-appraisal of the respective roles of and differentiation between universities and polytechnics, and the drive towards larger entities

based on expert critical mass, coupled with intensified cooperation and networking.

On the evidence of the discussions the group undertook, these directions for the next four years seem eminently sensible and a progressive extension of the four previous stages of regional policy outlined above. Comments in subsequent sections of this chapter will provide reflections on the issues in implementing the above, and especially on sustainability at various levels in the system. Here, we would wish to note:

- The reliance hitherto on EU Structural Funds to achieve some of these ends may not be possible in future, or not possible to some degree, given the expansion of EU counter claims of some of the accession countries who are in far worse shape in terms of regional economic health. We did not encounter any explicit preparation for this possibility – which we would urge.
- As our parallel OECD study also observes, that the support of such strategies as outlined above need the contribution and integrated support of other relevant Ministries (Interior, Industry and Labour) to be fully realised.
- That whilst the above general approaches make sense, quite different responses are likely to be needed in the different Finnish regions, given the situational variables, and any approval mechanisms and decision processes should be sensitive to this. Finland, to be fair, has an excellent track record of diversity of approaches within a common philosophical and policy framework, which hopefully will continue.
- There was no evidence presented to the group on the HEI regional strategies called for by Autumn 2005, and they did not emerge as a theme in university discussions. This may indicate a process dysfunction or simply that they have not surfaced as an instrument of development, as yet.

6.2 Reflections on the Evidence Presented in the Visits in Relation to the Above

In all the institutions visited, in all the cities, and in all discussions with the various groups of stakeholders, there was, in many respects, strong support for the propositions outlined in Chapter 5 and 10, notably that universities and polytechnics, singly and jointly, must be elemental institutions in providing the necessary conditions for regional development.

In principle, therefore, the seeds of the Governments goals are falling upon extremely receptive and fertile soil.

Stakeholders in general emphasise the importance of the human resource development function of HEI in securing the existing and future labour market needs, with the following observations:

- Whilst in general, high quality education was agreeably provided, in certain HE hubs, some disciplines were missing or insufficiently developed for the purposes of industrial or economic renewal, owing to the particular specialised academic profile of what might be a relatively small HEI. This potentially creates a deficit in potential support.
- Lifelong learning was felt to be insufficiently developed to cater for the forthcoming period of turbulence in career shifts, retirements etc. Continuing professional development – and its inspirational and pedagogic influence on mainstream HE is apparently in need of some re-appraisal, and the role of the Open University provision is part of this discussion.
- Organisations such as TEKNIKA at Kuopio, which engineer structured articulations with companies and public sector science are clearly invaluable in terms of brokerage, development projects, expertise programmes etc., and are an important catalyst to interdisciplinary Mode 2 initiatives. Similar organisations are clearly models for other regions or subregions – and this might be important in addressing any emerging regional disparities. It is appreciated that subregional centres will inevitably have to focus on local industry or public sector specialisms. Indeed, conceptualising a model of R&D, education and lifelong learning based on economic organisations would be a fascinating innovation.
- Whilst in the larger regional cities, HEI seem to be able to balance the roles of “magnet”, “dynamics” and “anchor” fairly well, in smaller subregional hubs, this role multiplicity may be more difficult to sustain. In this case, the point of inter-institutional collaboration has especial validity.
- There was abundant good practice to be observed in relation to organisations such as Regional Innovation Councils, or Stakeholder Circles with the HEI. As the CRE-EUA study observes, there is a series of evolutionary stages of mutual understanding and the ability to work together which need to be gone through before they start to perform effectively.

- This leads naturally to the point, also confirmed in the parallel OECD study on the Jyväskylä region that HEI still exhibit bottlenecks in their cultures and practices, which may be more collegial and bureaucratic (and inward-facing) than genuinely entrepreneurial – and this applies to polytechnics as well as universities. This is said to be reflected in such characteristics as slow response rates to external initiatives; conservatism in interdisciplinary course design and pedagogies; unhelpful personnel policies or financial practices; insufficient incentive and reward structures, and knowledge transfer organisations with slower conversion rates of new ideas into spin-offs than might be hoped for. It may reasonably be said that these constitute uneven anecdotal evidence, which would certainly not be generic or typical but they do, notwithstanding, constitute a consistent thread across the various studies referred to at the commencement of this chapter... and also notwithstanding Finland’s good record internationally in this domain.
- Whilst the review group detected good relations between polytechnics and universities in a particular city, it was generally the case that this was relatively distant *i.e.* initiatives of resource sharing, joint marketing, some joint teaching and R&D supervision and some student mobility. The full implications of the Ministry’s emphasis on structured networking and “new entities”, in many cases have a fair way to go, though one would not in any way dispute that they may certainly be there. There are clearly behavioural and micropolitical dynamics of understanding and conceptualisation of possibilities to be worked through, and these are analysed in later chapters.

6.3 Recommendations Emerging from the Discussion

The review group would wish to commend progress which has already been made in the whole area of regional development in Finland, which is rightly at the forefront of European endeavours in this domain. Similar commendation would extend to the lines of policy development in the latest phase of its evolution, as outlined by the Ministry. Our recommendation is designed to help give effect to these in specific areas. Also, although our discussants were derived from different regions to that of the parallel OECD Study (Jyväskylä), we have no difficulty in associating ourselves with their recommendations in general terms, though the specifics would need to respect particular situational variables, of course.

The resolution of the “bottlenecks” (see above) we feel needs some attention, and again, consensus was apparent as to the desired directions, which would be, *inter alia*:

- A consideration by Ministry and Rectors’ Conferences of whether HEI have sufficient operating autonomy to be entrepreneurial in the ways described, and within the general rubric of performance agreements on which we comment later. It is probably about right, but is worthy of discussion.
- A review of institutional management philosophy and practice through the application of principles/criteria deriving from concepts of the entrepreneurial university (Davies, 1987; Clark 1997), in terms of culture, organisation, personnel and incentives, financial profile, interfaces.
- A reconceptualisation of the relationship between R&D and continuing education, both within HEI and within enterprises, given the observations on the latter’s capacity to receive innovation and growth potential and to utilise it proactively.

In relation to the previous point, the role and functioning of Open University provision would benefit from an analysis, both in respect of local and national provision. Finland has done excellent work in evolving open university study as an instrument of access and equality of opportunity: how does it stack up as an instrument of knowledge transfer?

As part of the process of regional development, the interface and possible symbiosis with the international dimension would bear further scrutiny, especially in the context of inward investment (broadly defined) *e.g.*:

- International student recruitment in regional HEI: the preconditions for successful provision; marketing the region as well as the course;
- Role of HEI in helping to attracting industry from other countries as part of regional consortia.

The Ministry’s priority of large HEI entities has much to commend it, in terms of economies of scale, critical mass, elimination of unnecessary competition and duplication etc. However, the review team, aware of similar challenges, elsewhere would identify the following as points for consideration:

- Regions differ in their configuration so one homogenised model is likely to be inappropriate for all.

- Stakeholders would be concerned if the pooling of resources into fewer units for ostensible economic reasons actually diminished the HE regional network, and put at risk a dispersed model of provision.
- There is a wide spectrum of paradigms or choices in the type of organisational configurations available. These include:
 - full merger
 - federation
 - consortium
 - voluntary cooperation
 - regulated relationships
 - open free market

and each has distinctive characteristics and advantages and disadvantages, depending on local factors such as scale, breadth and diversity of profile, number of units in question, distribution issues, economic efficiency etc.

It will be more appropriate to consider the detailed possibilities of the above in Chapter 9, where is discussed the future shape of the HE system as a whole.

As part of this discussion, no doubt attention has already been given by national government and regional interests to how any shortfall as a result of reduced contributions from EU Structural Funds will be coped with. If so, the strategies had not percolated uniformly through the HE system at the time of our visits. There is clearly scope for a concerted dialogue here.

Finally, as was mentioned earlier, the review group did not have the opportunity to analyse the HEI regional strategy documents called for by Autumn 2005. It may be that these submissions have already addressed these recommendations, and have been approved or dealt with. If not, it would be appropriate to test them out in relation to the above.

7. Internationalisation and Globalisation and the Implications for Finnish Tertiary Education

7.1 General Context for Considering Internationalisation

There is no doubt that Finland and Finnish higher education have made gigantic strides in this domain since the early 1990s in the immediate aftermath of the break-up of the Soviet Union. Before 1990, for geopolitical reasons, Finland was rather introverted, both politically and educationally, as was evidenced by university strategic reviews in the 1993 period. This has demonstrably changed attitudinally, instrumentally and in international visibility - but so have other systems - and the issue of parity partly remains.

Many documents reinforce the need to continue the internationalisation of the workforce in Finland. Both the composition of personnel in the higher education sector as well as the student body are less influenced by international exchanges than those in most other OECD countries. Also in the Finnish society outside higher education, international contributions to the part of the labour force that has a background in tertiary education are relatively rare: this important group of workers benefits little from an influx of highly skilled foreigners as it does in many other industrialised countries. This is a consideration weakness at a time when internationalisation of R&D environments and access to the best “brains” available are increasingly important for the development of academic, industrial and commercial excellence and competitiveness.

It could be contended that, in spite of its recent impressive industrial success, Finland is a loser in the increasingly important international competition for talents and brains. The part of the Finnish work force that has higher education degrees includes 0.9% of persons from other OECD countries, compared with 7% in Sweden and the US and 20% in Switzerland. Not only does Finland benefit little from this kind of important talent, it also provides a relatively large share of its higher education based work force to other OECD countries. This loss corresponds to 6.8% of the total work force in Finland with tertiary education. In other words, Finland

has a net loss of almost 6% of its tertiary level workforce, while other, comparable OECD countries have large gains.

The problems are not only related to the exchanges with other OECD countries. Many industrialised countries benefit significantly from immigration of highly education persons from countries outside OECD, mostly from developing countries. This is often referred to as brain drain and is by many developing countries considered highly unfortunate. However, this import is an important driving force in the science and technology systems of some large, industrialised countries. In contrast, Finland only receives an input of highly trained labour from countries outside OECD corresponding to 1.3% of the relevant work force in Finland, compared to 7% in Sweden and 9% in the US. In other words, Finland is one of the few new losers of “brains” among the wealthiest OECD countries, with a combined loss of almost 5% and this applies, of course, to holders of Masters and doctoral degrees in significant disciplines.

A study from 2004 of the internationalisation of Finnish science and technology actually lists among the strengths identified that the brain drain from Finland is not very large (Science and Technology Policy Council of Finland, 2004). One may argue that almost 5% of the work force with tertiary education is not an insignificant number. In addition the importance of advanced R&D makes Finland highly dependent on the ability to attract talents from other countries; it is not enough to be able to limit the loss to less than 5%. The present inability to compete for talents is a considerable weakness in a country that is heavily dependent on its international competitiveness within higher education, research, development and industry.

Future labour market needs are also an important contextual factor. The low level of input from abroad may become an increasing problem as the age-profile of the Finnish population changes towards a situation where a large share of the work force has retired from the labour market and a much smaller share than today are working. However, the situation is not simple; according to a recent study of future labour market needs in Finland, the needs in individual fields will change in different directions during the next decade compared with the present situation. It seems clear that the needs of polytechnic and university graduates in technology, transportation, health and social services will increase considerably. In contrast, the labour market needs for social science, humanities and education graduates will decline, in some cases by 25%, and the expected future intake of new staff within business and administration is expected to drop in basic education by 50%! It may become difficult to satisfy the fast growing labour market needs in technology and transportation at the highest level without an increased input of foreign talent.

The insufficient internationalisation has also serious consequences in other respects than that of highly qualified manpower. For example, the limited amount of international exchanges makes it more difficult to gain rapid access to new research results produced elsewhere and reduces the opportunities for cost sharing in larger research projects. Most of all, Finnish research cannot benefit fully from the important processes that occur when expertise from several research environments are brought together.

As far as foreigners in Finnish higher education and industry are concerned, a very recent study among foreign Ph.D. students and researchers employed in Finnish higher education institutions, research institutes and industries provides interesting insight in the composition of this group and the conditions they live under in Finland. The study includes about 850 foreigners, with an average age of 34. About one third of the foreigners are women, and more than 90% have a Masters, Licentiate, or Ph.D. degree. About 60% are Ph.D. students at Finnish institutions and almost 80% of the total are financed by Academy, TEKES, or university grants. The most common citizenship among the group is Russian (12%), followed by Chinese (11%) and German (6%). The vast majority (almost 80%) has a background in science, technology, agriculture and medicine. It is a clear weakness that the majority of these highly education foreigners are graduate students and do not represent employment-based immigration. Furthermore, only 48% of the group intends to stay permanently in Finland; it is remarkable that this percentage is even lower among persons from developing countries.

Finland, of course, has been a strong supporter of the European Union, and this has certainly contributed to substantial economic and regional development initiatives and achievements, which have been very significant in establishing Finnish universities in the forefront of regional growth (*i.e.* regional growth inspired by international vision and engagement) which is well documented in recent studies (*e.g.* Goddard *et al.*, 2006). Furthermore, Finland has been extremely active in promoting the elements of the Bologna process internally and internationally, and is acknowledged in European circles as a leading proponent and exponent. The potential of this is clearly of great significance in terms of this chapter.

However, Europeanisation is different from globalisation, and the recent developments in GATS/WTO of higher education in the free trade context, will undoubtedly create challenges *e.g.*:

- The possibility of other national (non-Finnish) providers parachuting courses (by virtual or camps-based learning) into Finland – thus introducing a serious competitive threat, especially if these were offered in English.

- The extent to which Finnish institutions can – or would want to be – serious players on the global stage – whether in terms of providing education in other systems, via sophisticated e-learning or by physical provision, franchising etc., or by the enhanced recruitment of students to Finnish universities.
- The increased pressure to reconceptualise the nature of inter-provider alliances (with HEI and commercial operators, home and abroad).

We return to this later, but it is evident that this complex context will certainly create policy and operational issues for resolution.

7.2 Strengths of Finland and Finnish Higher Education in the International Context

The unsatisfactory situation in Finland in connection with exchange of highly educated labour has occurred in spite of several conditions that would be expected to promote internationalisation. In short, Finland has actual and potential strengths which can be exploited.

- Finland has a strong industrial base, which is capable of being capitalised on for work related education.
- There are relatively good economic rewards in the labour market for educational achievements, *i.e.* good employment prospects.
- Finland has, especially in recent years, become a very active partner in relevant international cooperative activities, notably Bologna and EU initiatives.
- Finland does not charge tuition fees at present.
- Science and Technology and research policies are given high priority in Finland.
- Finnish research, especially in Science and Technology and Health has improved its international ranking considerably in recent years.
- Research funding in Finland is relatively generous and the country has several internationally highly rated research groups. The aim of creating inter-institutional R&D clusters will enhance this.
- The gender equality is better in Finnish workplaces than it is in many countries (which makes Finland more attractive for females).

- Graduate programmes at Finnish universities are strong and well funded. In other countries, such programmes are often an important channel for the import of foreign talent.
- There is increasing evidence of instruction geared to the needs of international students (*e.g.* the English language MPH degree at the University of Kuopio).
- There has been significant growth in CIMO support.
- Performance agreements between the Ministry and institutions have frequently included elements of internationalisation.
- Inter-institutional cooperation is clearly evolving promisingly, often with a eye to international student recruitment (*e.g.* Tampere).
- There has been a strong focus of internationalisation in recent years at the policy level. There is a strong desire on the part of the Ministry of Education and the Science and Technology Policy Council to increase the number of foreign students studying in Finland, especially postgraduate students, and to increase the number of faculty researchers drawn from other nations (see Education Ministry documents and the Science and Technology Policy Committee of April 2005).

This clearly bodes well for the future.

7.3 Weaknesses in Relation to Internationalisation

In all systems, various weaknesses or inhibitors to the steady evolution of internationalisation may be detected. In the case of Finland, the following arose from discussions at national and institutional levels:

- A perception that Finland is far away from important economic and industrial centres; is inclined to be expensive; has a climate which may deter international students or immigrants; and has a difficult language. Although Finnish may not be an easy language to learn for adult immigrants, the knowledge of English has improved considerably in the Finnish population during the last decades, and is today excellent. Furthermore, countries with much higher taxes and no better foreign language skills (*e.g.* Sweden) are able to attract a much larger share of foreigners. The location of Finland is only a couple of hours flight away from the centres of European research and industry. Singapore, for example, developed fast within R&D in spite of much larger distances to such centres.

- In the survey among foreign Ph.D. students and researchers there was considerable dissatisfaction with the immigration formalities as well as with the access to health care and social security (in addition to the expected complaints about the high taxes). It also seems to be a general problem that it is hard to locate and access the needed information and guidance for foreigners working in Finland, even when it is available, *e.g.* on the web. This is especially a problem for persons that bring family members with them to Finland.
- In addition to these general weaknesses in the Finnish system, there are specific problems in connection with the international recruitment in the higher education institutions. The most important of these is the shortage of attractive early career opportunities. While talented, young Finnish researchers may be willing to accept the long path towards more permanent employment in a higher education institution, this will be a much less attractive adventure for a talented foreigner who often may prefer to take safer employment in another country.
- While policy-level guidance is focused on internationalisation, several of the higher education institutions with which we met did not have, in general, what could be described as an internationalisation strategy, compared with say, the International Quality Review benchmark.

7.4 Recommendations

In the light of the above discussion, there are a series of actions which should greatly advance the international agenda. It is emphasised that ambitions and plans should be realistic, and closely geared to the very pragmatic scenarios discussed earlier and the specific Finnish geographical and cultural setting.

The overarching economic agenda is the need for increased employment based immigration. The Finnish net loss of brains can hardly be blamed on a too large emigration of highly educated Finns. Compared with the situation in other OECD countries, the level of Finnish emigration may be considered normal. The main problem is that relatively few foreigners with a higher education background take jobs in Finland. The challenge is to increase the immigration of workers with the highest qualifications in the fields where the needs are (and will become) the greatest, especially technology.

In this context therefore, it is reasonable to determine how higher education institutions may help meet this need. The assumption could be that a substantial proportion of overseas students studying in Finland for

either the whole or part of their studies’ would be induced to seek employment in Finland after graduation, whether at bachelors, masters or doctoral level. Clearly, the incentives and attractions would need to be high to deliver students in sufficient numbers and quality, and such elements are to be found in non HEI contexts as much as within institutions. The corollary, of course, is to ensure that Finnish students who undertake part of their degree studies abroad return to employment in Finland.

Higher education institutions may become important channels in this connection as they are in many other countries. In general, there is a wide consensus that opening up higher education for larger numbers of international students and recruiting staff more internationally would have many important benefits, as is evident elsewhere.

- It would help bring new talents into the institutions and the country, both in the form of staff and students.
- It would help further internationalise the environment in the higher education institutions; this would also be important at the undergraduate level.
- It would broaden the experience among staff.
- It would facilitate cooperation with research environments abroad.
- Potentially it would raise considerable income if tuition fees were charged.

There is clearly scope for improvement in the field of international marketing of Finnish higher education:

- The Ministry, FINHEEC and the Rectors’ Conferences may wish to give further detailed consideration to the branding image/identity of Finnish Higher Education for an international market, and positively proselytise this through diplomatic, economic and education channels. Institutions might well be marketed internationally on a “subject specialist” basis rather than as whole institutions.
- Marketing could be more collaborative, especially via the above agencies, and on a regional basis via partnerships of HEI, municipalities and chambers of commerce, selling respective “knowledge regions”.
- International student marketing should be targeted especially to those critical areas of the economy where skilled graduate employees are in short supply, and where global penetration is desired.

- There is a case for a review of immigration/work placement policy for those engaged in the Higher Education sector, and the bureaucracy may be capable of substantially simplification and incentivisation.
- International tuition fees should be considered seriously to provide additional resources and incentives for institutions to internationalise. The review group fully realises this would be a big significant step, which may well impinge on strongly held beliefs and would certainly have ramifications elsewhere.
- Government and higher education institutions should eliminate the uncertainty related to career opportunities for highly qualified teachers and researchers and institutions should duly strengthen their recruitment drives to this end.
- The Ministry and institutions should together ensure that all institutions have a comprehensive international strategy benchmarked against the EUA – IMHE – ACA International Quality Review Framework, and this is built into performance agreements.
- In the light of the above, collaborative international agreements should be revised in terms of:
 - correlation between agreements and areas of employment need and market demand;
 - whether agreements actually deliver desired research, educational and market outcomes;
 - whether development organisations like FINIDA are engaged with regard to cooperation with developing countries (to counteract ‘brain drain’);
 - curriculum studies and design *e.g.* the obligatory inclusion of work placements in Finnish companies as part of the foreign students; learning experience as part of a Finnish degree;
 - establishment of cooperative agreements within undergraduate education and foreign, *e.g.* Chinese universities. This might lead to, for example, a 2+2 Bachelor programme in which the foreign students would be prepared at the home university for two years and then would study two additional years for the final degree in Finland.

- There would seem to be a case for institutions to review and, if necessary, strengthen information, support and resources for international students.

Clearly, the development of future internationalisation policy has to be compatible with and support initiatives in other domains such as research and Innovation and Regional Role and it is hoped this Report does establish these lateral connections.

8. Assuring and Improving Quality

8.1 Development and Evolution of Quality Assurance Processes in Finnish Higher Education

There is considerable evidence of high quality in Finnish education, the most conspicuous being the PISA results referred to elsewhere, which placed Finland in the international top in outcome of compulsory schooling. The quality of teacher training is often mentioned as one reason for these results, which may indicate high quality also in university education. The polytechnics, on their side, have been judged favourably by international reviewers (OECD, 2003). Furthermore, the kind of arguments put forward in many other countries about declining standards following the strong expansion of university education have not really surfaced in Finland. This may depend on the severe restriction of intake to Finnish universities, but the priority given to knowledge in the Finnish society and the quality culture built up over the years also contributes to the present status of Finnish tertiary education.

This evaluative culture has developed by stages from the mid 1980s (Välímáa, 2004). At the start the focus was on discipline-specific evaluations of research but in the beginning of the 1990s different approaches to institutional and programme evaluation were tried out by Finnish universities. The diversified strategy encouraged by the Ministry promoted a social climate in which evaluation was accepted as a regular activity in HEI. Ever since the Finnish system of evaluation and quality assurance has remained decentralised, based on voluntary participation by the institutions and focused on quality enhancement rather than control. “Fitness for purpose”; mutual trust and partnership have been the guiding principles, *i.e.* quality has been measured against the HEIs’ own objectives and with improvement the dominant consideration.

A third round of evaluations began in 1996 with the establishment of FINHEEC (the Finnish Higher Education Evaluation Council). The task of the new agency was to act as an advisory board to the Ministry and to support HEIs to develop and improve the quality of education. FINHEEC

also took on the task of evaluating the polytechnic institutions for accreditation/approval by the Ministry during the experimental period. This development meant more of central coordination and professionalisation of higher education evaluation and Finland gradually developed into a leading nation in quality assurance in Europe.¹⁶ Since 2000 FINHEEC is hosting the European association for quality assurance in higher education, ENQA.

FINHEEC is responsible for evaluating the quality of education and other activities in both universities and polytechnics and performs a broad range of activities: institutional, programme and thematic evaluations and accreditation of professional courses. It is independent from government steering and there are no direct links with funding. Some supporting measures used in addition to evaluation and quality assurance, like the selection of quality units in HEI and centres of excellence in research and adult education, do, however, have economic consequences.

A fourth round in evaluation policy is currently under way. Imposed changes come from fulfilling the agreements on comparability of degrees and on increased mobility in the European Higher Education Area (according to the standards and guidelines adopted in Berlin 2003 and Bergen 2005). The accreditation era of polytechnics is over and the activities of FINHEEC are now part of the national strategy for increased international visibility and competitiveness. Auditing the quality assurance systems of HEIs has become the focal area, and an Audit Manual to give effect to this new orientation has been produced (FINHEEC, 2005). External evaluations of all HEIs will be made in order to establish whether their quality assurance system promotes the attainment of national higher education policy objectives, as well as those set by the HEI itself. The first round of audits will be finished by 2010. Subject and programme evaluations will continue, presumably at a slower pace (depending on what will become of the new degree system). The quality of teaching and learning per se is not evaluated at a micro-level.

The primary responsibility for quality assurance lies with each HEI. The institutions are required by law to evaluate their own activities and performance on a regular basis and to establish internal quality assurance systems. HEIs are encouraged to strengthen their quality assurance procedures in order to prepare themselves for the demonstration of quality required in national and international cooperation. The review team was introduced to different approaches during the site visits, *e.g.* the advanced

¹⁶ In the Stocktaking report for the Conference of European Ministers in Bergen 2005 Finland reached the highest levels on the scorecard concerning quality assurance (all but the level of international participation, co-operation, and networking was ranked excellent).

quality management system of the University of Kuopio (see Omar and Liuhanen, 2005).

FINHEEC is a comparatively small and cost-effective national agency, an expert body strictly limited to quality enhancement and development of higher education evaluation.¹⁷ The impression was widely conveyed that the agency is respected and enjoys the trust of HEIs. The evaluation reports are accepted and used for improvement. It should be observed that:

- Representatives of HEI management and students, and often stakeholders as well, take part in the planning and implementation of evaluations.
- The follow-up procedures, on the other hand are not so transparent. In a system of quality auditing the main responsibility for follow-up rests with the institutions. In the future, in the case the institution does not pass the audit, a re-audit will take place within two years time with the focus on the improvement proposals made by the audit team.
- Students have an important role in the internal quality assurance process in the universities, but not to the same extent in the polytechnics. Representatives of the student unions seem confident that the audits gave them relevant information.
- The involvement of graduates in evaluation seems to be a weak point and the criterion of educational outcome in terms of employment experiences is not so frequently used in the Finnish system, at least not at the national level.
- The FINHEEC evaluations have a strong international dimension in that, from the start, international members act on external panels and most reports have been published in English (which is not the case in many other countries). Out of nearly 100 evaluation reports published since 1996 almost half were international projects.

8.2 Challenges in the field of Quality Assurance and Monitoring

International comparability and competition is firmly on the agenda as a result of the imperatives for quality assurance in tertiary education set by the Bologna process. The ENQA guidelines adopted in Bergen 2005 put pressure on individual countries to adjust to international standards and new

¹⁷ Evaluation of research is conducted by the Academy of Finland but there is some cooperation with FINHEEC in evaluation of postgraduate education.

demands for institutional arrangements for quality assurance. FINHEEC is an independent body with responsibilities and functions in agreement with these guidelines and the standards recommended by ENQA have guided the planning and implementation of the pilot phase in auditing in Finland. However, some discrepancies still exist, e.g. the formal rule that participation in evaluations is voluntary for the institutions (although in reality no institution will stay out). Arguments have been put forward for a change in Finnish evaluation policy, the main reason being the need for increased visibility and competitiveness of Finnish higher education in the international setting (see country background report) and the need for HEIs to be able to demonstrate their quality internationally. Theoretically, HEI's could use the new possibilities and turn to any accredited international quality assurance agency for external evaluation. (This already happens in Business Management with EQUIS). Such an international approach on a large scale would change the role of FINHEEC and could possibly weaken the national coordination of quality assurance. The Finnish language will probably be a problem for international evaluators, especially in assessing undergraduate teaching. Weighing the pros and cons of different approaches will have to precede an amendment of the present legislation in an international direction, and the debate progresses.

There is certainly a balance to be struck between accountability and quality enhancement. A deep conflict is imbedded in the ongoing development of quality assurance in Europe. On the one hand the emphasis is shifting from external control and regulation to greater responsibility by HEIs for their own quality control. On the other hand the strive for transparency and mutual recognition will bring about more directives imposed on HEIs from above like e.g. accreditation, which is now gaining ground again in Europe (Jeliazkova and Westerheijden, 2002). It will be difficult to reach both aims -accountability and quality enhancement - within the same evaluation process, and this is a tension which will need further analysis and the related issues of connections with funding will no doubt also figure in discussions.

FINHEEC's approach to quality assurance is commendable in keeping firmly to the principle of "fitness for purpose". With the introduction of quality auditing as the main measure of quality assurance Finland has chosen to focus on quality enhancement at the institutional level. As a consequence, the quality assurance system will not necessarily give "systematic and comparable information about the quality of Finnish universities" for monitoring and steering at the Ministerial level. This dilemma can possibly be solved by splitting between the two different aims for quality assurance: *improvement* based on external audits and development oriented quality assurance in HEIs, and *accountability* based

on performance indicators and verifying data in public databases, an option which is discussed later.

The legal status and staffing of FINHEEC is under debate. The current discussion in Finland about the role of quality assurance in the steering and financing of tertiary education points to the need for clarification of FINHEEC's legal status and its relation to the Ministry as well as to HEIs. Various observations were made to the effect that, the impression is abroad that the orientation of FINHEEC was not quite in accordance with its mandate and perhaps not with regard to future demands on quality assurance and the additions of fresh domains (if for instance Open University studies and other forms of adult education were to be included). This is said to be reflected in the profile of FINHEEC staff expertise and experience.

Quality assurance in the polytechnics is an emerging issue, which many binary systems face given the need to encompass both parity and fitness for purpose. The background and traditions in the field of evaluation is very different in the two sectors of the dual system. The pilot period of accreditation is now over for the polytechnics and they are gradually being integrated into the general quality assurance system. We believe to be important that all HEIs are treated equally and looked upon in a consistent way, but with due consideration to their different aims and context. The recent upgrading of polytechnic education to higher education status apparently gave grounds for suspicion about standards and quality, which conceivably may call for special measures of evaluation. One possibility would be to introduce a system of permanent, salaried external examiners (censors) in course examinations, (as is presently the case in Denmark, Norway and the United Kingdom), to safeguard academic standards across the country (see Brandt and Stensaker, 2005). Evaluation of vocational standards could be handled in the same way. There would be the possibility of the development of a parallel system of quality assurance which would also help enhance quality through exchange of experience between teaching staff, between the two sectors. On the whole, quality assurance could be used more deliberately as a stabilising factor in the development of the dual system.

The new framework of qualifications developed within the Bologna process will have implications for quality assurance, in ways not yet fully envisaged. The implementation of the new degree structure (in particular the new bachelor degree which has been received with some uncertainty), and also the increased focus on learning outcomes and employability will put new demands on both FINHEEC and HEIs. A clear picture of Finnish initiatives and national programmes for improvement of quality of teaching and learning in tertiary education (and how these activities are related to quality assurance) was not gained during the review visit.

Time and money spent on evaluation activities is a matter of intense debate in many countries. No follow-up of resources spent on evaluation, ‘open’ as well as ‘hidden’ costs, has been made in Finland. Visits to institutions revealed that the rather extensive quality assurance activities had resulted in a high work load for those involved, and given the large number of evaluations, there is always the question of their digestion and the action loop. Attitudes towards evaluation were not always positive, in particular among teachers and other professional staff in the institutions which internationally, of course, is not uncommon. Complaints were conveyed about insufficient coordination of different activities in the field, in particular between evaluation of research and teaching, which respectively belongs to the Academy of Finland and FINHEEC.

Routinisation, bureaucratisation and window-dressing are likely to follow when the same type of evaluation processes are going on for years. To counteract such tendencies of “diminishing return of repetition” quality assurance systems need to be designed with a built-in facility for learning and change (Jeliaskova and Westerheijden, 2002). This is an issue closely connected to the follow-up procedures, which seemed to be the weakest part in the Finnish decentralised approach to quality auditing. According to Kis (2005) quality assurance activities cannot serve the objective of improvement, unless they include adequate follow-up procedures after the evaluation. Follow-up is also included in the European standards for the external quality assurance of higher education.

FINHEEC has a commendable record of publishing and disseminating its reports which cover, by now, a formidable range of institutions and associated themes in higher education policy and management. Recent examples include the role of the Ph.D.; regional role of universities; the Masters degree in polytechnics. How identified good practice is distilled and exchanged however must always remain a challenge for quality agencies.

Quality assurance, of course, is closely connected with monitoring of performance in a strategic sense, which raises the issues of the robustness and adequacy of data-bases (KOTA and AMKOTA), and their use in accountability and even, resource distribution *i.e.* steering the system. This is a much broader issue than Quality, and will be analysed in more detail in Chapter 9 and 11.

8.3 Recommendations

FINHEEC should remain independent of Ministry policy. The system must have trust in the HEIs and their internal quality assurance processes. If institutional audits and quality enhancement procedures are used for

decisions of funding and steering of institutions this is likely to seriously undermine the improvement function which is based on different philosophies and operating assumptions. The aim should be to keep a proper balance between national and institutional responsibility for quality and performance. The status and responsibilities of the different actors involved should be reviewed with this in mind. The relationship between FINHEEC and the Ministry, on the one hand, and FINHEEC and the HEIs, on the other, should be legally established in unambiguous terms.

It follows that, if special outcome criteria suitable for decisions at ministerial level are needed, they should be developed independent of FINHEEC activities. The Ministry should develop its own outcome criteria in terms of labour market placements, enrolment rates for different groups, completion and progressions, and transfers within the high education sector and other measures of quality at the national level and ensure that the relevant information is collected by Statistics Finland (or other central agencies) and analysed in the Ministry. If the Ministry needs critical performance information for resource allocation, it should obtain this through means other than FINHEEC (which, in any event, does not have the capacity to provide this information).

As is evident from other Chapters, there is every possibility of an over production of places in relation to demand in several Finnish regions. If experience in other national settings is anything to go by, there are likely to be closures, mergers or reconfigurations of faculties and departments. Whilst HEI are autonomous, they may well make their own decisions singly or in consultation with other universities, to secure optimum configurations. However, in other systems there have been calls for such decisions to be quality informed (*i.e.* keep the best, close the worst), which, of course, becomes very political, and would ideally be assisted by objective evaluations. It is strongly recommended that appropriate processes are evolved for this eventuality before they are needed to be employed, and that the respective contributions of FINHEEC, the Academy of Finland, and the Ministry's own intelligence units are very carefully determined, in order not to jeopardise organisational integrity.

The “fitness for purpose” approach should be kept in mind when planning the operations of the new system of quality auditing (see also Liuhanen, 2005). Effective improvements come from within, not imposed from above or by external pressure though there is no doubt that external evaluations do provide a catalyst. The follow-up procedures are important in quality assurance and more attention should be paid to “closing the loop” (the reiteration process) and to implementation of what is learned through evaluation. FINHEEC should be given enough capacity to engage more in follow-up activities and research and development especially on meta issues.

The mandate and staffing of FINHEEC should be reviewed in the light of the new demands which are discussed later.

The evaluation culture in the polytechnic sector needs to be stimulated to improve. The quality assurance procedures should essentially be the same in the university and the polytechnic sector and the new system to audit institutions' QA systems should prove a major stimulus to this. Equality in this respect is of great importance for the cooperation between institutions, for student recruitment and for international visibility and attractiveness. The possibility of using external examiners in course examinations should be explored across the sectors.

Coordination of evaluation activities between FINHEEC and the Academy of Finland, *i.e.* between the evaluation of teaching and research should be improved, so that the volume and duplication of evaluation are minimised. Various devices are available for this purpose *e.g.*:

- A jointly evolved multi-year calendar of evaluations to avoid over-concentrations on HEI singly and collectively at particular times;
- Joint evaluations of particular phenomena such as the doctoral programme in particular universities; subject reviews at departmental level, of both teaching and research; the teaching-research interface etc.

It also follows that the evaluation procedures should be made more cost-sensitive at each level in the tertiary system (at departmental, institutional and national level) and control of spending for evaluation procedures should be rigorous.

As the objectives and profile of HEI become more pluralist and diversified, it follows that FINHEEC should develop approaches to QA in fields such as lifelong learning, e-learning, off-campus education and international education (export and import). FINHEEC would do well to profit from other national QA agencies' initiatives in these domains.

9. Resourcing Tertiary Education

Previous chapters of this Report have considered various dimensions of the development of the tertiary system, including the demands of the labour market, educational and research directions, the international dimensions and various elements of regional engagement. All this, and further aspirations, have to be supported in terms of resources. This chapter therefore considers:

- The overall levels of spending;
- Resource allocation mechanisms;
- The adequacy and sustainability of tertiary funding;
- The provision of effective and efficient human resources.

Each section will contain an analysis of the current situation and recommendations for development.

9.1 Overall Levels of Spending

It is instructive to consider where Finland stands in terms of international comparisons in tertiary spending. The following appear to be the key comparisons:

- In 2002 public expenditure on tertiary education, both on institutions and subsidies to households, comprised 2.1% of Finland's GDP, the fourth highest level among the 28 OECD countries for which data are available. This level of spending comprised 4.1% of all public expenditure, the fifth highest level of any OECD country. Public expenditure on tertiary education grew 18% in real terms between 1999-2000 and 2004-05, most of which was due to an expansion of enrolments (13%) and a modest share due to increased expenditures per student (4%).
- Finland is distinctive in its reliance of public financing for tertiary education. 96.3% of all expenditures on higher education

institutions were from public sources in 2002, and the remaining 3.7% from private sources. Only Greece and Denmark (at 97.9% and 99.6%, respectively) had a larger share of total tertiary spending from public expenditure, while on average the public share is 78%.

- Along with its neighbours Denmark, Sweden and Norway, Finland one of a quartet of Nordic countries that spend at or above the OECD average of 1.36% of GDP on tertiary education, and for which 90% or more of all expenditure on education institutions comes from public sources.
- Although Finland spends a large share of public resources on tertiary education, its annual expenditure on tertiary institutions per student is 110% of the OECD average, only modestly above OECD average spending per student per years, at USD 11 768, compared to above USD 10 665 OECD average. This is due to the absence of significant private financing to complement public financing.
- Student support in Finland comprises a much larger share of all public spending on tertiary education than it does in the average OECD member country. About 18% of total spending on tertiary education consists of student, which is nearly double OECD average.

The reasons for this position, of course, are well known and thoroughly consistent with Finland's traditions as an advanced social democracy. Discussions indicate a general satisfaction with, and support for this philosophy. However, there are several factors which, it is acknowledged, may cause at least a partial re-think. In no particular order, these include:

- the 2006 Government of Finland Budget Review includes:
 - tax reductions to boost employment;
 - subsidies relating to structural unemployment and low-income earners;
 - increases in support for research and product development;
 - slower tax revenue growth because of tax endeavours;
 - challenges posed by ageing;
 - substantial increases 2003 – 6 in the various Ministry budgets affecting higher education;
 - efficiency objectives in the public sector.

- The general drift of the above would seem to imply an emphatic commitment to government spending, but some long term caveats on sustainability.
- The likely reduction in Finland’s receipts from various EU Structural and other Funds in the light of the accession countries’ expectations will likely have consequences for higher education support in a regional context.
- Previous chapters refer to new tasks for higher education which will need resourcing if thoroughly pursued.
- It is an interesting question as to whether the relatively high funding from the public purse is likely to impose a limit on desirable growth or whether other sources are legitimate.

The ramifications of these and other factors are reviewed later in terms of whether these high levels can be sustained, and what alternative measures are necessary, if not.

9.2 Institutional Support Funding

As would be expected, the main policy and guidelines are determined at national level in the Development Plan for Education and Research. Whilst institutional autonomy is respected, it is accepted that the Ministry requires tools and instruments for the general steering of the system, and by definition, some similarities in the instruments used to steer each sector, namely:

- Performance agreements and the setting of target outcomes;
- Core funding;
- National tasks and national programmes;
- Performance based funding;
- Institutional reviews and monitoring of different types, some undertaken by FINHEEC, as discussed in Chapter 8 but most by the Ministry as an essential stage in the strategic planning cycle;
- A statistical data base.

This range of instruments, very well presented in detail in Chapter 7 of the Country Background Report, seems to the review group to be well

conceived, policy driven and within a robust strategic planning cycle framework.¹⁸ We commend it.

There is, however, some differentiation, again, as one would expect, owing to the situational variable in each sector. For example, the universities' core funding includes research, whereas that of the polytechnics does not; the overarching goals for each part differ'; the national tasks and programmes differ, as the Ministry targets priorities appropriate to each sector; the staffing models are different, the polytechnics receive 57% of their core funding from initial government and 43% from local government; the polytechnic performance agreements are jointly signed by institution and local authority. AMKOTA (the statistical data base of the polytechnic sector) differs to an extent in design and structure from that of the university sector (KOTA). It is not altogether clear what the connection between KOTA and AMKOTA is.

The performance agreements may usefully be viewed as the meeting place for public accountability and institutional autonomy appropriate to the particular sector, particular institution and particular region for two three year periods – a general principle to which we turn later. However, a legitimate question to pose would be : if there is some evidence of convergence of sectoral role and function, should not there be some convergence in the norms and character of resource provision *i.e.* the same payment for the same tasks – or, parity of esteem and parity of treatment. We would recommend this is kept in mind as matters evolve, as again, this is a phenomenon typical of most binary systems.

As far as the universities are concerned, we will not describe the detailed character of the instruments here, as these are well documented elsewhere (Ministry of Education, 2004; Ministry of Education, 2005a). Our evaluation of the performance agreement process from an institutional perspective would be thus:

- General satisfaction with the overall conception and related methodology and instruments and cycle.
- A concern that the competitive funding element of the package is becoming too dominant, with a consequent destabilisation and short term-ism.
- An appreciation of the lump-sum budgeting from government, in the realisation that management has to exercise judgement and a firm

¹⁸ A new core funding formula has been devised for 2007-09, see Ministry of Education (2006).

hand in subsequent internal distribution in a micropolitical competitive faculty environment.

- A problem engendered by bidding for high student numbers, obtaining them, and being left with lower units of resource per capita.
- A concern with the apparent inflexibility of the quota for student members, which makes it difficult for management to reallocate resources between expanding and declining areas.
- Some queries regarding the effectiveness of the connection between performance appraisal of past objectives and the setting of fresh priorities, though a general welcome for performance bonuses.
- Uncertainty as to whether the allocations process recognises the complexities caused by the new Bologna Bachelors – Masters configurations.
- Unease as to whether allocations accurately reflect the factors of regional markets and the profile of neighbouring HEI.

The comment on the quota system corroborates findings in relation to Chapter 3 on the Labour Market.

Implicitly, the above constitute a recommendation that ways to improve the situations described should be evolved by Ministry and institutions.

As far as the polytechnics are concerned, discussions indicate the following:

- Like the universities, a broad satisfaction with the general shape of the allocation system.
- Ambiguities and uncertainties produced by the additional role of local authorities as signatories and partners in the performance budgeting process, coupled with appreciation of the funding provided by local authorities.
- Some queries with the genuineness of the dialogue on the performance agreement, *e.g.* the consequences of declining to accept project funding for ostensibly sound reasons of over commitment.
- The fact that the polytechnic formula does not include core funding for research, R&D and the predominantly regional mission does not equate with the polytechnic obligatory research and “third mission” roles.

- Some concerns regarding the definition of data elements and the accuracy of some polytechnic data in AMKOTA.

Again, these implicitly constitute an invitation to consider possible improvements.

In the light of the above, we would offer the following recommendations in relation to the current resource allocation/performance agreement system, in the context of general commendation:

- It is worth considering how the allocation (and implications of the staffing model) can be made more sensitive to contraction possibilities; the Bachelors – Masters continuum; credit accumulation; course rationalisations; institutional reconfigurations; additional “third mission” activities; and the redistribution of posts internally in line with institutional strategies.
- The breadth/specificity of quota areas (*i.e.* the narrowness of the headings used) should be re-examined, with a view to broadening them to give HEI more flexibility.
- Increasingly the scope and content of the performance agreement is likely to need more engagement with regional development strategies, especially given the likelihood of different institutional configurations and collaboration agendas.
- The balance between core and competitive funding is an ongoing debate in both sectors.
- It is probably worthwhile considering in more detail a relationship between resourcing, quality and equality in relation to access and related matters. This is a complex issue which needs further reflection.
- The KOTA/AMKOTA data bases are under continuing review, which is sensible.

Finally, it is evident that any national resource allocation system conditions behaviour in HEIs. The Ministry may wish to consider initiating a research project to ascertain how this operates in the context of performance budgeting *et al.*

9.3 Adequacy and Sustainability of Tertiary Funding

The Ministry of Education and the wider Finnish society have high expectations for Finnish tertiary education. It is the aim of the Ministry to widen the internationalisation of Finnish tertiary education, increasing the

share of foreign degree students studying in Finnish tertiary institutions, and attracting promising researchers to Finland as well. The government aims to strengthen centres of excellence in university-based research, so that Finland can compete globally in key knowledge-based industries, such as information technology and biosciences. There is also the growing importance being rightly attached to developing lifelong learning, which inevitably will be a twin faceted provision by tertiary institutions and employers, and hopefully in many cases, a jointly architected provision. Open University expenditure in its various forms is clearly relevant here. The likelihood of considerably increased demands on HEIs thus seems inescapable – and desirable. Finland may be able to activate these objectives through various means. In broad terms, there is clearly a distinction to be made between specific arrangements for the funding of various policy or project initiatives, and the general proposition of raising the income-generating capabilities of HEIs themselves – which could build-up reserves or development funds to support a wide range of initiatives and infrastructure – the so-called entrepreneurial dimension.

We would recommend close analysis by Ministry and institutions of the potential of the following approaches:

- Finland may choose to increase the share of GDP it allocates to tertiary education, through public spending – though in the light of the country’s tax rates and buoyancy and other demands, this may not be possible politically or economically, and there are quality implications, of course.¹⁹
- There may well be flexibility generated by various economy drives. In other systems, these would include:
 - productivity gains through a deliberate worsening of the staff-student ratio, and a reduction of the unit of resource per student generally or differentially across different student categories and disciplines;
 - productivity or efficiency gains through the conscious application of cost norms *e.g.* average class size, option/elective groups; the volume of the curriculum (*i.e.* to reduce class contact); staff deployment; and the substitution of student individual learning for structured staff-student interactions in the classroom (which may well include more use of ICT);

¹⁹ For a discussion of Finland’s tax structure and the challenges of fiscal sustainability that it faces, see OECD (2006).

- improving study times and course completions and reducing drop-out, thus releasing students earlier to the labour market;
 - capturing the savings from declining student numbers and deploying this money elsewhere;
 - elimination or merger of smaller departments (of perceived less quality) with other departments in other HEI of the same discipline; or other departments in the same HEI in a new interdisciplinary paradigm or configuration. These devices, though possibly temporarily disturbing, may well stimulate a release of creative intellectual and practical outcomes. Staffing policies and appropriate quality assessment devices are, of course, central to this option. This may well be the outcome of the current Ministry interest in larger entities on a regional basis (this is discussed later);
 - institutional mergers – though costs might spiral given the new structures devised.
- Another range of possibilities opens up in relation to the consumer of higher education paying for its costs (*i.e.* student or his/her family; employers). Traditionally, there have been no tuition fees for Finnish students, which many see as being one of the important factors behind the growth of the economy, and a main plank of the equal opportunities tradition. The student financial aid system was conceived in 1969, and encompasses elements such as maintenance, housing, marital status, study grant and a market based-government guaranteed study loan. A means related criterion is also deployed.

Whilst other systems have espoused tuition fees with varying degrees of enthusiasm and reluctance, our widespread discussions with parliamentarians, stakeholders, students and institutions suggested that few Finns believe that a larger private financing initiative through student tuition fees should be introduced into the system. No doubt some flexibility could be obtained at the margin through the loan mechanisms, but it would certainly be unlikely to bring in the level of resources as experienced recently in the United Kingdom.

However, we think it feasible that the substantial public cost associated with student support might be reduced by converting grant-based assistance to loan assistance, repayable by graduates after the completion of their studies. Because lending arrangements that rely upon graduate repayment have a significant subsidy element associated with them – often an implicitly a subsidy rate of

40% to 50% – it is realistic to expect that such a change would free up about 8%-10% of current public expenditure on tertiary spending to be invested in key policy goals. Additionally, such an initiative would provide modestly stronger incentives for students to complete their studies in a timely way, providing students with an economic incentive to shorten study durations.

There has been an inquiry into the possibility of introducing tuition fees for non-EU or EEA international students. In August 2005 a ministerial working group proposed the introduction of an annual tuition fee of EUR 3 500 to EUR 12 000, along with improvements in student services and support. As we indicate elsewhere, Finland is unlikely to establish a large presence in the global market for students, owing to reasons of location, weather and language; hence these tuition fees are unlikely to have significant impact on the overall balance of public and private resources in the Finnish tertiary system. Nonetheless, they may have a beneficial effect on the incentives activating university and polytechnic institutions, providing them with stronger inducements and more substantial resources with which to engage in the targeted and selective recruitment of non-EU/EEA students and assisting funding other activities at the university through cross-subsidy. This has certainly happened in other countries.

- We think that the Ministry should widen opportunities to permit employer financing of degree studies, even if legal changes are necessitated. Where firms are able to pay for degree studies on the part of their workers – and willing to do so because they anticipate economic returns on this investment – higher education institutions should be permitted to charge fees. Given the likely burgeoning of lifelong learning in its various forms, this clearly has possibilities and might usefully be examined. It is not incompatible with the suggestion of the introduction of tuition fees for continuing education.
- In Chapter 6 we referred to the overall income generating potential of universities and polytechnics – the entrepreneurial dimension. This indeed, must be an inescapable corollary of the adoption of the “third mission”, especially in the context of regional development. There are various ramifications to this (see Davies 1987; Clark 1997 for more detailed discussions of principles, policies and practice), which include:
 - a significant diversification in the range of funding sources and the income profile of the university over time (in some settings,

state normative funding has reduced to about 35%), and consequent issues of buoyancy and durability;

- institutional legal status which enables it to behave entrepreneurially in terms of costing and pricing of activities;
- budget flexibility (between years and heads), swift decision-making on commercial possibilities;
- a market oriented culture and personnel;
- a strong but flexible education and R&D provision which guarantees excellence as well as responsiveness;
- a strong competitive urge; and robust intellectual property strategies.

There is no doubt that many Finnish institutions are developing their entrepreneurial capacities, and the review team is in no doubt that this capability will be needed in the next ten years, for the reasons outlined at the start of this section. Clearly the profile of possible income sources varies across systems, and the institutional strategies will vary accordingly. It is conceivable that elements from this dimension could very well increasingly figure in performance agreements for both universities and polytechnics. At any event, if this route were to be actively pursued, there are significant implications for the accountability – autonomy balance, for the nature of government steering mechanisms, and for the management of institutions, all of which are discussed in Chapter 11.

9.4 Student Support

Students enrolled in tertiary education do not pay tuition fees, and receive public assistance to meet living or maintenance costs incurred while studying. This assistance was established in 1969, when the government first introduced maintenance loans, *i.e.* loans to assist them in meeting living costs. These loans were both guaranteed by the government and provided an interest subsidy to student borrowers. Grant-based assistance was first introduced in 1972, and housing assistance introduced in 1977.

Under current policy students enrolled fulltime at a university or polytechnic institution (or at a university extension centre) may receive a monthly study grant of up to EUR 259, the amount of which ranges between EUR 220 and EUR 360 per month (in the latter case, for students studying abroad). University students, though not polytechnic students, are also eligible to receive subsidized health and mental care from the Finnish Student Health Service clinics. Both university and polytechnics students

may also receive a housing supplement or allowance; subsidized meals at student cafés, and concessions in public transport.

Students may also supplement their income from family support or paid work. The former is comparatively modest. Like other Nordic countries, students are considered to be independent of parents by the age of 18, and neither by law nor custom are families obligated to support students study costs. Surveys of European students indicate that Finnish families play a smaller role in financing studies than in any other country. More than one-half of Finnish students rely upon paid work to supplement their income, and of those who work, 40% do so full-time. The incidence of work among 21-year-old students in Finland is broadly comparable to that of other European systems, and it is the only country in the Eurostudent Survey in which students whose parents completed higher education are more likely to work than those whose parents did not (Eurostudent, 2005, Figure 36).

Study loans are originated by private banks, and guaranteed by the government. The interest rate and terms of repayment are agreed between the bank and student, and repayment typically begins after the completion of studies. Interest rates for enrolled students are subsidised (paid twice per year at the rate of 1%), and capitalised into the loan. The take-up rate on study loans is very low: about four in ten students who are eligible to borrow do so. Thus, study loans provide the smallest share of students' income - after grant assistance, work, and family support - in the budget of Finnish students.

Students with whom we met indicated that they were reluctant to borrow for fear of being unable to find work after completing their studies, and consequently being unable to meet their loan obligations. If in fact the low rate of take-up is due to the mortgage-style rather than income-contingent structure of lending, this has implications which the Ministry should pursue.

This area is clearly riddled with political questions and issues of national tradition, to which we return in Chapter 11. However, it constitutes an interesting case of the respective contributions of a planned system and market driven economy to the development of tertiary education.

9.5 Human Resources

This is clearly a critical area in terms of enabling both sectors of the tertiary system to respond to the internally and externally induced changes sweeping through the system. To date, Finland has been well served by a highly professional academic workforce, sound employment practices, a responsible academic and non-academic union culture, a collective bargaining system which appears to the external viewer to have sustained

major evolutionary changes in a coherent, consensual manner, and a relatively benevolent and visionary state framework. This section will examine each of the sectors in turn and propose items for consideration based on experience in comparable settings.

9.5.1 Universities

University staff hold the status of civil servants, but are appointed by the universities themselves under a general rubric and understanding that they should display scientific competence, to which has been added requirements of effective teaching and collaboration with business, industry and the professions. Civil service status implies both a primacy of state collective bargaining processes for salary and conditions of service, but also, a potential lack of manoeuvre and management discretion at institution level, which, in view of a shift in institutional autonomy, entrepreneurial expectations, and the possibility of a reconfiguration of institutions, could prove problematic in the future.

It was impressed on us from many quarters that the age profile of university staff is a potential time bomb, and exacerbated by the recent elevation of retirement age to 68, which is presumed to give staff the “right” to stay on and every incentive given enhanced pension elements. This is problematic on three grounds:

- Older staff are more expensive.
- Some may have lost their enthusiasm and possibly skills, and might not be ready to take on new challenges of a short term nature.
- It produces blockages in career progression for younger staff.

Related to this, of course, is the issue of career structures and paths, which are historically based on the categories of lecturer (2 000, 40% of whole have Ph.D.s) senior assistant professors (7 000, 70% of which have Ph.D.s) and professors (400 of which all have Ph.D.s). There have been few new professorial posts available per annum, which limits career flexibility. A new salary structure has been developed in 2005-06 to counteract the inflexibilities of the existing system, based on eleven salary/job levels for the academic lines (the lowest being for a starting graduate and the highest being for the most senior professor. This new system includes job evaluation and subsequent positioning on the scale; performance review against clear criteria at appropriate levels.

Partly due to the competitive funding model and to the considerable increase in project funding, there is a growing number of fixed term academic personnel whose status and future prospects are problematic. This,

of course, also applies to the post-docs. The review group commends the Academy initiative to assist and stabilise the post-doc community and also to provide initiatives in attracting academics from industry.

An analysis of the earlier chapters of this Report make it apparent that there are a series of challenges for universities which will raise questions about the availability of the appropriate skills and competencies in the academic community, notwithstanding the immense progress of the last decade. These challenges include new tasks in the fields of internationalisation and the Bologna process; interdisciplinarity; industrial research; new pedagogies, including e-learning and various domains of new income generation. Whether or not these skills exist within universities or whether they need to be imported from the business or professional world, or HEI in other countries will depend on the personal profiles and strategies of particular HEI, but the situation clearly calls for a very proactive recruitment and staff development policy and the removal of the predictable procedural difficulties which could thwart its attainment.

Reviewing the above five paragraphs, a series of recommendations naturally emerge:

- In respect of the civil service question, it may be that any change in the legal status of universities could provide a paradigm shift in the hours of employment, and hence in terms of local room for manoeuvre.
- The age profile question, as in other countries has led to a need to early retirement packages (state funded) to incentivise older staff to return, some on the basis of re-hiring on renewable short term contracts. In addition, rigorous staff appraisal and coherent staff workload plans should accompany these arrangements. We would certainly applaud the advent of Graduate Schools as a vehicle for producing the next generation of young academics.
- The new salary structure which we commend, will certainly call for:
 - effective performance evaluation – and training for evaluators;
 - specific links to programmes of staff development, training and renewal, and consequently:
- The need for really effective university training departments linked to strategic planning process and quality review. Universities should assess how their training departments should evolve, and what their new training priorities should be.

- The connection between appraisal and reward/progression up the salary scales needs to be carefully articulated, and the promotion criteria will need to correlate with the broader objectives universities now have *e.g.* would excellent performance in “third mission” activities qualify for a grade 11? Would promotion be related to performance across a profile of criteria etc.?
- Regarding the availability of skills for the future, we would re-affirm recommendations of other chapters in terms of:
 - bringing in academics and administrators from universities academically, especially in quasi-academic leadership roles;
 - two-way mobility of staff with industry;
 - an enhancement of the training function with academic support and human resource departments of universities;
 - within the framework of the “new entities”, sharing expertise of the polytechnic sector.

9.5.2 Polytechnics

As far as the desired competencies of a polytechnic staff member is concerned, there has been a well established operational consensus for some time, for a multi-skill profile encompassing intellectual sharpness and scholarship (Masters or Ph.D.); professional practice; “third mission” skills, etc. This profile seems well reflected in the recruitment priorities, processes and legal requirements (*e.g.* three years in professional practice).

The polytechnic sector also seems to the review group to be more generally consciously systematic in terms of staff development and professional updating, which is not uncommon in the non-university sector of a binary system. Evidence was apparent of a range of development opportunities, including the use of EU, TEKES and industrial projects; consultancy; sabbaticals and secondments; and compulsory pedagogic training of up to 35 credits. We commend this strategy.

There are, however, emerging priorities to which we would recommend specific emphasis and renewed commitment, *i.e.*:

- Research and R&D expertise is of immediate importance, given the obligation on polytechnics to conduct research. Polytechnics internationally find this problematic for reasons indicated in Chapter 5, which are not rehearsed again here. Clearly the development of a research paradigm for polytechnics is a prerequisite of a focused staffing programme for research.

- The development of research skills is likely to be facilitated by *e.g.*:
 - acceleration of staffs' completion of doctorates;
 - attachment of polytechnic staff to university graduate schools in the new entities proposed by the Ministry;
 - the accumulated experience of conducting the new Masters programmes.

Linked to ...

- International partnerships which might be based on Bologna and Erasmus affiliations, but which would pay the important accelerator for the acquisition of research skills, assuming a focused selection of institutional partners.

As far as polytechnic career and salary structures are concerned, the review group was not aware of a parallel development to that in universities. We would feel in principle that there are elements in the new university structure and processes which would be very helpful for polytechnics, and, if appropriate, would recommend a consideration of this.

Finally, and in general, we are aware of two factors which may cause a re-appraisal of current personnel policies. There are:

- The move towards new institutional configurations, drawn from the range of possibilities offered in Chapter 10. Each of these has different personnel implications, in terms of, for example, redeployment, designations for certain positions, staffing structures, job gradings, counselling and staff development.
- The threat of demographic decline in several Finnish regions will inevitably lead to reductions in student numbers, with knock-on consequences for numbers of staff required. This raises the question of whether Finland has robust personnel policies to manage financial reduction *e.g.* redeployment between institutions, voluntary redundancy, compulsory redundancy, early retirement, retraining etc.

Since these issues are generic rather than institution specific, the evaluation of whether current human resource policies and providers are adequate should rest with the Ministry in the first instance, informed at the appropriate point by evidence and perspectives from institutions. The point of our recommendation is that it is preferable to develop necessary policies and practices well in advance of their having to be used. This would certainly help institutional leaders a great deal.

10. The Shape and Configuration of the Tertiary System

The discussion on the nature of the existing system in Chapter 2 outlined the perceived differentiation between the two elements in the duality – universities and polytechnics, along various dimensions – academic, governance and organisation and resourcing. The discussion raised issues regarding the solidity of the differentiation in terms of what was actually happening on the ground; and regarding the solidity of the apparent consensus regarding the continuation of the system into the next two to three decades. Subsequent chapters have dwelt on particular manifestations of the dual system, and the following perspectives have arisen in the discussion, the totality of which will have implications for the shape of the future system:

- There remains the general commitment by most parties to the HE system that duality should be preserved, but:
 - the motivations differ widely between various stakeholders;
 - there is an emerging feeling that simple duality may be overly simplistic and too much of a straitjacket for conceptualising the future configuration of the system, in terms of what is needed in different regions, and that a spectrum of possibilities should be considered.
- the Ministry is clearly intent on some institutional concentration and rationalisation for reasons of:
 - creating greater critical mass of international significance and enhanced regional contribution;
 - economies and the avoidance of duplication;
 - prioritisation of effort;
 - enhancement of student choice.

- This intent applies equally to the university and polytechnic sectors²⁰ in terms of denser networks and the reduction in the total number of both universities and polytechnics.
- There is some ambivalence and ambiguity abroad in relation to, for instance:
 - the degree of connectedness of effort across HEI – student mobility between sectors; human resource utilisation; cooperative R&D; multi-disciplinarity;
 - the ability of Bachelors and Masters students in polytechnics to move to Masters and doctoral programmes in universities which raises questions of equity;
 - the role of polytechnics in respects of Masters degrees and research;
 - the nature of competition as an instrument for ratcheting up quality within a system which is essentially differentiated and collaborative.

Any discussion on reconfiguration should address these issues.

Notwithstanding the apparent consensus on duality, the review team nonetheless detected some convergence between the two sectors along two dimensions.

- In terms of respective profiles:
 - the professional – academic differentiation is conceptually blurred given the existence of well established professional disciplines in universities which are clearly engaged in producing professionals for practice;
 - Mode 2 knowledge production and utilisation increasingly transcends both sectors. Internationally, the theory-practice separation is at the very least questioned;
 - polytechnics are accredited for Masters degrees, and a convincing case could be made over time for their engagement in reflective practitioner professional doctorates also, as a clear alternative to the academic orientation of the Ph.D.;

²⁰

See Minister Kalliomakku's address at the Finnish Annual Polytechnics' Day 10 May 2006.

- the Bologna academic architecture could well, over time, even out the different credit structures for both Bachelors and Masters degrees across both sectors;
 - each sector is clearly well into “Third mission” (community oriented) activity and regional engagement;
 - anecdotal evidence collected indicated that the employment destinations of students from the two sectors were by no means as differentiated as the rhetoric would suggest. There would seem to be a case, however, for more substantial statistical evidence on this (from Statistics Finland or KOTA/AMKOTA).
- In terms of institutional self-interest, particularly on a regional level/or city level *e.g.*:
- the sustainability of units in the wake of shaky enrolments and demographics;
 - the desirability of achieving critical mass in key areas;
 - ensuring good comprehensive geographical provision of subjects and locations;
 - student marketing especially internationally;
 - effective resource utilisation.

The review team is not suggesting an abolition of the dual system, but is suggesting that the differentiation is weakening, and this should open up alternative models of engagement which are not simply university to university, or polytechnic to polytechnic. To this we return later.

Related to the above issue of convergence, the review team encountered significant and promising evidence of inter-institutional cooperation across the binary divide in so-called “HE Cities” such as Tampere, Joensuu, Kuopio etc. In Tampere, for instance, the HEI of the Pirkanmaa region, each profiled according to its own strengths, work in tight cooperation in respect of strategic “know-how” provision encompassing:

- Tightened educational cooperation
- Human centred technology
- New operational models for cultural and welfare services
- R&D
- International endeavours

- Support services

with a firm, transparent collaborative management structure.

This type of initiative, now institutionalised in the 2007–11 plan, demonstrates one vehicle for realising the Ministry’s objective, and also that the objective is clearly consistent with the collaborative ethos of much of Finnish higher education.

In the light of the above, the Ministry’s call to institutions to bring forth proposals for the reconfiguration of the HE landscape, and the creation of larger “entities”, hopefully will result in imaginative possibilities. Finland has an honourable tradition of encouraging diversity of approaches via a bottom-up process within a clear strategic framework, and it appears this tradition will be upheld. The result may be a spectrum of organisational forms which will be appropriate for specific situational variables. In this, the review team hopes that different combinations may be admissible, if appropriate *i.e.*

- University to university (and plural)
- Polytechnic to polytechnic (and plural)
- University to polytechnic (and plural)

and various combinations of the above.

Whilst we fully understand the success of the dual system and the professional orientation of the polytechnics and whilst we acknowledge the desirability of maintaining this as far as possible in the future, we are also aware that there are circumstances in the present environment which may lead to a sensible modification of this.

We should probably also admit of the possibility that “entities” may not be focused on a particular region, but may transcend it for specific activities or for the entire operation.

The term “entities” does not seem to have been defined in precise detail, and it may be that international perspectives will assist in a conceptualisation of the alternative paradigms of inter-institutional relationships which may be considered for adoption in a regional setting.

- Paradigm 1: Competition Model.

The assumption with this model is that there is a limited amount of business and money about – students, research, continuing education etc. and the relationship between HEI is essentially a competitive one to secure as large a market share as possible. Thus, factors such as quality and quantity of the HE offering; price (if

relevant); niches; delivery mechanisms; customer care and marketing expertise are deployed to secure a market advantage.

To secure additional advantage, cooperative HEI cartels may be developed within and without the region.

Generally, this model would probably not be appropriate to Finland, given:

- the essentially cooperative national culture;
- the limited growth of a HE market economy to date;
- the aversion to price/fee/cost competition.

It is nonetheless included to demonstrate the full spectrum of possibilities.

– Paradigm 2: Regulation Model.

This model is typical of mature state systems and the behaviour of institutions is prescribed by a range of elements; a precise framework definition of the roles and positions of HEI within a given geographical area; the functions they are licensed to deliver; the conditions under which they operate; a description of any hierarchy; and associated resource allocation mechanisms. This is typically found in US state multi-campus HE systems, where there clearly has to be an enforcing agency.

In essence, this is really where Finland is at present with the dual system, and short of establishing a series of regional groupings, there is probably not much development possible here to delivery what the Ministry wants in terms of “entities”.

– Paradigm 3: Voluntary Cooperation Model.

Here, collaborative arrangements are freely entered into by HEI to satisfy their mutual interests in a variety of fields (joint research, teaching continuing education, marketing and resource utilisation) stimulated by government initiatives, basic unit initiatives, a belief of synergy and better resource utilisation, and, of course, institutional self interest. This paradigm may well involve management by contract, such as franchises.

There is no fundamental or permanent surrender of autonomy or sovereignty by the individual HEI, or a specific organisational structure to manage business. Cash flows are essentially lateral.

This is probably the most minimalist innovation in terms of “entities”, and examples already exist in Finland (*e.g.* Pirkanmaa) which clearly function effectively in their own contexts. Whilst this paradigm may not be enough to satisfy the Ministry’s agendas, effective voluntary cooperative experience provides an essential building block of trust from which can evolve more fundamental structures.

– Paradigm 4: Consortium Model.

These are formal organisations which exist apart from HEI, but because of HEI and linked to HEI, since the HEI constitute the membership. They are thus separately incorporated, have their own identity, assets and budget; and participatory management structure. They are common across the HE world, and typically conduct programmes; manage resources (joint Library, R&D Company or Science Park) or coordinate credit accumulation and transfer schemes. Membership is voluntary but incurs expenditure, and exit is possible.

This model may be attractive in certain regions of Finland to manage and develop a whole range of collaborative activities without proceeding to a substantial root and branch reorganisation. A consortium of course, need not be based on a region, but an initiative could transcend HEI across Finland.

– Paradigm 5: Federation Model.

This is a formal legal organisation of HEI in a particular geographic area where jurisdiction is distributed between the two levels – federal and institutional, each of which has its governance and management structures.

Each participating HEI has its own assets, resources, marketing and support services, academic and research programme, and is the employer.

The Federation may control general academic strategy, quality, strategic resource deployment, and a host of other strategic elements, and has a presidential office to do this, and probably a Senate and Board of Trustees (in certain systems) also.

Membership certainly involves a surrender of authority by HEI in areas such as degree awarding rights, consistency in scholarly credentials, academic accountability, financial flow from government, but member HEI have their own independent legal existence management structures and identity. Examples would be

in the Canadian system, the Irish National University, the University of Wales, the University of London.

This paradigm could be envisaged in Finland in probably most regions, and would certainly respect the differentiation in institutional types. Its effectiveness as a paradigm for Finland would depend on what powers were bestowed on the federal level, and what instruments of authority it possessed to deliver the Ministry objectives (as indicated in Chapter 2).

– Paradigm 6: Full Merger Model.

This is the most fundamental re-alignment possible, and constitutes one organisation and one legal identity, with unitary management and governance structures; unitary budget; common academic mission and strategy; common personnel arrangements and ownership of all assets. It would certainly entail loss of autonomy for the original members, but authority could be subsequently devolved to the second tiers – though it may or may not correspond to the former HEI, since merger may mean unscrambling and re-setting organisational structures.

The former institutions have, in fact, disappeared, but the new merger would tend to be a multi-campus institution, and a major debate is usual on which merged faculties are located where.

Almost inevitably the merger would need to create large devolved faculties with extensive academic and resource discretion – responsibility centre budgeting, and would need strong central management organs to make the merger work – executive functional vice-rectors, executive deans etc., which may not produce overall cost-savings in the first instance. Mergers are also known to have resulted in closure of units, and rationalised provision, prior to a major re-alignment and expansion in its new identity. Numerous examples exist in Australia, the United Kingdom and the Netherlands.

This model would clearly be possible in Finland, especially in those regions where there was an excess of provision and rather small HEI. However, the macro- and micropolitical backlash could be considerable, and the advantages of such an arrangement would need robust demonstration – and there are many advantages.

The adoption of such a model in Finland must take into account the nature of HEI in a particular region. Some regions may well lend themselves to university – university mergers, or polytechnic – polytechnic mergers. Other regions on the other hand, may logically

call for university – polytechnic mergers, which, as previously intimated, raises questions about the sanctity of the binary divide. It might be observed as a matter of fact that some national systems have espoused cross-sector mergers (*e.g.* Australia, the Netherlands) and resulting merged institutions have developed considerable economies of scale, but have also encompassed a multitude of student choices within the same university (academic and professional; sub-degree and postgraduate), with a built-in ladder of progression and lateral student mobility.

Whilst we respect and support the loyalty shown to the dual system as a stable and principal characteristic of Finnish higher education, in some circumstances and in some Finnish regions, it may be an option to merge a university and polytechnic in the same city than merging two universities 200 km apart.

It is not the purpose of this Chapter to produce prescriptive recommendations, but to open up a range of possible alternatives avenues for Finland to consider. We should, of course add that there are a number of factors which need to be borne in mind when discussing “entities”, both at Ministry and HEI level, whatever the paradigm *e.g.*:

- The overall profile of the new entity should possess internal integrity and cohesion. It may be that movement towards more comprehensive and genuinely interdisciplinary HEI should be a desired aim especially in the context of a broad service to the community, but the opportunity might also be taken to ensure each entity has a number of sectional specialisms of higher international repute.
- New entities should be requested to produce new innovative trajectories of development – not merely rationalise what is.
- Any new configurations will need to balance the advantages of a dispersed multi-campus operation for the consumer (outreach, accessibility and regional penetration) with issues of managing multi-campus operations, which can be costly and complex.
- The VTT (research institutes) should be brought into the equation as partners.
- The quality factor needs to be a critical element in the analysis of possibilities – what to keep, what to grow, what to phase out.

The Ministry has rightly laid the bases for a creative dialogue by indicating that proposals for entities should come from below, meaning the HEI and their municipal and economic stakeholders. Having said this, our

discussions revealed that there is considerable facilitation which the Ministry and central agencies can undertake to move developments along, *e.g.*:

- Adjusting mechanisms for bids to TEKES and the Academy, and for other Ministry initiatives in order to encourage and reward joint submissions from HEI, especially across the binary line.
- Stimulating inter-disciplinary degrees, consistent with Mode 2.
- Encouraging multi-institutional Graduate Schools (not necessarily regional, of course).
- Devising new mechanisms for quota allocations, funding formulae, cost sharing, interdisciplinarity, related to performance agreements for entities rather than single HEI.
- Incorporating in the next appropriate round of performance agreements, the obligation for HEI to produce concrete proposals.
- Reviewing reconfiguration initiatives in other countries, through a well structured study visit programme to reflect on international good and bad experience.
- Encouraging HEI to intensify cooperation at regional level, in parallel with the re-configuration process, in terms of *e.g.*:
 - cooperative strategic planning and performance agreements;
 - resource utilisation;
 - student mobility and credit recognition, especially on a trans-binary basis;
 - joint marketing.

This will clearly be of great use in building trust in preparation for the new entities, whenever they emerge, and whatever paradigm is judged appropriate. If international experience is anything to go by, the gestation period for sustainable new forms is not to be taken lightly.

The above has ramifications for planning, governance and management, to which we now turn.

11. Planning Governance and Management of the Tertiary System and its Institutions

The previous chapters have attempted to consider the current position of the Finnish HE system, and propose avenues for future development. In these discussions, various issues have been identified in terms of the organisational structures and processes by which the future system should be governed and managed at national and institutional levels, and the interface between the two. Part of the concerns identified can be resolved through the advent of the so-called “entities”, but other concerns need other approaches which are now considered. In addition, the review panel was aware of the “Manifest” proposals from the university sector, the review undertaken by Justice Jääskinen and Professor Rantauen, and the position of the Association of Finnish Local and Regional Authorities, which all have pertinent observations on this complex question.

11.1 Institutional Autonomy

Both sectors in the dual system seem to have reasonable degrees of autonomy at present, compared with some other systems, so the question is really what additional grants of freedom are needed to exploit fully future conditions creatively, within a sensible national strategic framework.

As far as the universities are concerned, they are accountable to the Ministry. There seemed to be general satisfaction with lump-sum budgeting; the rights of concluding agreements, appointing personnel and managing the academic profile and activities. There appeared to be enthusiasm for recent flexibilities in salary structure. At present, universities are state accounting offices, and thus subject to normal budget legislation which constrains flexibility. Thus, there seem to be pressures for more autonomy in order to become more entrepreneurial to:

- diversify the economic base of the university
- direct investments in areas of strategic significance to the university; share buying

- vary overheads
- spend surpluses in strategic areas
- own property
- increase productivity creatively at a devolved level, especially in terms of staff utilisation
- use new salary structures flexibly
- have greater scope for personnel (re)deployment
- switch resources across academic areas in relation to patterns of varying demand, decline and growth
- charge fees and full-cost pricing at appropriate levels for commercial and other services.

Some of the above call for changes in procedure and regulations; others for change in legal status.

As far as polytechnics are concerned, their accountability is split between the Ministry and the municipality, and, in some cases, more than one municipality, which does complicate the autonomy – accountability balance. Polytechnics however, clearly appreciate the additional funding provided by municipalities. The motivation for more autonomy in the polytechnic sector springs from:

- the need to become entrepreneurial
- the possibilities of creating quite distinctive institutional profiles
- the desire for the greater and discretion efficiency which should follow from devolution, especially speed of decision-making
- the desire to manage property assets properly
- the desire to use surpluses for strategic investment.

There are similarities in the above, notwithstanding the sectoral differences, notably in the desire to become more entrepreneurial. However, a caveat has to be lodged: having the freedoms to become entrepreneurial and actually being entrepreneurial are different things. It was mentioned several times that “Finns are not natural entrepreneurs”, which seems to indicate that attention would also need to be given to encouraging an entrepreneurial culture.

11.2 Governance and Institutional Status

Closely related to the above is the question of institutional status, which at present is very much that of a unit of the Civil Service, with all this means in terms of adherence to budget legislation, operating freedoms etc. It should be noted that:

- In the university sector, the experiment of the University of Helsinki as a “foundation” model has attracted general positive interest.
- In the polytechnic sector, the proposal to “nationalise” the institutions has not met with general acclaim, not least from the municipalities.

This is an area which needs a robust solution in order to deliver the various challenges outlined in previous chapters.

11.3 Management of Autonomy

Whilst there is emerging consensus that more autonomy is desirable, there is concern as to whether HEI will be able to manage it effectively, and this raises issues of:

- Robustness of internal management at various levels *i.e.* the grafting of elements of a managerial culture on to the existing collegial and professional bureaucracy cultures.
- Appropriate governance and interface mechanisms with the external environment.
- Swift response processes with regard to external initiatives and overtures *e.g.* TEKES, the market, EU etc.
- A strong risk assessment function in the face of multiple opportunities.

In all the above, the review group detected an obvious willingness of all parties to consider how the balance of public accountability and institutional autonomy could be constructively re-conceptualised to meet the changing needs of the next decades and the Ministry priorities for the system as a whole.

11.4 Recommendations

It seems very appropriate to redefine the HEI (both polytechnics and universities) as so-called “Legal persons”, rather than as civil servant units. Within this approach, there are alternatives for institutions:

- As non-profit corporations
- As foundations

and Finnish colleagues will be more expert than the review panel on the pros and cons of these options, especially in terms of Finnish law. However, whichever avenue was followed, the assumptions would be that:

- ownership of all assets would revert to the “legal person” (begging the questions of any tax adjustments or pensions liability);
- the local authorities would cease to be the controlling agency in respect of polytechnics, but would need to be intimately involved in any governance arrangements. This would apply to multiple municipal control and potentially ease a currently complex situation;
- polytechnics and universities are an important tool in regional development – hence the importance of the involvement of municipalities in governance (certainly of polytechnics, but of universities too) and their continuing financial support of polytechnics.

By definition, the “legal person” would assume significant devolved responsibility from government over a range of domains *e.g.* investment, property, share-buying etc.

In the event of the adoption of the “legal person” principle, it would be necessary to establish a governing body or board of trustees for each type of HEI accountable to government. There is abundant precedent in other systems in terms of defining its:

- Roles, functions and responsibilities;
- Positioning *vis a vis* academic senate, rector etc;
- Codes of conduct and good practice;
- Personal and collective liabilities;
- Reporting mechanisms to government;

- Constitution and membership (*i.e.* institutional, local and regional stakeholders – and in the case of universities, national or international figures also).

The purpose of such a body would be to operate at a strategic level, interacting with stakeholders, improving the institutional infrastructure, but not interfering in institutional management or the academic domain.

This device would not represent a nationalisation of the polytechnics.

To allay concerns regarding the capability of the institution to manage autonomy and to realise its entrepreneurial/societal potential, it would probably be necessary to:

- Conceptualise the rectorate as a senior management group with defined portfolios, executive authority, and with the instruments to develop strategy and realise its implementation (*e.g.* resource redistribution);
- Ensure that Senate and its committees exercise a strong strategic and quality assurance role;
- Recast deans as executive deans rather than collegial deans with minimal authority;
- Evolve the institutional culture to one which was reasonably entrepreneurial, without any way of having the focus on scholarship, broadly defined;
- Revisit personnel policy in the light of the above (see also Chapter 9);
- Determine how the institution level strategic planning processes should be evolved;
- Conceptualise the nature of internal devolution to larger basic units and faculties, consistent with a more entrepreneurial and creative need.

The autonomy – accountability relationship will have shifted somewhat in the light of the above, and the Ministry would need to be satisfied that HEI will be moving in the direction of national objectives, and realising their own performance priorities. There are two important mechanisms for this:

- The established system of performance agreements which have attracted considerable international interest. This, in principle, seems admirably suited to the proposed new scenarios and proposed

“legal person” status – and, moreover functions across both sectors, to general satisfaction. In Chapter 9, the review group outlines some proposed steps to improve the performance agreement process, which are consistent with the tenor of this paragraph. In addition, the group would recommend the Ministry abstracts from these chapters a range of policy desiderata which could be absorbed into the performance agreements process.

- Monitoring processes and data. Reference has been made to KOTA/AMKOTA in previous chapters, and these data bases are the principal means of monitoring system effectiveness and efficiency (in addition to the data delivered by Statistics Finland). They were originally constructed to meet the need for accountability associated with processes of self evaluation and improvement. This was fine, but it has been suggested to the review group that the data bases do not necessarily provide the quantitative information needed to satisfy the Ministry about HEI performance in broad terms, or to provide information about investment – outcome relationships which is important for policy analysis. The following recommendations thus emerge, subject to the caveat of the review group’s limited access to the data base complexities:
 - the data bases should be reviewed in terms of whether they provide sufficient information for the above purposes on *e.g.* students’ background (educational, ethnic, geographic); student outcomes; employment destinations and initial salaries; inter-regional student mobility post-graduation; completion and progression;
 - There does not seem any obvious reason why broadly common data requirements should not appertain across each sector’s data base (this is not evident from the CBR);
 - a national student feedback system in universities to complement the OPALA system for universities;
 - the production by FINHEEC of summary reports on generic findings from reports and evaluations to complement the more quantitative analyses emanating from the data bases;
 - the possible publication of a common range of strategic performance indicators across the respective sectors, on an agreed basis, to inform the strategic monitoring which would be needed for performance agreements in the new scenarios.

In producing these reflections the review team has not been privy to the Jääskinen – Rantanen commission activated by the Minister in

December 2005, and would welcome an eventual articulation of its findings with those of the Commission. However, the review team is confident that it has deployed findings from international perspectives which are relevant to the issues identified in documentation and discussions.

12. Conclusions and Reflections

The purpose of this Chapter is not to provide a summary of detailed findings and recommendations from the various Chapters, but to reflect on some critical themes which transcend most of the Chapters, and to place these within a broad evolutionary framework of the Finnish higher education system.

Finnish tertiary education policymaking, like Finnish policymaking more generally, is marked by a high capacity for planned and intelligent adaptation, rooted in evidence-based and consensus oriented deliberation. It is emphatically not a system in drift, either at institutional or national level. Rational institutions act within policy frameworks determined by government. They may well by their actions create movement within the framework, both conceptual and operational, which naturally leads to systematic evolution. Government and tertiary education institutions in Finland do tend to operate together based on principles of trust and mutual respect, which the authors believe is an excellent pre-condition and augurs good for future progress.

This evolving framework has served the nation well, permitting the evolution of a system of tertiary education that was rooted in a small number of publicly funded universities that were Humboldtian in character and a multitude of vocational colleges. This evolved into a well-functioning and carefully designed binary system marked by extensive enrolments, robust public funding and comparatively generous student support. The number and skills of Finland's tertiary graduates – and the research activities of its university-based scholars – appeared to have been well suited to national needs.

However, there is no opportunity for pause. As Finns are keenly aware, they have a small state heavily dependent upon their human resources, whose continued flourishing depends upon continued innovation. The challenges faced today – and Finland's capacity to meet them – are different to those of decades past. For example, a national inwardly focused system of research is not adequate within a context of European funding, global

rankings, and international flows of researchers and we acknowledge Finland's recognition of this.

The development of tertiary education in Finland has progressed purposively over the last decade, both in polytechnic and university sectors. However, the conceptualisation of a university as an essentially Humboldtian construct, with strenuous career requirements; long courses of study; entrenched silo-like disciplines; and a limited managerial and steering capacity has clearly encountered difficulties, largely because of external imperatives. The evolution from a Humboldtian model to one of a modern university, with multiple objectives, diversified funding, purposive steering mechanisms and a strong external responsiveness is thus, in our opinion inevitable, and Finnish universities in different degrees display many of these characteristics. Some further conceptualisation of the new condition and its consequences would be helpful. Polytechnics had differing starting points, but their growth in maturity has been clearly discernible to frequent visitors, and their profile is being greatly expanded. We refer to possible developmental trajectories for polytechnics. Here, too, further conceptualisation will be helpful.

The Government's expectations of higher education are formidable, but we believe, correct and fair: embracing performance at a high level in meeting social obligations and social inclusion agendas; producing world class research; providing high quality academic and professional education; and working closely with enterprises and other stakeholders in the cause of regional development, broadly defined. If this analysis is accurate, then the historical configuration of tertiary education into basically two alternative organisational forms – the universities and the polytechnics – is likely to be too simplistic, potentially inflexible and restrictive in terms of what may be needed in the way of institutional responses and contributions. With this in mind, we thus reflect that a spectrum of institutional missions and positions may constructively evolve, with specified roles and contributions from the agendas well articulated by the Ministry. International experience points to a diversification which is extensive, flexible, effective and efficient, and the Ministry would therefore need to give attention to what system of incentives and steering would facilitate this.

This does not preclude the established practice of co-operation among tertiary education institutions across the binary division. On the contrary, it should encourage it, for rational reasons (*e.g.* creation of critical masses, regional services), and of course, in terms of stability and survival (in sometimes unfavourable regional settings). The Finnish propensity for consensus should serve it well during the working through of these various scenarios.

It is generally evident that the Finnish system is dynamically mature, evidenced not least by a system of accountability/autonomy based on trust, and by a willingness to experiment and encourage differentiated approaches to challenges at devolved levels, and learn from the wider experiences obtained thereby. This Report identifies how this maturity could usefully evolve, in addition to the institutional configurations cited above. The encouragement of funding diversification is a critical element in this. This will have many consequences: the emergence of a more entrepreneurial ethos in all HEI; the need for the Ministry to develop a framework itself to encourage, but also to cope with institutional entrepreneurialism; and an evolution of the planning agreement model, as a prime instrument of accountability. A detailed assessment of the consequences of funding diversification for the relationship between a planned system (of which Finland is a very good example) and a market economy for higher education (which is presently in its infancy) will need to be made over time. Appropriate boundaries will need to be set which are sensitive to Finland's evolving social philosophy and which also address practical budgetary consequences of mixed funding. This, in turn will have ramifications for how the Ministry (wishes to) operate(s) in a much more complex setting.

Another aspect of system and institutional maturity is the internationalisation of higher education in Finland, which is now dramatically different from the immediate post-Cold War years of the early 1990's. This has been marked by an increase in student mobility (both ways); a very explicitly effort by Finnish public officials and tertiary institutions to benchmark performance against other countries in Europe and globally; steady penetrating of European funding sources for education and research; and a quite remarkable development of proficiency in world languages, especially English. The stage is now set for Finnish higher education to exploit more fully the potential of globalisation, and in this process, it is enormously advantaged by its IT capability. If this made sense in policy terms, there is every prospect of Finland becoming a significant player in globalised higher education, though of course, there are several corollaries in terms of infrastructure and facilitated mechanisms which would need to be fully developed.

In all the above, conceptual and practical tensions may be observed between ostensibly highly desirable policy imperatives. In terms of research, there is the tension between meeting intensified international competition in areas of basic research of key national importance, and at the same time widening the scope and quality of research relevant to professionals and professional education and regional development. In terms of the regional role, the tensions between coping with declining numbers; sustaining a dual system; and concentrating resources to meet international competition.

Other areas of tension could be cited, and it is here that the significance of differentiation may become apparent, as a means of resolving tensions.

In all these areas, we provide suggestions about how these new challenges might be met. We note that Finns are moving – in characteristically thoughtful ways – towards agreement about how to address these challenges – for example, with respect to the governance and management of higher education institutions. In some cases we think that further accomplishment may require a bit less contentment and more reflection that has been shown (with respect to equity), and a willingness to reassess settled ways of operating (with respect to funding). We are confident of Finland’s ability to do this.

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Appendix 1: Members of the Review Team for Finland

John Davies (Rapporteur)

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Lillemor Kim

Former Rector of Mälardalen University (Sweden) (1989-1995) and served as research director of the Swedish Institute for Studies in Education and Research (SISTER).

Erik W. Thulstrup

Professor in the Department of Life Sciences and Chemistry at the University of Roskilde (Denmark). He has served on national and European advisory bodies concerning science education and research funding, as the leader of the World Bank Work programme for Science and Technology.

Thomas Weko (Co-ordinator)

Analyst, Education and Training Policy Division
Directorate for Education, OECD.

Appendix 2: National Co-ordinator, National Advisory Committee, and Authors of Country Background Report

National coordinator for Finland:

Mr Osmo Lampinen, Counselor for Education, Division for Polytechnics

National Advisory Committee:

Mr Markku Mattila, Director of Division for Universities

Mr Hannu Sirenen, Director of Division for Polytechnics

Ms Anita Lehtikoinen, Director for Science Policy

Mr Juhani Hakkarainen, Counselor for Education, Division for Science Policy

Ms Kirsti Kylä-Tuomola, Counselor for Education, Division for Adult Education

Mr Ari Saarinen, Counselor for Education, Division for Universities

Country Background Report Author:

Mr Osmo Lampinen, Counselor for Education, Division for Polytechnics

Appendix 3: Programme of the Review Visit

Monday, December 12, 2005

8.30-10.30: Ministry of Education

Dr Markku Mattila, Director, University division
 Mr Hannu Siren, Director, Polytechnic division
 Dr Sakari Karjalainen, Director, Science Policy division
 Mr Juhani Hakkarainen, Counsellor for Education
 Ms Anita Lehikoinen, Counsellor for Higher Education
 Mr Ari Saarinen, Counsellor for Education
 Ms Talvikki Koskinen, Senior Advisor
 Ms Helena Lalu-Toivio, PR-coordinator, International relations
 Dr Osmo Lampinen, National Coordinator

11.00-12.00: Ministry of Finance

Ms Hannele Kerola, Financial counsellor
 Mr Arto Merimaa, Budget counsellor
 Dr Vesa Vihriälä, State Under-Secretary, Prime Minister's
 Office, Economic Council

13.00-14.30: Science and Technology Policy Council

Mr Esko-Olavi Seppälä, Planning Director, National Science and
 Technology Council

15.00-18.00: University of Helsinki

Management

Dr Ilkka Niiniluoto, Rector
 Dr Hannel Niemi, Vice Rector

Professors and other personnel

Dr Markus Laitinen, Head of International Affairs, Department
for Strategic Planning and Development
Dr Sari Lindblom-Yläne, Professor, Faculty of Behavioral Sciences
Dr Jari Niemelä, Dean, Faculty of Biosciences
Dr Jukka Paakki, Vice Dean, Faculty of Science
Dr Eeva Pyörälä, Senior lecturer, Faculty of Medicine
Dr Patric Scheinin, Vice Dean, Faculty of Behavioral Sciences

Students

Tuesday, December 13

09.00-10.00: Finnish Union of University Professors

Dr Tapani Pakkanen, professor
Dr Juhani Peltonen, professor

10.00-11.30: Meeting in the Confederation of Finnish Industries

Mr Cristoffer Taxell, President

13.00-14.30: Student organisations

The National Union of Students in Finland

Ms Elisa Jokelin, Chair
Mr Niko Kyyräinen, Member of board
Mr Juhani Nokela, Secretary for Educational policy

Union of Polytechnic Students

Ms Petra Nysten, Chair person
Ms Reetta Marttinen, Member of Board
Ms Tuulikki Pöllänen, Member of Board

15.00-18.00: Helsinki Polytechnic

Heads of Department and Teaching Staff (15.00-16.10)

Mr Kari Björn, Head of Department, Degree Programme in
Information and Communications Technology

- Ms Outi Grotenfelt, Senior Lecturer, Degree Programme in Information and Communications Technology, Faculty of Technology
- Mr Heikki Hasari, Head of Department, Degree Programme in Mechanical Engineering, Faculty of Technology
- Mr Kaarlo Hildén, Head of Department, Degree Programme in Music, Faculty of Culture and Services
- Ms Marjatta Huhta, Principal Lecturer, Language Centre
- Mr Markku Jantunen, Principal Lecturer, Degree Programme in Mechanical Engineering, Faculty of Technology
- Dr Juha Lindfors, Head of Department, General Studies, Faculty of Technology
- Ms Marja Louhija, Head of Department, Degree Programme in Performing Arts, Faculty of Culture and Services
- Mr Jukka Nivala, Head of Department, Degree Programme in Civil Engineering, Faculty of Technology
- Ms Leena Noronen, Senior Lecturer, Degree Programme in Physiotherapy, Faculty of Health Care and Social Services
- Dr Pekka Paalasmaa, Principal Lecturer, Degree Programme in Rehabilitation, Faculty of Health Care and Social Services
- Ms Anitta Pankkonen, Head of Department, Degree Programme in Media, Faculty of Culture and Services
- Ms Marianne Pitkälä, Degree Programme Coordinator, Degree Programme in Nursing (English), Faculty of Health Care and Social Services
- Ms Terhi Salokannel-Stenberg, Senior Lecturer, Degree Programme in Social Services (English), Faculty of Culture and Services
- Ms Mari Silver, Specialist Instructor, Degree Programme in Media, Faculty of Culture and Services
- Ms Carita Sivelä, Principal Lecturer, Degree Programme in Laboratory Sciences, Faculty of Technology
- Dr Taina Tukiainen, Head of Department, Degree Programme in Industrial Management, Faculty of Technology

Students (16.10-16.50)

- Mr Kalle Ryhänen
- Mr Mikko Majander
- Ms Laura Leppänen
- Ms Päivi Keränen
- Ms Markus Wallin
- Ms Tatu Junni
- Ms Anssi Myllyviita

Management (16.50-18.00)

Dr Timo Luopajarvi, Rector
Ms Riitta Konkola, Vice Rector (Pedagogical Development)
Dr Juha-Pekka Liljander, Vice Rector (R&D, Adult Education)
Ms Tuire Ranta-Meyer, Director, Faculty of Culture and Services
Mr Heikki Saarelainen, Director, Faculty of Technology

18.30-20.00: University and Polytechnic Rector's associations

Dr Pentti Rauhala, Chair, Confederation of Polytechnic Rectors
Dr Henrik Wolff, Vice Chair, Confederation of Polytechnics Rectors
Dr Kaj Malm, Secretary General, Confederation of Polytechnic Rectors
Dr Gustav Björkstrand, Chair, Confederation of University Rectors
Dr Tapio Markkanen, Secretary General, Confederation of
University Rectors

Wednesday, December 14

10.00-13.00: Tampere Polytechnic

Management

Mr Markku Lahtinen, Rector
Ms Kaisa Lahtinen, Vice Rector
Ms Marja Sutela, Director, Education
Mr Mikko Naukkarinen, Director, Management and Personnel
Mr Perttu Heino, Director, R&D activity

14.15- 17.00 University of Tampere (TaY)

Management (14.15)

Dr Jorma Sipilä, Chancellor
Dr Krista Varantola, Rector
Dr Juhani Lehto, Vice Rector
Mr Timo Lahti, Managing Director
Mr Tenho Takalo, Chef of Department
Dr Jahr-Ture Erikson, Rector, University of Technology (TTY)

Professors (15.15)

Dr Pertti Kirkinen, Professor, TaY
Dr Jukka Mustonen, Professor, TaY
Dr Kati Haikarainen, Professor, TaY

Dr Tuomas Takala, Professor, TaY
 Dr Martti Juhola, Professor, TaY
 Dr Pertti Haapala, Professor, TaY
 Dr Timo Leisiö, Professor, TaY
 Dr Olli Ylä-Harja, Professor, TTY
 Dr Minna Kellomäki, Professor, TTY
 Dr Hannu Eskola, Professor, TTY

Students (16.30)

17.00-18.30: Meeting with stakeholders, University of Tampere

Mr Pentti Hämäläinen, Director, Council of Tampere Region
 Mr Jukka Alasentie, Director, Regional Development, Council of
 Tampere Region
 Mr Marko Mäkinen, Senior Officer, Council of Tampere Region
 Ms Marja-Riitta Mattila-Nurmi, Senior Officer, Council of Tampere
 Region
 Mr. Eero Vanne, Union of Entrepreneurs in Tampere Region
 Mr Tommi Rasila, Managing director, Tampere Chamber of
 Commerce and Industry
 Mr Pekka Kivekäs, Managing director, City of Tampere

Thursday, December 15

8.00-11.00: University of Technology

Dr Matti Pursula, Rector
 Dr Outi Krause, Vice Rector
 Dr Aarne Halme, Professor
 Dr Matti Leisola, Professor
 Dr Lauri Malmi, Professor
 Dr Olavi Nevanlinna Professor
 Dr Erkki Oja, Professor
 Dr Antti Räisänen, Professor
 Ms Sini Numminen, Student
 Ms Aino Sarakorpi, Student

11.30-12.30: Working lunch, members of parliamentary committee for education

Ms Kaarina Dromberg, MP
Ms Maija Rask, MP
Ms Säde Tahvanainen, MP
Mr Jukka Gustafson, MP

13.00-14.30: Academy of Finland

Dr Raimo Väyrynen, Chair
Dr Arto Mustajärvi, Professor
Mr Jarmo Laine, Counsellor for Science

15.00-16.30: Technology Development Center

Dr Riikka Heikinheimo, Executive Director, research funding
Dr Harri Puurunen, Technology Director

Friday, December 16

8.30-11.30: Kuopio Polytechnic

Management

Mr Veli-Matti Tolppi, Rector
Ms Ulla Voutilainen, Vice Rector
Mr Pauli Seppänen, Director of Research and Development
Mr Kari Lehtomäki, Director of School of Engineering

Teachers

Ms Riitta Risanen, Senior Lecturer, School of Business
Ms Marja Kopeli, Senior Lecturer, School of Agriculture
Ms Leena Tikka, Lecturer, School of Health Care
Mr Hannu Oksanen, Lecturer, Kuopio Academy of Design

Students

12-15-16.00: University of Kuopio

Management

Dr Matti Uusitupa, Rector
Dr Sirpa Suntioinen, Vice Rector
Ms Päivi Nerg, Managing Director

Heads of Department and teaching Staff

Dr Jukka Mönkkönen, Dean, Faculty of Pharmacy
 Dr Leena Alhonen, Vice Dean, A-I Virtanen Institute
 Dr Jussi Kauhanen, Vice Dean, Faculty of Medicine
 Dr Juha Kinnunen, Professor, Faculty of Social Sciences
 Dr Ari Laaksonen, Professor, Faculty of Natural Sciences
 Dr Pekka Kilpeläinen, Professor, Faculty of Commence

Students and other personnel

16.00- 17.00 Meeting with stakeholders

Dr Petteri Paronen, Mayor, City of Kuopio
 Mr Matti Niiranen, Managing Director, Kuopio Chamber of
 Commence
 Ms Minna Hendolin, Development Director, Teknia
 Dr Jussi Huttunen, Regional council

20.00 Dinner

Mr Arvo Jäppinen, Director General, Department for Education
 and Science Policy

Monday, December 19

9.00-11.00: Researchers of higher education

Dr. Sakari Ahola, University of Turku
 Dr. Päivi Tynjälä, University of Jyväskylä
 Dr Rita Asplund, University of Helsinki
 Dr Roope Uusitalo, Research Unit for Salaried Employers
 Dr Osmo Kivinen, University of Turku
 Dr Seppo Hölttä, University of Tampere

11.00-12.30: The Finnish Higher Education Evaluation Council (FINHEEC)

Dr Ossi V. Lindqvist, Chair
 Dr Ossi Tuomi, Secretary General
 Ms Sirpa Moitus, Project Manager

14.30-17.00: Association of Finnish Local and Regional Authorities

Ms Anneli Kangasvieri, Head of Division
Mr Johan Hahkala, Special Advisor
Mr Hannu Simi, Special Advisor
Ms Päivi Rajala, Special Advisor
Ms Riikka-Maria Ylä-Suomu, Assistant
Ms Lieselotte Eskelinen, Senior Advisor

17.15-18.30: Trade Unions

Mr Petri Lempinen, Educational Advisor, The Finnish
Confederation of Salaried Employees
Mr Jari-Pekka Jyrkänne, Senior Advisor, The Central
Organisation of Finnish Trade Unions
Ms Pia Björkbacka, Senior Advisor, Confederation of Unions for
Academic Professionals in Finland
Mr Olavi Arra, Special Advisor Trade Union of Education in Finland
Airi Jaro, Special Advisor, Trade Union of Education in Finland

9.00-11.00: Presentation of preliminary results, Ministry of Education

11.00-12.00: Meeting with Mr Antti Kalliomäki, Minister of Education

Appendix 4: Comparative Indicators on Tertiary Education

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
OUTCOMES				
% of the population aged 25-64 with tertiary qualifications (2003)				
Tertiary-type B – Total	17	8	2/24	213
Males	13	7	4/24	186
Females	21	8	3/25	263
Tertiary-type A– Total	16	15	13/30	107
Males	16	16	15/30	100
Females	15	15	13/30	100
Advanced research programmes – Total	1	1	8/12	100
Males	1	1	8/15	100
Females	1	1	7/9	100
% of the population aged 25-34 with tertiary qualifications (2003)				
Tertiary-type B	17	9	4/25	189
Tertiary-type A and advanced research programmes	23	20	12/30	115
% of the population aged 55-64 with tertiary qualifications (2003)				
Tertiary-type B	12	5	3/25	240
Tertiary-type A and advanced research programmes	12	12	11/30	100
% of the population aged 25-64 with tertiary qualifications – time trends				
1991	25	18	4/21	139
2003	33	24	5/30	138
% of the population aged 25-34 with tertiary qualifications – time trends				
1991	33	20	1/21	165
2003	40	29	5/30	138
Average years in formal education (2003)³	12.1	12.0	18/30	101

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Survival rates in tertiary education (2003)				
Number of graduates divided by the number of new entrants in the typical year of entrance				
Tertiary-type A education	75	70	7/19	107
Tertiary-type B education	-	73	-	-
Advanced research programmes	-	58	-	-
Average duration of tertiary studies (in years) (year varies)⁴				
All tertiary education	4.48	4.21	9/19	106
Tertiary-type B education	-	2.18	-	-
Tertiary-type A and advanced research programmes	4.48	4.72	10/17	95
Tertiary graduates by field of study⁵ (2002)				
Tertiary-type A				
Education	6.8	-	25/27	
Humanities and arts	11.6	-	13/27	
Social sciences, business and law	23.8	-	24/27	
Science	6.9	-	21/27	
Engineering, manufacturing and construction	21.3	-	2/27	
Agriculture	2.4	-	8/27	
Health and welfare	22.1	-	4/27	
Services	5.1	-	3/27	
Not known or unspecified	-	-	-	
All fields	100	-	-	
Tertiary-type B				
Education	9.5	-	10/20	
Humanities and arts	23.4	-	2/25	
Social sciences, business and law	4.7	-	23/24	
Science	1.3	-	20/23	
Engineering, manufacturing and construction	25.2	-	6/23	
Agriculture	1.2	-	14/22	
Health and welfare	3.5	-	21/23	
Services	31.1	-	1/23	
Not known or unspecified	-	-	-	
All fields	100	-	-	

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Advanced research programmes				
Education	6.5	-	9/23	
Humanities and arts	13.0	-	11/27	
Social sciences, business and law	18.2	-	10/26	
Science	19.7	-	17/27	
Engineering, manufacturing and construction	20.6	-	6/26	
Agriculture	2.3	-	21/26	
Health and welfare	17.2	-	12/27	
Services	2.6	-	5/22	
Not known or unspecified	-	-	-	
All fields	100	-	-	
Tertiary graduates by field of study⁵ per 10 000 population (2002)				
Tertiary-type A				
Education	4.69	-	20/27	
Humanities and arts	7.98	-	11/27	
Social sciences, business and law	16.30	-	14/27	
Science	4.77	-	10/27	
Engineering, manufacturing and construction	14.61	-	2/27	
Agriculture	1.63	-	4/27	
Health and welfare	15.15	-	3/27	
Services	3.51	-	3/27	
Not known or unspecified	-	-	-	
All fields	68.64	-	7/27	
Tertiary-type B				
Education	0.21	-	16/20	
Humanities and arts	0.51	-	14/25	
Social sciences, business and law	0.10	-	24/24	
Science	0.03	-	22/23	
Engineering, manufacturing and construction	0.55	-	18/23	
Agriculture	0.03	-	19/22	
Health and welfare	0.08	-	21/22	
Services	0.68	-	16/22	
Not known or unspecified	-	-	-	
All fields	2.18	-	22/22	

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Advanced research programmes				
Education	0.22	-	4/23	
Humanities and arts	0.44	-	2/27	
Social sciences, business and law	0.61	-	5/26	
Science	0.66	-	7/26	
Engineering, manufacturing and construction	0.69	-	2/26	
Agriculture	0.08	-	16/26	
Health and welfare	0.58	-	4/27	
Services	0.09	-	3/21	
Not known or unspecified		-	-	
All fields	3.36	-	5/27	
Employment ratio and educational attainment⁶ (2003)				
Number of 25 to 64-year-olds in employment as a percentage of the population aged 25 to 64				
Lower secondary education				
Males	60.4	72.7	26/30	83
Females	55.4	49.2	8/30	113
Upper secondary education (ISCED 3A)				
Males	74.7	82.2	27/29	91
Females	70.6	65.4	10/29	108
Post-secondary non-tertiary education				
Males	-	83.7	-	-
Females	-	72.3	-	-
Tertiary education, type B				
Males	83.4	87.9	22/26	95
Females	82.4	77.1	6/26	107
Tertiary education, type A and advanced research programmes				
Males	90.3	89.1	13/30	101
Females	84.6	79.5	7/30	106
Employment ratio and educational attainment (2003)				
Number of 30 to 34-year-olds in employment as a percentage of the population aged 30 to 34				
Lower secondary education				
Males	74.2	75.8	18/26	98
Females	53.4	47.6	8/26	112
Upper secondary education (ISCED 3A)				
Males	83.5	84.2	15/26	99
Females	67.7	58.3	4/26	116

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Post-secondary non-tertiary education				
Males	83.6	85.2	18/26	98
Females	68.0	59.9	6/26	114
Tertiary education, type B				
Males	85.0	86.5	16/26	98
Females	70.4	62.8	8/26	112
Tertiary education, type A and advanced research programmes				
Males	86.9	88.4	17/26	98
Females	73.7	67.3	9/26	110
Unemployment ratio and educational attainment⁷ (2003)				
Number of 25 to 64-year-olds who are unemployed as a percentage of the population aged 25 to 64				
Lower secondary education				
Males	10.1	9.8	7/28	103
Females	12.4	11.0	10/27	113
Upper secondary education (ISCED 3A)				
Males	9.6	7.1	2/23	91
Females	8.8	10.6	7/25	83
Post-secondary non-tertiary education				
Males	-	5.9	-	-
Females	-	6.9	-	-
Tertiary education, type B				
Males	5.4	3.9	1/18	138
Females	4.8	4.4	5/16	109
Tertiary education, type A and advanced research programmes				
Males	3.3	3.6	15/27	92
Females	3.8	4.1	11/27	93
Unemployment ratio and educational attainment (2003)				
Number of 30 to 34-year-olds who are unemployed as a percentage of the population aged 30 to 34				
Lower secondary education				
Males	10.2	11.0	9/26	93
Females	11.4	9.6	7/26	119
Upper secondary education (ISCED 3A)				
Males	8.7	7.3	7/26	119
Females	8.3	6.8	9/26	122

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Post-secondary non-tertiary education				
Males	8.6	6.8	7/26	126
Females	8.2	6.6	7/26	124
Tertiary education, type B				
Males	8.0	6.3	6/26	127
Females	7.8	6.3	8/26	124
Tertiary education, type A and advanced research programmes				
Males	7.2	5.6	6/26	114
Females	6.7	5.7	9/26	118
Ratio of the population not in the labour force and educational attainment (2002)				
Number of 25 to 64-year-olds not in the labour force as a percentage of the population aged 25 to 64				
Lower secondary education				
Males	31.3	19.9	5/30	157
Females	37.7	45.5	25/30	83
Upper secondary education (ISCED 3A)				
Males	15.7	12.7	5/29	124
Females	21.5	29.8	24/29	72
Post-secondary non-tertiary education				
Males	-	10.7	-	-
Females	-	22.0	-	-
Tertiary education, type B				
Males	11.2	8.9	6/25	126
Females	12.7	20.5	22/25	62
Tertiary education, type A and advanced research programmes				
Males	7.7	8.1	14/30	95
Females	11.5	18.6	26/30	62
Ratio of the population not in the labour force and educational attainment (2002)				
Number of 30 to 34-year-olds not in the labour force as a percentage of the population aged 30 to 34				
Lower secondary education				
Males	15.4	10.5	7/29	147
Females	30.6	39.3	26/29	78
Upper secondary education (ISCED 3A)				
Males	6.6	6.6	10/28	100
Females	22.1	25.8	17/28	86

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Post-secondary non-tertiary education				
Males	-	3.3	-	-
Females	-	17.5	-	-
Tertiary education, type B				
Males	6.1	3.3	5/25	185
Females	15.3	16.3	11/25	94
Tertiary education, type A and advanced research programmes				
Males	2.7	3.0	15/29	90
Females	13.4	15.2	13/29	88
Earnings of tertiary graduates aged 25-64 relative to upper secondary graduates aged 25-64 (2002) (upper secondary = 100)				
Tertiary-type B	121	123	9/18	98
Tertiary-type A	180	162	3/19	111
Earnings of tertiary graduates aged 30-44 relative to upper secondary graduates aged 30-44 (2002) (upper secondary = 100)				
Tertiary-type B	115	123	13/18	93
Tertiary-type A	169	159	5/19	106
Trends in relative earnings of tertiary graduates aged 25-64 (upper secondary and post-secondary non-tertiary education = 100)				
1997	148	148	10/18	100
2002	150	149	5/14	101

PATTERNS OF PARTICIPATION

Participation rates of all persons aged 15 and over by programme (2002)				
Per cent of all persons aged 15 and over in tertiary type-5A programmes	6.34	3.97	1/26	160
Per cent of all persons aged 15 and over in tertiary type-5B programmes	0.01	0.75	26/26	1
Per cent of all persons aged 15 and over in tertiary type-6 programmes	0.46	0.16	1/23	288
Per cent of all persons aged 15 and over in all tertiary programmes	6.82	4.86	3/26	140

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Index of change in total tertiary enrolment (2003) (1995 = 100)				
Total				
Attributable to change in population ⁸	100	96	7/19	104
Attributable to change in enrolment rates ⁹	126	143	15/19	88
Enrolment rates (2003)				
Full-time and part-time students in public and private institutions, by age				
Students aged 15-19 as a percentage of the population aged 15-19	86.0	79.1	7/28	109
Students aged 20-29 as a percentage of the population aged 20-29	40.4	23.6	1/28	171
Students aged 30-39 as a percentage of the population aged 30-39	10.9	5.4	5/28	202
Students aged 40 and over as a percentage of the population aged 40 and over	2.3	1.6	7/21	144
Age distribution of enrolments (2003)				
Persons aged 35 and over as a per cent of all enrolments in tertiary type-5A programmes	14.0	10.3	8/24	136
Persons aged 35 and over as a per cent of all enrolments in tertiary type-5B programmes	26.7	16.2	5/21	146
Persons aged 35 and over as a per cent of all enrolments in tertiary type-6 programmes	54.7	30.2	1/22	181
Persons aged 35 and over as a per cent of all enrolments in total tertiary programmes	16.8	11.7	8/24	144
Persons aged less than 25 as a per cent of all enrolments in tertiary type-5A programmes	53.0	63.9	21/26	83
Persons aged less than 25 as a per cent of all enrolments in tertiary type-5B programmes	24.2	58.9	25/26	41
Persons aged less than 25 as a per cent of all enrolments in tertiary type-6 programmes	1.0	10.2	20/21	10
Persons aged less than 25 as a per cent of all enrolments in total tertiary programmes	49.4	61.5	22/27	80
Persons aged less than 20 as a per cent of all enrolments in tertiary type-5A programmes	4.8	13.9	21/27	35
Persons aged less than 20 as a per cent of all enrolments in tertiary type-5B programmes	5.0	17.2	21/27	29
Persons aged less than 20 as a per cent of all enrolments in tertiary type-6 programmes	-	-	-	-
Persons aged less than 20 as a per cent of all enrolments in total tertiary programmes	4.4	15.0	23/27	29

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Gender distribution of enrolments (2003)				
Females as a per cent of enrolments in tertiary type-5A programmes	53.8	53.2	16/29	101
Females as a per cent of enrolments in tertiary type-5B programmes	39.9	54.8	27/29	73
Females as a per cent of enrolments in tertiary type-6 programmes	49.7	44.0	7/28	113
Females as a per cent of total tertiary enrolments	53.5	53.2	15/29	101
Net entry rates into tertiary education¹⁰ (2003)				
Tertiary-type B				
Total	-	15.6	-	-
Males	-	14.2	-	-
Females	-	17.0	-	-
Tertiary-type A				
Total	73.2	52.5	4/26	139
Males	65.8	46.6	2/25	141
Females	81.0	57.1	5/25	142
Distribution of students in tertiary education by type of institution¹¹ (2003)				
Tertiary-type B education, public	83.4	67.5	11/27	124
Tertiary-type B education, government-dependent private	16.6	19.5	12/19	85
Tertiary-type B education, independent private	-	13.1	-	-
Tertiary-type A and advanced research programmes, public	89.4	77.6	15/27	115
Tertiary-type A and advanced research programmes, government-dependent private	10.6	11.5	7/13	92
Tertiary-type A and advanced research programmes, independent private	-	10.9	-	-
Distribution of students in tertiary education by mode of study (2003)				
Tertiary-type B education				
Full-time	100	78.3	1/29	128
Part-time	-	22.5	-	-
Tertiary-type A and advanced research programmes				
Full-time	57.0	83.4	26/29	68
Part-time	43.0	16.6	4/18	259

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Age distribution of net entrants into tertiary education, tertiary-type A (2003)				
Age at 20 th percentile (20% of new entrants are below this age)	19.8	19.2	6/23	103
Age at 50 th percentile (50% of new entrants are below this age)	21.3	20.8	7/23	102
Age at 80 th percentile (80% of new entrants are below this age)	26.1	24.9	7/19	105
Foreign students as a percentage of all students (2003) (foreign and domestic students)¹²				
	2.5	6.4	20/27	39
Index of change in foreign students as a percentage of all students (2003) (foreign and domestic students) (1998 = 100)				
	146	154	12/22	95
National students enrolled abroad in other reporting countries relative to total tertiary enrolment¹³ (2003)				
	3.5	4.0	11/29	88
Expected changes of the 20-29 age group by 2012 relative to 2002 (2002 = 100)¹⁴				
	101	96	15/30	105
Upper secondary attainment rates (2003)				
% of persons aged 25-34 with at least upper secondary education	89	75	8/30	119
Expected years of tertiary education under current conditions (2002)				
Full-time and part-time ¹⁵	4.4	2.8	1/28	157
Admission to tertiary education¹⁶				
Source: Eurydice (2005)				
Limitation of the number of places available in most branches of public and grant-aided private tertiary education (2002/03)				
Limitation at national level with direct control of selection	√	1/35	-	
Selection by institutions (In accordance with their capacity or national criteria)		23/35	-	
Free access to most branches		11/35	-	

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
EXPENDITURE				
Annual expenditure on tertiary education institutions per student, public and private institutions (2002)				
In equivalent US dollars converted using PPPs, based on full-time equivalents				
All tertiary education (including R&D activities)	11768	10655	11/26	110
Tertiary-type B education (including R&D activities)	3185	7091	13/15	45
Tertiary-type A and advanced research programmes (including R&D activities)	11833	10466	7/16	113
All tertiary education excluding R&D activities	7332	7299	10/24	100
Annual expenditure on tertiary education institutions per student relative to GDP per capita, public and private institutions (2002)				
Based on full-time equivalents				
All tertiary education (including R&D activities)	42	43	11/26	98
Tertiary-type B education (including R&D activities)	11	29	15/15	38
Tertiary-type A and advanced research programmes (including R&D activities)	43	42	7/16	102
All tertiary education excluding R&D activities	26	34	15/21	76
Cumulative expenditure on educational institutions per student over the average duration of tertiary studies¹⁷ (2002)				
In equivalent US dollars converted using PPPs				
All tertiary education	53066	45812	7/19	116
Tertiary-type B education	-	17612	-	-
Tertiary-type A and advanced research programmes	53066	54457	5/13	97
Change in tertiary education expenditure per student relative to different factors				
Index of change between 1995 and 2002 (1995 = 100, 2002 constant prices)				
Change in expenditure	118	138	16/24	86
Change in the number of students	113	128	15/25	88
Change in expenditure per student	104	112	14/23	93

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Change in tertiary education expenditure per student				
In equivalent US dollars converted using PPPs (2001 constant prices and 2001 constant PPPs)				
1995	10900	9284	8/22	117
2001	10981	10052	11/26	109
Expenditure on tertiary education institutions as a percentage of GDP, from public and private sources				
All tertiary education, 2002	1.8	1.4	4/28	129
Tertiary-type B education, 2002	-	0.1	-	-
Tertiary-type A education, 2002	1.8	1.1	1/17	164
All tertiary education, 1995	1.9	1.3	3/25	146
Relative proportions of public and private expenditure on educational institutions, for tertiary education				
Distribution of public and private sources of funds for educational institutions after transfers from public sources				
Public sources, 2002	96.3	78.1	3/29	123
Private sources, household expenditure, 2002		18.5	-	-
Private sources, expenditure of other private entities, 2002		7.6	-	-
Private sources, all private sources, 2002 ⁱ	3.7	21.9	24/27	17
Private sources, private, of which subsidised, 2002	-	1.3	-	-
Public sources, 1995	-	80.8	-	-
Private sources, household expenditure, 1995	-	14.4	-	-
Private sources, expenditure of other private entities, 1995	-	11.0	-	-
Private sources, all private sources, 1995	-	19.2	-	-
Private sources, private, of which subsidised, 1995	-	5.4	-	-
Distribution of total public expenditure on tertiary education (2002)				
Public expenditure on tertiary education transferred to educational institutions and public transfers to the private sector, as a percentage of total public expenditure on tertiary education				
Direct public expenditure on public institutions	74.2	71.1	15/25	104
Direct public expenditure on private institutions	7.2	11.5	9/20	63
Indirect public transfers and payments to the private sector	18.5	17.4	11/27	106

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Expenditure on tertiary education institutions as a proportion of total expenditure on all educational institutions (2002) Public and private institutions	29	24	4/23	121
Total public expenditure on tertiary education (2002) Direct public expenditure on tertiary institutions plus public subsidies to households (which include subsidies for living costs, and other private entities) As a percentage of total public expenditure ¹⁸ As a percentage of GDP	4.1 2.1	3.0 1.3	5/26 4/28	137 162
Subsidies for financial aid to students as a percentage of total public expenditure on tertiary education (2002) Scholarships / other grants to households Student loans Scholarships / other grants to households attributable for educational institutions	17.8 - -	9.2 7.6 1.1	2/26 - -	193 - -
Annual expenditure per student on instruction, ancillary services and R&D (2002) Expenditure on tertiary education institutions in US dollars converted using PPPs from public and private sources, by type of service Educational core services Ancillary services (transport, meals, housing provided by institutions) Research and development	7332 - 4436	7173 342 2795	11/22 - 11/22	102 - 159
Expenditure on tertiary education institutions by resource category (2002) Distribution of total and current expenditure on tertiary education institutions from public and private sources Percentage of total expenditure Current Capital Percentage of current expenditure Compensation of teachers Compensation of other staff Compensation of all staff Other current	94.7 5.3 34.7 27.1 61.8 38.2	88.4 11.6 42.3 22.2 66.1 33.9	7/26 20/26 10/15 3/15 18/27 10/27	107 46 82 122 93 113

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Registration and tuition fees (2002/03)¹⁹				
Source: Eurydice (2005)				
Registration and tuition fees and other payments made by students of full-time undergraduate courses, public sector				
Neither fees nor compulsory contributions		9/35	-	
Solely contributions to student organisations	√	3/35	-	
Registration and/or tuition fees (and possible contributions to student organisations)		23/35	-	
LITERACY LEVELS				
IALS achievement levels of graduates aged 25-34 (1994-1995) Source: IALS				
Graduates aged 25-34 at IALS levels 1 and 2 as a per cent of total graduates aged 25-34	11	19	15/21	58
Graduates aged 25-34 at IALS levels 4 and 5 as a per cent of total graduates aged 25-34	43	40	9/21	108
PATTERNS of PROVISION				
Ratio of students to teaching staff in tertiary education²⁰ (2003)				
Based on full-time equivalents, Public and private institutions.				
Type B	-	14.4	-	-
Type A and advanced research programmes	12.3	15.7	14/18	78
Tertiary education all	12.3	14.9	16/23	83
EXPECTATIONS OF 15-YEAR-OLD STUDENTS				
Students' expected educational levels (2003)				
Source: PISA 2003 (OECD, 2004)				
Per cent of 15-year-old students who expect to complete secondary education, general programmes (ISCED 3A)	88.5	48.9	1/28	181
Per cent of 15-year-old students who expect to complete secondary education, vocational programmes (ISCED 3B or C)	-	29.9	-	-

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Per cent of 15-year-old students who expect to complete post-secondary non-tertiary education (ISCED 4)	17.8	16.4	1/21	109
Per cent of 15-year-old students who expect to complete tertiary-type B education (ISCED 5B)	-	20.5	-	-
Per cent of 15-year-old students who expect to complete tertiary-type A education or an advanced research qualification (ISCED 5A or 6)	51.2	44.0	10/29	116
RESEARCH AND DEVELOPMENT				
Gross domestic expenditure on Research and Development (R&D) as a percentage of GDP				
Source: OECD (2005)				
2003	3.49	2.24	2/19	156
1991	2.04	2.21	8/26	92
Higher education²¹ expenditure on R&D as a percentage of GDP				
Source: OECD (2005)				
2003	0.67	0.42	3/19	160
1991	0.45	0.36	5/23	125
Percentage of gross domestic expenditure on R&D by sector of performance (2003)				
Source: OECD (2005)				
higher education	19.2	18.7	11/18	103
(higher education in 1991)	22.1	16.3	14/23	136
business enterprise	70.5	67.3	5/18	105
government	9.7	10.9	13/18	89
private non-profit sector	0.6	3.1	8/14	19
Percentage of higher education expenditure on R&D financed by industry Source: OECD (2005)				
2003	5.8	5.6	7/15	104
1991	3.6	5.5	18/22	65
Total researchers per thousand total employment Source: OECD (2005)				
2003	17.7	7.4	1/11	239
1991	6.0	5.7	18/19	105

	Finland	OECD mean	Finland's rank ¹	% to OECD mean ²
Researchers as a percentage of national total (full time equivalent) (2003) Source: OECD(2005)				
higher education	31.2	37.0	6/11	84
(higher education in 1991)	38.9	23.8	11/20	163
business enterprise	56.6	45.4	4/11	125
government	11.3	17.1	8/11	66
Share in OECD total "triadic" patent families²² (%) Source: OECD (2005)				
2001	1.08	-	11/30	-
1991	0.54	-	13/30	-
Foreign Ph.D. students as a per cent of total Ph.D. enrolments (2003)	6.6	13.7	14/17	48

Notes for the Tables

Sources:

All data are from Education at a Glance, OECD Indicators 2004 and 2005, unless indicated otherwise in the table.

Other sources:

Eurydice (2005), *Key data on education in Europe 2005*, Eurydice, Brussels

IALS, *International adult literacy survey database*

OECD (2004), *Learning for Tomorrow's World, First Results from PISA 2003*, OECD, Paris.

OECD (2005), *Main Science and Technology Indicators, volume 2005/2*, OECD, Paris.

General notes:

1. "Finland's rank" indicates the position of Finland when countries are ranked in descending order from the highest to lowest value on the indicator concerned. For example, on the first indicator "*% of the population aged 25-64 with tertiary qualifications, Tertiary-type B - Total*", the rank "x/x" indicates that Finland recorded the xxst highest value of the xx OECD countries that reported relevant data. The symbol "=" means that at least one other country has the same rank.
2. "% to OECD mean" indicates Finland's value as a per cent of the OECD value. For example, on the first indicator "*% of the population aged 25-64 with tertiary qualifications, Tertiary-type B - Total*", the percentage "xx" indicates that Finland's value is equivalent to xx% of the OECD mean.
3. The calculation of the average years in formal education is based upon the weighted theoretical duration of schooling to achieve a given level of education, according to the current duration of educational programmes as reported in the UOE data collection.

4. Two alternative methods were employed to calculate the average duration of tertiary studies: the approximation formula and the chain method. For both methods, it should be noted that the result does not give the average duration needed for a student to graduate since all students participating in tertiary education are taken into account, including drop-outs. Hence, the figure can be interpreted as the average length of time for which students stay in tertiary education until they either graduate or drop out.
5. This indicators show the ratio of graduates as a proportion to all fields of studies. The fields of education used follow the revised ISCED classification by field of education.
6. The employed are defined as those who during the survey reference week: *i)* work for pay (employees) or profit (self-employed and unpaid family workers) for at least one hour, or *ii)* have a job but are temporarily not at work (through injury, illness, holiday, strike or lockout, educational or training leave, maternity or parental leave, etc.) and have a formal attachment to their job.
7. The unemployed are defined as individuals who are without work, actively seeking employment and currently available to start work.
8. The impact of demographic change on total enrolment is calculated by applying the enrolment rates measured in 1995 to the population data for 2003: population change was taken into account while enrolment rates by single year of age were kept constant at the 1995 level.
9. The impact of changing enrolment rates is calculated by applying the enrolment rates measured in 2003 to the population data for 1995: the enrolment rates by single year of age for 2003 are multiplied by the population by single year of age for 1995 to obtain the total number of students that could be expected if the population had been constant since 1995.
10. The net entry rates represent the proportion of persons of a synthetic age cohort who enter a certain level of tertiary education at one point during their lives.
11. Educational institutions are classified as either *public* or *private* according to whether a public agency or a private entity has the ultimate power to make decisions concerning the institution's affairs. An institution is classified as *private* if it is controlled and managed by a non-governmental organisation (e.g. a Church, a Trade Union or a business enterprise), or if its Governing Board consists mostly of members not selected by a public agency. The terms “*government-dependent*” and “*independent*” refer only to the degree of a private institution's dependence on funding from government sources. A *government-dependent private institution* is one that receives more than 50% of its core funding from government agencies. An *independent private institution* is one that receives less than 50% of its core funding from government agencies.
12. Students are classified as foreign students if they are not citizens of the country for which the data are collected. Countries unable to provide data or estimates for non-nationals on the basis of their passports were requested to substitute data according to a related alternative criterion, e.g. the country of residence, the non-national mother tongue or non-national parentage.
13. The number of students studying abroad is obtained from the report of the countries of destination. Students studying in countries which did not report to the OECD are not included in this indicator.
14. This indicator covers residents in the country, regardless of citizenship and of educational or labour market status.

15. School expectancy (in years) under current conditions excludes all education for children younger than five years. It includes adult persons of all ages who are enrolled in formal education. School expectancy is calculated by adding the net enrolment rates for each single year of age.
16. In this indicator, the column “OECD mean” indicates the number of Eurydice member countries/areas, in which limitation on admission to tertiary education is adopted, out of 35 countries/areas whose data is available. For example, in the column “Limitation at national level with direct control of selection”, 1/35 indicates that limitation at national level with direct control of selection is adopted in 1 country.
17. The estimates of cumulative expenditure on education over the average duration of tertiary studies were obtained by multiplying annual expenditure per student by an estimate of the average duration of tertiary studies.
18. Total public expenditure on all services, excluding education, includes expenditure on debt servicing (e.g. interest payments) that are not included in public expenditure on education.
19. “Registration fees” refers to payments related to registration itself or the certified assessment of each student. By “tuition fees” is meant contributions to the cost of education supported by individual tertiary education institutions. These fees also include any certification fees. Payments for entrance examinations are excluded. In this indicator, the column “OECD mean” indicates the number of Eurydice member countries/areas, in which registration and tuition fees are adopted, out of 35 countries/areas whose data is available. For example, in the column “Membership fees to student organisations”, 5/35 indicates that membership fees are adopted in 5 countries/areas.
20. “Teaching staff” refers to professional personnel directly involved in teaching students.
21. “Higher Education” includes all universities, colleges of technology and other institutions of post-secondary education, whatever their source of finance or legal status. It also includes all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with higher education institutions. For detail, see OECD (2002), *Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development*.
22. “Triadic patent” means patents filed all together to the European Patent Office (EPO), the US Patent and Trademark Office (USPTO) and the Japanese Patent Office (JPO). This indicator shows each country’s share in total triadic patents filed by OECD countries. Reference year is when the priority patent is filed. Data is estimated by the OECD Secretariat and provisional. Because a few countries share large proportion of triadic patents, other countries have small share.

Country specific note:

- ⁱ “Household expenditure, 2002” and “expenditure of other private entities, 2002” are included in ‘all private sources, 2002’.

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OECD Reviews of Tertiary Education

FINLAND

In many OECD countries, tertiary education systems have experienced rapid growth over the last decade. With tertiary education increasingly seen as a fundamental pillar for economic growth, these systems must now address the pressures of a globalising economy and labour market. Within governance frameworks that encourage institutions, individually and collectively, to fulfil multiple missions, tertiary education systems must aim for the broad objectives of growth, full employment and social cohesion.

In this context, the OECD launched a major review of tertiary education with the participation of 24 nations. The principal objective of the review is to assist countries in understanding how the organisation, management and delivery of tertiary education can help them achieve their economic and social goals. Finland is one of 14 countries which opted to host a Country Review, in which a team of external reviewers carried out an in-depth analysis of tertiary education policies. This report includes:

- an overview of Finland's tertiary education system;
- an account of trends and developments in tertiary education in Finland;
- an analysis of the strengths and challenges in tertiary education in Finland; and
- recommendations for future policy development.

This Review of Tertiary Education in Finland forms part of the *OECD Thematic Review of Tertiary Education*, a project conducted between 2004 and 2008 (www.oecd.org/edu/tertiary/review).