



Center for
Higher Education
Policy Studies

Higher Education and the Labour Market

International Policy Frameworks for Regulating Graduate Employability

Thematic report for the Dutch Ministry of Education, Culture and Science
(OCW)

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February 2013

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C13EW021

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1 Introduction

In the earlier CHEPS study entitled “*Perspectives on Higher Education and the Labour Market – Review of International policy developments*” (December 2011) policy instruments were explored regarding the connection between higher education and the labour market in a number of countries. That study focused on the initiatives and policy instruments that are used to improve supply and demand of graduates and generally labour market relevance of study programmes. Specific policy measures in the sphere of funding, public-private partnerships, and developments in the systems of quality assurance and accreditation were reviewed from the perspective of labour market needs. Also the different roles and responsibilities of government, employer organisations and higher education institutions were explored. The study included mainly developments in England, Germany, France, Sweden, Switzerland and Australia and put into the context of the Strategic Agenda Higher Education, Research and Science of the Dutch Ministry of OC&W.

As a follow-up a roundtable consultation was organised by the Ministry of OC&W in which experts from various backgrounds and organisations were participating. Purpose of this meeting was to assess the relevance of this international review for higher education policy in the Netherlands and what themes would need further foundation with additional international reviews. This was placed in the context of the Human Capital agenda focusing on a collaborative effort of government, HE institutions and industry.

The present report builds upon the previous report and the discussions in the roundtable consultation and aims to digging a bit deeper into some themes and update developments since the first review in 2011. The following themes will be guiding in this report:

Labour market relevance. What are the policy views on the labour market relevance of higher education programmes by government, HE institutions, employers? How is the balance between supply and demand perceived and what measures are taken in case of mismatches? What are seen as suitable employability indicators and if any, on the basis of what data and how are these determined and monitored?

Graduate employability may apply to differences between types of institutions and sectors as well as different degree programmes or programmes with a specific connection with the labour market. Examples are (vocational) versus general programmes that cover broader employment outlets, trends towards more generic or specific skills, and more dual and work-based learning opportunities.

Steering instruments of the government. Is there a role for government to realize a more specific connection between HE and the labour market? If so, what instruments are being used by governments to steer supply and demand of graduates? What views exist on the macro-efficiency of programme supply or the HE system as a whole?

- Quantitative: regulation of student numbers in the system, per institution, per sector or study fields; Capacity agreements with institutions and the extent to which these are determined by labour market considerations.

- Qualitative: introduction and regulation of new programmes or closing down of existing ones based on criteria derived from the labour market; curriculum development and reform.
- Views on the development of particular sectors or subject fields.

What policies are applied to encourage institutions to enhance the employability of their students, for example financial arrangements or other incentives to steer student flows (e.g. to increase STEM/ MINT graduate output)? What interventions occur in the volume of degree programmes (determining capacity)? To what extent do short term and long term views play a role (economic development, progress in career, tuning to the regional labour market).

Involvement of employers. What role do employers have to increase the labour market relevance of programmes? Are there institutional structures in place e.g. employer branding or representation in governing boards of HE institutions?

Labour market information. What are the experiences with information systems on graduate employability? What is known about the effects? Is information on graduate employability also collected for a longer period to monitor the career progress of graduates?

Public-private providers. Are there any initiatives to facilitate private providers to operate on the HE market, for example through legislation or other arrangements? What role has the government in this respect, such as approving those programmes, meeting quality requirements, preventing duplication of course offerings? Are there partnerships between public and private providers to deliver courses in fields with a high demand and aim to increase the employability?

It will not be possible to answer all these questions for each country. Some issues are less important or non-existing in some national contexts. The purpose in the country-chapters is to highlight the main issues at stake in those countries. The discussion has as its main focus the steering instruments of the government and particularly the macro-efficiency of the higher education system as a whole. The Dutch term "*macrodoelmatigheid*" is often used in this context, referring to the efficiency of programme supply. This efficiency focuses on the regulation of new study programmes whereby needs from the labour market constitute an essential criterion¹. In this report the term 'macro-efficiency' is conceived in a broader way, including and primarily an assessment of the higher education system as a whole.

The term macro-efficiency refers to the optimisation of the total higher education provision in a country. It is an area of tension between what HE institutions deliver on the one hand and the government responsibility for an efficient spending of public money and for an adequate provision of the HE sector as a whole on the other. The overall higher education provision involves the existing supply of programmes as well as the establishment of new study programmes, expansion or reduction by merging or closing degree programmes. Various considerations may play a role.

¹ Staatscourant (Oktober 2012) Beleidsregel Doelmatigheid Hoger Onderwijs 2012.

For HE institutions:

- to attract more students,
- to attain efficiency gains because of falls in the student numbers studying a particular subject,
- to focus the provision more on the profile of the institution also in combination with the research profile,
- to respond to labour market needs,
- to strengthen quality and close down poor performing programmes.

For Governments:

- to boost programmes that are of strategic importance for a country from the viewpoint of the labour market and the knowledge economy,
- to optimize sufficiently broad and varied HE provision,
- to counteract fragmentation, duplication and inefficiency particularly when the same course is offered at different institutions,
- To assure the provision of programmes because of their unique character in the national social-cultural interest or relevance for the labour market.

These considerations are not necessarily consistent and in practice tensions will occur as macro-efficiency has more dimensions. In this study we focus on the extent to which labour market considerations are taken into account in decisions on educational provision.

The countries chosen for this report are some already discussed in the previous report, but further updated (England, Germany, Sweden) and some new ones from which it could expect to provide new information (Belgium, Denmark, Finland, US). Information from the previous report will not be repeated here, and for general information on higher education in the different countries the reader should refer to the CHEPS Monitor country reports.

2 Belgium (Flanders)

2.1 Labour market relevance

The monitoring of graduates on the labour market is done by the VDAB, the public employment service of Flanders². Its task is to make the labour market in Flanders as transparent and dynamic as possible. With a view to reaching that goal, the VDAB offers employment services, training and career guidance. The VDAB reports about school-leavers on all levels and their entry into the labour market, signalling those with favourable and less favourable prospects.

The latest survey³ shows that obtaining a diploma (qualification) is more than ever before a prerequisite in finding a place on the labour market. Comparing the educational levels, the chances of being unemployed are much higher for those with lower education than those from higher education.

Especially the professional bachelors have a very strong position on the labour market, followed by those with master degrees. The number of academic bachelors (universities) entering the labour market has compared to the previous survey more than doubled with mixed chances of finding work. On a rather detailed level it is reported for each individual programme what the labour market prospects are. This allows comparing the connection between programmes and the labour market which provides important information to prospective students in making study choices.

Two conclusions that can be drawn from the report are notable for our discussion.

- 1) In both the professional bachelors and the master there are subjects with less favourable prospects where women very strongly outnumber men. This gender imbalance may create shortages for some subjects that are perceived by women as less suitable.
- 2) Some programmes are so small that statistics have to be clustered to report in a meaningful way. There is concern that the increase of programmes provided by different institutions under different nomenclatures leads to a fragmented and inconvenient landscape. This does not contribute to a necessary transparency towards the labour market for future students and for companies.

Both points relate to the present policy focus on respectively the issue of shortages (STEM-subjects) and on macro-efficiency.

² Vlaamse Dienst voor Arbeidsbemiddeling en Beroepsopleiding.

³ VDAB (2012) Werkzoekende schoolverlaters in Vlaanderen. 25ste studie 2008-2009.

2.2 STEM-action plan

Quantitative shortages are the most important problem of the mismatch between supply and demand. These mismatches occur for particular occupations on all educational levels (*'knelpuntberoepen'*) due to both replacement of those leaving the workforce and extension of higher educational qualifications. Persisting problems are in the engineering and health professions. The VDAB invests in education for those employed in those sectors at a lower level to mitigate shortages for example in nursing, but there is a general awareness that more students should enter these fields. Particularly the employers through their associations fear a further decrease of popularity of technical subjects. The current downfall of enrolments in the exact sciences and technology subjects put pressure on the government to develop policies for more technical profiles and engineers⁴.

In line with this the Flemish Parliament initiated an action plan with a focus on increasing the enrolment of students in exact sciences, mathematics and technology (STEM subjects). This action plan consists of the projects science communication and the STEM-action-plan. The expectations of such a platform are high, as this is seen as an overarching strategy to counteract fragmentation and to enhance the interchange between education and industry. Yet, to date there is little progress over time and different politicians ask for more urgency.

In the Parliamentary proceedings several aspects about the STEM action plan were discussed such as:

- Structural reforms in secondary education, especially in the technical streams to diminish the negative prejudices against technical occupations and to stimulate the choice for a STEM subject. A policy is the organisation of the study choice structure such that it facilitates the preference for technical subjects, including the introduction of “technique coaches”.
- The under-representation of the technical subjects occurs among women, more than the European average⁵.
- No extra resources are envisaged for the STEM-action plan, but a re-allocation.
- Initiatives will be taken in collaboration with the companies.
- Communication campaigns and improving the study choice system (www.onderwijskiezer.be), by coupling educational data and labour market information (linking programmes and occupations). An audit will explore whether this website meets the expectations/needs of the target group.
- Counselling of pupils occurs by specific centres (CLB's) which also are assigned a task to assist young people to choose the right programme in higher education.

Deliberations with the various actors involved (institutionalised field) to agree on the main points of departure has led to a delay of the STEM-action plan in the sector covenants. The government sees its role to facilitate and to encourage rather than imposing a particular structure.

⁴ For example through associations like Agoria (federation of the technological industry) and VOKA (Flemish Network of enterprises / Chambers of Commerce).

⁵ VRWI Vlaamse Raad voor Wetenschap en Innovatie.

2.3 Employability skills through work-based learning

The relationship between education and the labour market is of increasing interest among Flemish policy makers, both on the level of the overall provision and the development of the educational programmes. One of the central goals of higher education is the competence-development of students in order to enhance their job chances. Responding to labour market demands and a close collaboration with the professional field is essential. By aligning programmes with the authentic professional practice, powerful learning environments can be created with the effect of better study results among students. In several policy documents the present Minister expresses his interest in work-based learning and a special project group aims to initiate, coordinate and support actions for a further development of this type of learning in Flemish higher education.

According to the inspiration text⁶, work-based learning (WBL) is seen as part of the movement towards more competency-oriented learning. This can lead to various useful effects, such as:

- Facilitate the combination between work and learning.
- Enhancing the problem solving capabilities of students, both individually and in teams. integration between theoretical knowledge and professional practice.
- Raise the sense of reality of programmes.
- Knowledge transfer and circulation between labour market and education.
- Strengthen the employability of graduates.

WBL can be interpreted in terms of the learning path whereby competencies from the programme are applied and further explored within the reality of a work situation (internships), but also for a learning path whereby competencies acquired in the work situation will be incorporated in the programme (alternating education and work).

The regulation regarding higher education allows institutions to incorporate WBL in their curricula, but this is given the high level of institutional autonomy not mandatory for the Bachelor and Master programmes. The exception is HBO5 (adult education) where WBL is by decree a compulsory part of the programme. This decree speaks about a 'relevant proportion WBL', but gives no further specification⁷. It will be included in the qualification framework to be worked out by the Committee HBO and the NVAO as part of the domain-specific learning objectives in close engagement with the employment sector. The availability of places for WBL is also a criterion for the approval of new professional bachelor programmes (macro-efficiency). WBL implies a shared responsibility of all those involved: employer, HE institution and student aimed at developing broad transferable skills and competencies.

⁶ Departement Onderwijs en Vorming (2912) Werkplekleren in het hoger onderwijs HBO5 –bachelor-master-specifieke lerarenopleiding (www.ond.vlaanderen.be/werkplekleren); Memorie van toelichting bij het decreet van 30 april 2009 betreffende het secundair na secundair onderwijs en het hoger beroepsonderwijs. .

⁷ This is only specified for the in-service training for teacher training (LIO).

2.4 Structure of HE programmes

At the start of the academic year 2011/12 the rectors of the Flemish universities came to the conclusion that the existing bachelor programmes need necessary changes. Those entering higher education tend to choose on a rather random basis taking insufficiently into consideration their future employment perspectives. The rectors advocate a broadening of bachelor programmes consisting of a number of common subjects, making it possible for students later in their studies to make a well-grounded study choice. In other words, the orientation problem for students to make study decisions (choose for a specific programme) should be shifted from the transition to higher education to a later phase in higher education. A broad bachelor should not be introduced as a standard everywhere, but its added value should be considered for each field of study.

The current Minister of Education strongly supports his preference for broad bachelors and relates this to an increase in success rates and the problem of oversupply. Broad bachelors would replace specialised bachelors leading to efficiency gains. Students of broad BA have acquired other knowledge and competences than students with the regular (specific) BA. The trend to general bachelor programmes is not supported everywhere as these would be at the expense of comprehensive and in-depth knowledge that is needed for a particular field. This critique comes for example from the biomedical sciences.

2.5 Macro-efficiency

Macro-efficiency is in Flanders an important topic on the policy agenda as the government sees it as its task to control the development of an efficient, transparent and relevant coverage of provision. This is particularly evident in the process for the approval of new study programmes.

The current procedure for new programmes consists of two phases. First, the HE institution submits a proposal to the recognition committee higher education (consisting of independent experts). This committee assesses whether on the basis of a systems approach there is demand for a new programme ('macrodoelmatigheidstoets'). In the second phase the NVAO assesses whether the institution possesses sufficient generic quality safeguards to provide the new programme⁸.

The demand for a new programme is determined on the basis of the following criteria:

- the situation of the new programme: the uniqueness of the programme or difference with existing ones, regional dimension, trend analyses of student numbers and labour market demands for similar programmes.
- Societal relevance: is there a continuous demand expected from the labour market; academic and international developments will also be taken into account.
- Assessment of interests from students and efficiency in terms of the effects on student numbers in other fields c.q. institutions.

⁸ Ton van Weel (2010) Profilering en doelmatigheid van het onderwijsaanbod. *TH&MA* 5-10, pp. 38-43.

- Other criteria regarding the general profile of the institution, infrastructural capacities and resources, domain-specific learning results, and other more procedural aspects.

The societal relevance and labour market are important assessment criteria. Especially for professional bachelor and master programmes the institution has to demonstrate convincingly that there is a regional demand for a programme and an explicitly by the professional field formulated need for graduates in that particular programme. Employer engagement is important to support such an initiative. An occupational qualification dossier has to be submitted as well⁹. For the academic programmes there is more emphasis on the link with the research component of the university.

The Committee also takes into account the totality of the applications. This means that a positive or negative decision is also determined on basis of the demand for the various professional qualifications related to the programme for which an institution submits an application. Over the last seven years there were 83 applications for new programmes, 50 of which were approved by the Committee, while another 20 rejected applications were still approved by the minister¹⁰. In order to avoid programme proliferation a moratorium was a few times installed to submit a new proposal (similar to Dutch practices in the past).

So far the macro-efficiency relates to the approval of new programmes. As far as the macro-efficiency of the provision as a totality is concerned, the policy instrumentarium is rather limited because of the autonomy of institutions. The rationalisation of the existing provision is mainly a matter for institutions, as Government has no legitimacy to close down a programme (apart from measures in the sphere of accreditation). Programme termination occurs primarily on the basis of a minimum number of students and student/staff ratios (*rationaliseringsnorm*)¹¹. This often leads to a merging of programmes, conversions, or - as happened in the professional sector - a scaling-up and concentration processes of institutions and /or departments. Another incentive is that mergers between the same programmes are rewarded with a bonus intended to find a solution for financial and personnel problems.

Another factor why a macro-efficiency is difficult to achieve is programme-duplication between public and private (denominational) institutions. Many professional bachelor programmes are offered by both kinds of institutions and cutting one or the other would be an infringement on the existing balance and therefore difficult to enforce. Particularly in programmes where the religious dimension is evident the programme is considered as a separate programme¹².

⁹ Agenschap voor kwaliteitszorg in Onderwijs en Vorming (AKOV) (2012) *Handleiding Opstellen van een beroepskwalificatiedossier*.

¹⁰ T. van Weel (2011) Programmatie van nieuwe opleidingen in het hoger onderwijs. Statistieken en trends na acht rondes. Forum, nr. 10, p. 8-12.

¹¹ Use of flashing light zones (compare also the advice by the Dutch Educational Council - Onderwijsraad) on macro-efficiency.

¹² Rapport Soete, p. 13.

Given the limitations and the policy to strengthen the autonomy of institutions, it is generally acknowledged that rationalisation and redistribution of programmes are in the general interest and therefore a collective responsibility of the Flemish educational community. Rationalisation is conceived in the sense of how to realise more quality of education and research given the determined budget. The *Ministeriële Commissie Optimalisatie en Rationalisatie in het Hoger Onderwijs* is clear on this point: risks of fragmentation and unnecessary duplication or overlap, insufficient diversity of programmes, decrease of quality, inefficient use of financial and human resources. The aims of this rationalisation is to create more vitality in programme provision, educational innovation, more focus and mass, and increase of the societal relevance and macro-efficiency, amongst others by tuning programmes better to societal and student demand and to increase the transparency of the provision¹³. Rationalisation can take place within institutions (e.g. integration of programmes), between institutions, within associations and within the Flemish community, or in Belgium or across international borders. Ultimately the rationalisation process can lead to drastic intervention in the programmatic landscape and reduce the number of programmes by realising a larger concentration of programmes.

Private higher education is very limited in Flanders. There are registered institutions that provide specialised programmes, but this is a very small segment and not competitive with the regular public sector¹⁴. This does not play a role in the rationalisation process.

Effects of rationalisation relate to efficiency gains in terms of common resources (personnel, student mobility, and infrastructure). The labour market plays a rather relative role in this process. Particularly for the professional bachelor programmes the relationship with the working field is an important parameter as well as the geographical dispersion of programmes because of the contribution to the regional development and to innovation in SME's. For the academic programmes it is acknowledged that several employment sectors are more orientated to broad competencies and consequently less oriented on specific programmes (see above the discussion on broad bachelors).

The labour market dimension can be a crucial factor in case a programme that does not meet the minimal quantitative norm (in terms of student numbers) has its *raison d'être* of societal relevance and finds support by the employment sector to which this programme is leading. Such a support, however, is seldom financially in nature and so not a real public-private partnership. The institution can also be released from programme termination in case of vulnerable occupations (*knelpuntberoepen*) or labour market shortages. Reference is made to the VDAB list (see above), however, "use of this list should be followed with care when deviating from the rationalisation and optimization process"¹⁵.

¹³ Ministeriële Commissie Optimalisatie en Rationalisatie in het Hoger Onderwijs (Rapport Soete -2008)

¹⁴ For example inno.com (a private company working in close collaboration with universities in the sphere of ICT); and the Von Karman Instituut.

See for an overview of private providers, www.ond.vlaanderen.be/hogeronderwijs/nuttige_adressen/.

¹⁵ Report Soete, p. 13.

3 Denmark

Danish higher education has undergone significant reforms in governance and funding since the University Act of 2003. The act made universities 'self-governing' entities and introduced a new professionalized university management and governance system. Part of this management system is to engage in development contracts with the government about targets to be achieved in a 3-5 year period. Targets are both mandatory (requested by the Ministry and based on national priorities) and self-imposed targets based on the university's own strategic priorities and profile. These are binding agreements which function as basic tools for budgetary allocations.

According to the 2003 law, universities have greater autonomy regarding the approval of new programmes. Universities decide for themselves which study programmes they want to offer, subject to approval by the accreditation body which accredits all new and existing study programmes. However, the ministry can determine a maximum number of student admissions in particular subjects.

3.1 Labour market supply and demand

In Denmark the natural sciences are experiencing a steady reduction in student numbers in favour of subjects in the humanities and the social sciences which altogether account for 70% of the total student enrolment. In these fields there are not enough places to meet student demand. This situation has led to much debate about the desirability and usefulness of labour market forecasting in shaping HE provision.

A government foundation document "*A United Denmark*" was launched to define the broad policy agenda for the coming years. Among the themes is a stronger investment in education and research, and prioritization of national strategic research programmes. The investment in education include the creation of 10,000 new student places by 2020; a target of 60% of the age cohort taking higher education of three years duration; a new long-term target of 25% of young people taking a longer higher education (...); greater autonomy for universities; and strengthening of professional colleges¹⁶.

The focus on practically-oriented education aims to respond to demands from the labour market. The professional colleges or academies of professional HE offer short-cycle progression degree programmes, while the university colleges offer professional practice-focused bachelor programmes in professional fields such as business, education, nursing and physiotherapy, technology and IT. These programmes combine theoretical and practical elements and are often based on work based learning principles.

¹⁶ A United Denmark, a Government foundation document.

www.universityworldnews.com/article.php?story.

3.2 Towards a more responsive Higher education system

The current policy to strengthen the professional colleges and university colleges does not mean that universities remain untouched. On the contrary, the present Danish minister (Charlotte Sahl-Madsen) intends to make universities more responsive to the demands of business. Among other steps she proposes:

- More business-oriented and professional first degrees.
- The development of strategically prioritized areas.
- Greater involvement of business in higher education programmes.
- Better transfer from business education to higher degree training.

The report outlining the plans, states that general and broad competences like creativity, problem solving and global understanding are also of importance for the preparation for work, regardless of academic disciplines. This seems to suggest that general transferable skills are as important as the specialist knowledge and skills. At the same time the report stresses that in areas such as technology and natural sciences there is high unmet demand for university graduates, while in others, such as social sciences there are not enough study places to meet the relatively high student demand. A better match of the supply of university education to the demand of business should therefore be achieved.

The following policy mechanisms are applied to make the system more responsive to the labour market:

- 1) To encourage students (on the basis of labour market prospects) to choose courses that are better suited to a job in the private sector and to limit the numbers taking degrees that are less in demand by employers.
- 2) An explicit role for the independent quality assurance agency (ACE) responsible for accrediting study programmes in higher education. More precise descriptions of relevance criteria have to be drawn up and institutions will be evaluated on whether they are monitoring success in the labour market nationally and internationally for the proposed degree programme.
- 3) Instalment of a national customer forum to stage a conference every two years on university education and the demand for graduates on the workforce. This forum will be empowered to propose new educational programmes where there is a proven national demand.
- 4) Negotiation with the HE institutions to increase the number of places in programmes with particularly good job prospects.

The accreditation process seems a powerful instrument especially regarding the existing course provision. Programmes that have had problems securing their graduates jobs will be put on a special accreditation list, to be monitored more closely. The Minister advocates at increasing schemes for practical work in companies as part of study programmes. Universities will have to devise qualification frameworks and to collaborate more closely.

3.3 Special provisions and macro efficiency

So far the policy impact has been limited. Universities Denmark, the national rector's conference has been quite reserved, stressing the independent role of universities vis-a-vis the world of business and denying the interference with the universities' right to prioritise which subjects to teach.

Another policy regarding priority areas concerns the increase of places for new PhD students. The basic funding provided to the universities was conditioned in the sense that 90% of funding was allocated proportionally to the universities' activities in natural, technical and health sciences and IT fields, whereas the remaining 10% of funding was allocated proportionally to the universities' activities in the humanities and social sciences. The Danish government also allocated specific funds for PhD projects with relevance for the primary education sector to be undertaken in cooperation between universities and university colleges. This had the effect that in 2012 an increase of PhD students took place in the designated areas, although a large proportion of the additional places went to international students due to a shortfall of Danish masters students in these areas.

Finally the current changes regarding the languages and their funding should be mentioned. Minority languages with few students receive additional funds from the Danish government. The reason is a mix of labour market considerations as the value to maintain these programmes from a national cultural perspective. However, given the low demand for many of the small languages, this is about to change and support will be given only to languages that are taught at only one university in Denmark to create a critical mass¹⁷. At Aarhus University, for example, Greek and Latin will no longer be individually taught subjects. To cope with cuts in state funding, reallocation of languages between universities is taking place and particularly the merging of language programmes with other academic disciplines. For example, at Copenhagen University some of the small languages will stop having independent degrees and instead become part of a degree-bearing area of studies in which the student will be able to choose from a number of languages in which to specialise.

This development meets much criticism from the cultural sector asking for government intervention. It also receives approval from others, such as the Danish Business Research Agency (DEA), an independent think-tank organisation, arguing that this is an opportunity to create more relevant language teaching. "In the future Denmark needs engineers who speak German, social scientists who understand Arabic and journalists who master Russian. And [we need] fewer foreign language experts with detailed knowledge of etymology or irregular verbs". In this interpretation the macro-efficiency process regarding the programme provision of the small languages to cope with cuts in state funding may at the same time enhance the labour market relevance of language teaching.

¹⁷ Small languages under threat as cuts bite (October 2010).

www.universityworldnews.com/article.php?story=20101113060020542.

4 England

In the first thematic report much attention has been devoted to the workforce policy in the UK with much emphasis on the employability skills as a key priority for universities and the employment engagement strategy (Higher Level Skills Pathfinders). Although these policies are still in place, the priority policy areas are the (1) focus on the strategically important and vulnerable subjects (SVIVS), (2) about student number controls through revisions in the teaching funding policy c.q. student financing system. Both aspects constitute a rather consistent whole from which the British view on the macro-efficiency has to be understood.

4.1 Strategically important and vulnerable subjects (SIVS)

In UK policy the issue of the demand and supply of graduates on the labour market has been placed in the context of the SIVS programme. This was a 350 million programme of support that encompassed a range of interventions to raise demand, sustain provision and increase research capacity in strategically important and vulnerable subjects (SIVS). The HE Funding Council of England (HEFCE) has a central role by advising on which subjects are vulnerable and on appropriate interventions that may be necessary to support them. These subjects are also deemed to be vulnerable when there is a mismatch between supply and demand of the labour market.

Subjects defined as strategically important are those subjects that are of particular economic and societal importance or otherwise relevant in the national interest. These involve subjects necessary to support future economic growth but also subjects with a relevant social purpose (e.g. supporting social cohesion). Subjects most recently designated as being SIVS are:

- Science, Technology, Engineering and Mathematics (STEM) subjects
- Quantitative social science
- Modern foreign languages (MFL)
- Area studies and related foreign languages (Language-based area studies- LBAS), which are:
 - Japanese and Chinese language languages and area studies
 - Arabic and Turkish language/area studies
 - Courses relating to recent EU accession countries (eastern Europe/Baltic countries).

Since 2009 the HEFCE has developed measures to increase and diversify demand for, and sustain and re-shape the supply of SVIVS subjects. The activities supported have focused on promoting demand and attainment among potential students, securing the supply of teaching and research provision and promoting the flow of graduates into employment.

Among the interventions undertaken through the programme included:

- Raise demand and enhance teaching (such as more maths grads and routes into languages).
- To support provision of very high cost subjects.
- targeted funding of places, e.g. in Japanese studies.
- the capability to migrate student places from a lower funding band to a higher funding band in a SIVS subject.

This policy was supported from the side of employers who consistently identify demand for STEM graduates and a broad set of attributes associated with employability. In a small number of cases where specific and immediate concerns could be identified, these could be addressed through collaboration and co-financing with employers. For example, when the pharmaceutical industry raised questions about the lack of in vivo skills, HEFCE co-financed with employers a new MSci led by Kings' college London, which respond to an immediate requirement for graduates with in-vivo expertise.

The SIVS programme was evaluated in 2011¹⁸. Although “the programme may not have resulted in lasting solutions to the root causes of vulnerability”, the evaluation is positive about the general operation of the SIVS programme. Data suggest that provision of student places in SIVS subjects has been sustained. The interventions included targeted allocations of additional student numbers and the policy to enable institutions to rebalance provision strategically (the so-called SIVS ‘nudge’). The support for very high-cost and vulnerable science provision contributed to halting the trend of science departmental closures, especially chemistry and physics departments.

Although the student demand for SIVS subjects has increased, the evaluation report states that there is only indirect evidence that the demand-raising projects and interventions by HEFCE contributed to this trend¹⁹. The HEFCE approach has been successful in avoiding duplication of resources and overlap of activity by adopting a partnership approach with other interested parties (see below on macro efficiency).

4.2 Students at the heart of the system

The new student funding system which was set out in the 2011 White Paper “*Higher Education: Students at the Heart of the System*” is intended to create a student-led system in which the teaching funding has been transferred from HEFCE to the student (‘the money follows the decisions of the student’). This means that the teaching grant for HEI has been reduced and replaced by graduate contributions in the form of repayments on subsidised loans from government (up-front tuition loans provided by the Student Loans Company). The basic idea is that well-informed student choice will be the primary driver for innovation and excellence in higher education. Student choice will be influenced and guided by information provided by employers and HE institutions. The comprehensive “Key Information Sets” (KIS) will contain information about the demand for graduates

¹⁸ Evaluation of HEFCE’s programme of support for Strategically Important and Vulnerable Subjects. Curtis+Cartwright Consulting. May 2011.

¹⁹ Undergraduate student FTE in mathematics increased by 16% in the last eleven years, 13% in physics, and 11% in chemistry. However, numbers in engineering and technology declined by 2% over the same period (HEFCE advisory group’s 2010-11 report, p. 13).

through, for example, employability rates and graduate salaries. As such it is used as a tool to help prospective students choose the courses and institutions that are best for them.

The emphasis on information as a “steering instrument” goes along with a drastic increase of the tuition fees as a much more significant source of teaching income. HE institutions are able to charge up to £6,000 per year and some up to £9,000 per year. The underlying assumption of this increase of the private contributions is that students will be more conscious about selecting their studies with a view of future returns. This will in return encourage greater competition between higher education providers²⁰.

In the context of the SIVS policy, some flexibility in the allocation of number of student places has been implemented. Until 2012 the number of student places was determined per university in a contract (financial memorandum) between the university and HEFCE. The budget is mainly determined on the basis of number of students of the previous year. Universities are expected to meet these targets and are fined if they exceeded is. Since 2012 there exists a ‘*core and margin*’ model aimed at increasing the flexibility in student places. This means that a number of student places are taken out of the core allocation of places in favour of places that have to be earned on a competitive basis for students who achieve AAB at A-level or equivalent. Starting with a margin of 20,000 in 2012-13, it is intended that this size would grow over the years to create greater dynamism in the allocation of student places. Universities can through the bidding system offer more student places with a premium for those charging a lower tuition fee and/ or attract more students from underrepresented groups (in the context of the “widening participation” policy agenda).

This flexibility policy relates to the extension of capacity of the system in general without reallocating student places on the basis of labour market outcomes of particular disciplines.

However, the SIVS subjects have been exempted from this adjustment to the student number control. Universities may be eligible for teaching grants for high-cost subjects and highest-cost STEM subjects and the students are able to access loans and grants. The intention is that the AAB boundary and the number of places in the margin will be extended in the coming years to encourage completion for places on the more selective courses.

HEFCE recognizes that it is difficult at this stage to predict how the reforms will influence student choices about whether and what to study and to what level. It is also unclear to what extent institutions are willing or able to reshape their provision of study programmes to match demand. This may depend on the effectiveness of the information made available on employment outcomes.

²⁰ Student number controls and teaching funding. Consultation on arrangements for 2013-14 and beyond. (HEFCE 2012/04), http://www.hefce.ac.uk/media/hefce/content/pubs/2012/201204/12_04.pdf

4.3 Labour market relevance

In defining the labour market relevance of programmes, HEFCE takes a rather pragmatic approach. If a subject is valuable to employers this will be reflected in their recruitment of graduates. This will be included in the information provided to inform student choice, which will in turn drive up the demand for and supply of the subject. The Key Information Set (KIS) fulfils an important function, although some questions remain about the robustness of the underlying dataset, and the potential for misinterpretation or manipulation of data²¹.

The same approach could be applied at the level of programmes and institutions. The basic assumption is that as employers report a demand for more STEM graduates from what they perceive to be the highest quality programmes, the system should respond to this through labour market signals directing students towards these programmes. The subjects, programmes and institutions most valued by employers should thereby be the ones that are sustained²².

HEFCE recognizes limitations to the functioning of this system, such as imperfect information on the employment prospects arising from different programmes and the time lags between course choice and employment. Another risk is that sudden swings of student choices would lead to cobweb cycles resulting in oversupply and shortages in other subjects thereby creating mismatches in other fields. Also the assumption that students chose their subjects just on rational or economic grounds was questioned by the Chief Executive of the HEFCE at a meeting with the Select Committee on Science and Technology. His view finds much support from the politicians when he states::

“This is not my personal opinion but there is a preoccupation in some quarters that students who are paying fees will only be interested in getting better inside information about salaries and future employment. I do not necessarily think they will, but I am sure there will be an emphasis on that sort of thing in the future. So it is very much part of the Government’s game plan that is being implemented systematically through the sector”²³.

4.4 A new policy framework for HEFCE

Based on the evaluation of the SIVS programme, HEFCE will continue to support existing SIVS as reflected in the level of funding for the highest-cost STEM subjects as well as protecting these subjects from student place reductions. For this purpose HEFCE collaborates with the subject bodies in these areas to promote demand and attainment. However, rather than focusing on a group of SIVS defined by government, HEFCE has an extended role to consider which subjects could in the future become vulnerable at some

²¹ Department for Business Innovation & Skills, Consultations on Students at the Heart of the System. June 2012, p. 13.

²² HEFCE (2011) Strategically important and vulnerable subjects. The HEFCE advisory group’s 2010-11 report p. 10/11.

²³ House of Lords, Select Committee on Science and Technology, Inquiry on Higher Education in STEM Subjects (January 2012).

point. 'Subject' is taken rather broad here and includes the availability of particular sub-disciplines or different levels (graduate or postgraduate). The monitoring of the HE system aims to:

- Identify risks to the continued availability of any subject and the likelihood of these risks occurring using quantitative and qualitative evidence.
- Consider the significance of these risks in consultation with the government and research councils of their priorities, and bodies like the Confederation of British Industry and the UK Commission for Employment and Skills on the labour market.
- Determine those areas where the scale of risk suggests that HEFCE should indicate a response, normally in collaboration with other funders and stakeholders.

Evidence should be based on analyses embracing the progression of students from schools to colleges and universities through to postgraduate study and employment, and include forecast trends and requirements. Industry as well as other graduate employers in the identification of, and response to, risks should be involved as well.

4.5 Macro-efficiency

At this stage it is difficult to predict how the changes will impact on subject provision and the overall course offerings on the macro-level of the higher education system as a whole. Macro-efficiency is not an issue as British universities have a large amount of autonomy in their programme provision and in developing new programmes. There are no restrictions to start a new programme on either the undergraduate or the graduate level and there is no external body to assess the macro-efficiency in terms of new programme provisions like in Flanders or the Netherlands. It is up to institutions to decide for themselves and many have designed an 'Approval Event' as a standard procedure for establishing a new programme. For example, the programme team ensures that the new proposal aligns with the strategic direction of the faculty and the university concerned. Important criteria are the sustainability of the programme, the expected student demand for the new programme and the possible re-distribution of students across subjects due to student preferences and the competition with other institutions. Labour market prospects also play a role because in several rankings the "percentage graduate employment" is taken into account.

Programme termination is also subject to the same kinds of considerations. Whenever an institution wants to close down a programme for whatever reason, the only way HEFCE can interfere is to encourage collaboration with other institutions in a policy of "pooling resources" to cluster or maintain some programme on a jointly basis.

Macro-efficiency in the British policy context has to be conceived in the sense that students are in the heart of the system and their choices should drive innovation, efficiency and quality in teaching. The HEFCE has been charged specifically with ensuring that undesirable reductions in the scale of provision are avoided. It is also clear that the SVIV policy must be brought in line with the broad objectives of the new system. The new policy approach starts from the assumption that the new student-led system for financing teaching will for the most part achieve the government's aspirations with regard to subject provision. This means an identification of areas where there may be a risk of an

insufficient or inappropriate flow of graduates from undergraduate or postgraduate programmes.

It will also be important to determine why such areas may be considered strategically important and whether the risks may satisfactorily be resolved in the medium term through the normal working of the teaching and research systems. Other organisations, such as subject or professional associations and employer-representative bodies will take part in HEFCE's understanding of the sufficiency of the scale of provision and particularly in changes in the scale of SIVS provision.

The policy framework is a 'deficit model: once a deficit has been recognised, interventions would be made to correct it. The term also recognises that there is no overarching policy for specific areas of the system. At the core of this policy framework are two key principles:

- HEFCE should be highly selective and not too interventionist, because the HE system is vibrant with autonomous providers responding dynamically and competitively to changing circumstances. Individual department closures do not necessarily mean that a subject is vulnerable.
- Any interventions should be based on good evidence, support a market-like solution and not simply increase student places where demand is not present.

A basic underlying assumption of the British approach is that the intention to create more dynamism regarding programme provision emanates from the self-correction mechanism by institutions rather than by government intervention. The evaluation report of the SIVS Programme is proud to show that the interventions undertaken were successful in "avoiding heavy-handed market interference and enabled the SIVS programme too show leadership while remaining responsive to developments and initiatives originating within the sector"²⁴.

In other words, there is an institutional self-interest to monitor students demand with a focus on the market position. It is up to universities to decide about the support for STEM/SIVS subjects internally, or can choose to cross-subsidise by taking money from, say a history course and use it to fund an engineering course. If such a market works well, this will automatically led to an efficient system as a whole on the macro level. It is assumed that the market forces for institutions as well as for students through the funding system and subject preferences based on employability prospects in combination with interventions by HEFCE will result in desirable outcomes.

In this process HEFCE has been assigned the role of 'lead regulator'. At several governmental consultations concerns were raised about this regulator role by HEFCE as it is dealing with funding and regulation at the same time. Some raised the issue that institutional autonomy could be threatened if HEFCE was allowed to become overly dominant. Some see this as a "messy territory" which would need parliamentary oversight. The Chief Executive of the HEFCE counteracted this by emphasizing that the notion of

²⁴ Ibid, p. 19.

regulation by HEFCE should not ignore the fact that “at their heart universities in this country are self-regulating bodies”²⁵.

The macro-efficiency approach and the regulative role for HEFCE will be extended to include private providers in the system. The government will further enable greater diversity and competition by widening access to University Title for smaller, high quality providers. By creating a level playing field between HE providers, including new entrants, they can compete with universities over the recruitment of high-grade students. This is part of a system for private providers that requires them to come under the same student number controls as universities if their students were to continue to receive taxpayer-backed loans, in other words, bringing private providers under the caps on undergraduate numbers. Private providers may benefit from the high grades policy, enabling the recruitment of unrestricted numbers of high grade students. This will create a more dynamic system which includes an increasing number and a wider range of HE providers²⁶.

²⁵ Select Committee on Science and Technology (House of Lords) Inquiry on Higher Education in STEM subjects; (2012).

²⁶ Department for Business, Innovation & Skills (BIS) Government response on a new fit for purpose regulatory framework for the higher education sector, June 2012.

5 Finland

5.1 High ambitions

For quite some time Finland has been ranked among the leading group of OECD countries in terms of the innovation capacity of the economy, the high standard of key competences of young people on international tests, and the proportion of young people and adults in working life with a higher education degree. At present, over 30 per cent of young adults have a HE degree and some 85 per cent a post-compulsory qualification. The ambitions are high to maintain this position and to make Finland the most competent nation in the world by 2020. According to the Government Programme, the aim is to raise the share of the 30-34 age group who have higher education diplomas to at least 42 per cent and over 90 per cent of the 20-24 years old who will have post-compulsory qualification.

An important aspect of Finnish educational policy is that it is built on the lifelong learning principle. This entails that transitions from one level to another and from education to the labour market are as flexible as possible. There is much attention to the recognition of prior learning so that knowledge and skills acquired within and outside the education system can be counted towards a qualification as fully as possible. The adult education and training system – including higher education – creates a basis for responding to the competence requirements in the workforce and the changing needs of the labour market.

The Finnish higher education system consists of two sectors, where universities and polytechnics (AMKs) have different roles and profiles. Although they are seen as complementary, their specific characteristics and aims have been stressed with different degrees, degree titles and missions.

Polytechnic graduates mainly enter the labour market after obtaining the bachelor degree. In universities students primarily study for masters degrees.

5.2 Graduate supply and demand

Major problems relate to a dwindling labour force and the unfavourable development in the dependency ratio due to the ageing population²⁷. As the demand for labour will grow substantially in the future, measures are underway to extend working careers age (e.g. increase the pension age) and to improve the match between the competencies of those entering the labour market and the skills needs of business and public bodies.

The quantitative anticipation of demand for and supply of labour over a longer term has a long tradition in Finland. The Ministry is responsible for quantifying and targeting education and training provision at a national level. The targeting of supply is backed up

²⁷ In 2010 there were nearly 52 per cent under or above working-age per 100 working-age persons. In 2020 this figure will be nearly 70 per cent.

by foresights conducted by the Government Institute for Economic Research and the Finnish National Board of Education (FNBE). The FNBE produces national anticipation data on the demand for labour and educational needs. In addition, the Board supports regional anticipation efforts carried out under the supervision of regional councils. Generally this statistical information is used to support the steering of the volume of education and training provision to ensure that it matches developments in demand for labour as closely as possible.

The anticipation model (the Mitenna model) provides long-term data (about 15 years) on changes in demand for labour by occupational group structures and educational needs²⁸. It makes use of a wide variety of methods and sources, such as econometric forecasts and statistics, but also expert consultations and industry- and occupation-specific anticipation surveys. The model takes into consideration the natural wastage (replacement of personnel) and the total demand for new labour and the type of educational qualifications that the world of work is expected to require over the forecasting period²⁹.

The analysis shows that the proportion of higher education degree holders will be clearly higher among the new employees when compared with those employed in 2007. In the target scenario the need for holders of polytechnic and university degrees account for 28% and 20% respectively of the total manpower needs. When examined by field of education, the total need focuses on Technology, Communications and Transport (31% of the total need) and Social Services, Health and Sports (21%). Particularly the intake needs for polytechnics will exceed the current level. Generally the number of new students required is considerably higher than the anticipated number of job openings would suggest, because the high dropout rates are taken into account.

5.3 HE policy regarding labour market relevance

The Government decides on the targets for HE provision as part of the Development Plan for Education and Research for 2011-2016³⁰.

The targets were prepared by a working committee in consultation with an expert group of social partners. This is not a straightforward process and the committee uses also other sources of information alongside the anticipation results. In addition to these results, national objectives of raising the population's level of education and other education policy objectives have a bearing on the amount and structure of provision. For example, the intake targets set by the Ministry of Education for university education are clearly higher than

²⁸ For further details see: Hanhijoki, I. Katajisto, J., Kimari, M. & Savioja, H. (2012) Education, training and demand for labour in Finland by 2015. Finnish National Board of Education. http://www.oph.fi/download/144754_Education_training_and_demand_for_labour_in_Finland_by_2015_2.pdf

²⁹ The kind of analysis is comparable to the Dutch labour market forecasts as carried out by ROA Maastricht ("*De arbeidsmarkt naar opleiding en beroep*") and the skills needs forecasts by CEDEFOP. However, direct international comparisons are complicated given the differences between the classifications of industries, occupations and educational levels.

³⁰ Ministry of Education and Culture 2012:3) Development Plan Education and Research 2011-2016) <http://www.minedu.fi/export/sites/default/OPM/julkaisut/2012/litteet/okm03.pdf?lang=en>.

indicated by the anticipation results, because the targets of the Development Plan include student places intended for both young people and adults.

In order to meet the growing demand for the workforce, the following reforms in higher education are foreseen in the Development Plan on Education and Research 2011-2016:

- To shorten the overall time in education and training and the average age at the time of qualification. At present over 40% of the 20-29 age group are in education, a much higher proportion than in most other OECD countries³¹.
- The aim is that graduates from universities and polytechnics enter the labour market one year earlier than at present.
- To increase the completion rates in higher education.
- University bachelor programmes should be less specialised with more emphasis on generic skills, enabling students to choose from a wider array of master programmes.
- To remove obstacles for young immigrants who are underrepresented in higher education.
- Internationalisation of HE institutions in order to attract foreign students to the priority areas of the higher education institutions where labour shortages exist. This should be supported by an active employment and skills-oriented immigration policy and legislation.

Lowering the average qualification age of graduates would bring young people more rapidly into the labour market and lengthen their work careers. Also measures to counteract unnecessary doubling or overlap by students by creating more flexibility in transition points between different levels of education would improve the efficiency of the system. Shortening the overall time in education is also argued with reference to the strong adult education system and lifelong learning in Finland of which higher education also forms part of.

Most of these policy reforms are supported by the Confederation of Finnish Industries (EK). Apart from shortening study duration and an earlier entry on the labour market, a better balance between supply and demand is to be achieved by³²:

- A clear division of tasks and responsibilities between universities and polytechnics that take the different strengths and profiles into consideration. Redundancies across the sectors need to be eliminated.
- A more active role of HE institutions in providing foreign students with their first work experiences.
- More cooperation with the workplace through work-based learning (WBL) to increase the work-orientation of higher education studies.

³¹ Matti Kyrö (2011) International comparisons of some features of Finnish education and training. Finnish National Board of Education. http://www.oph.fi/download/141160_international 2011.pdf

³² Confederation of Finnish Industries (EK) Skilled Personnel – Successful Enterprises. Education and Labour Policy Guidelines up to 2015.

- As adult education plays a key role in balancing supply and demand, HE institutions should play an increasingly significant role in lifelong learning in accordance with the changing needs of the workplace.

Two other measures and policy views from the Government Development Plan are worth mentioning.

First, the position of languages and area studies in relation to further international cooperation. The higher education and research sector will increase its presence in and cooperation with the emerging economies, especially China and Russia. For this purpose the HE institutions will invest in strengthening instruction and research in the languages and cultures of the target countries in order to improve the prerequisites for cooperation. Second, the restructuring of doctoral programmes with a focus on high-quality and professional researcher training with a view to enabling them to complete their doctorate degree faster and at a younger age. The aim is that business and industry will employ more PhDs. Researcher training must interact more closely with research institutes and business and industry.

5.4 New governance and funding model

Changes in the governance structure of universities and a new funding system are seen as necessary to increase the labour market relevance of higher education. Since the Universities Act of 1997 universities have been transformed into 'independent legal personalities', i.e. public corporations able to engage in contracts and to run their own economic activities. Subsequent amendments were made which culminated in the Universities Act of 2009³³. This law made it possible to appoint external members to university boards. According to the original proposition, there should be a minimum of 50 per cent external representation and a chairperson in the university boards (this was later changed to 40 per cent). Moreover, the position of the rector as the executive manager of the university corporation has been strengthened. External members will tie the universities more closely to 'the surrounding society', a term not further defined, but evidently it means local communities, business and industry. The Development Plan states that "contacts with working life must be further intensified to keep the content of education up-to date and to give students a clearer picture of possible work careers and better employment prospects" (p. 17).

The corporatisation has been much criticised. One of the critiques is that universities are no longer open public spheres but closed corporations, trying to survive in the competition with other universities nationally and globally³⁴.

The Development Plan envisages a strengthening of the polytechnics sector by a steering and funding scheme in which the connection with the labour market is a central dimension:

³³ The Universities Act (558/2009) shows how Finnish legislator sees the relationship between the universities and society: <http://www.finlex.fi/fi/laki/kaannokset/2009/en20090558.pdf>

³⁴ See Jussi Välimaa (2010) *New Universities Act and the Corporatisation of National Universities*. In: J. Ursin & J. Lasonen (eds.) [Education and Change]. Jyväskylä: Finnish Education Research Association. In press.

- The statutes will be reformed to expedite their structural reform and the operating licenses will be revised in the form of a Government Decree with the aim to enable education provision to be targeted to respond better to labour market needs.
- Measures will be taken to foster closer links between polytechnics and regional development and working life. Polytechnics will be steered to increase the representation of the world of work and business and industry on their key administrative bodies.
- The new funding scheme for polytechnics which takes into consideration the polytechnics' statutory operations in their entirety, with emphasis on quality, impact and efficiency. The institution-specific funding will be primarily determined on the basis of degrees awarded, the quality and efficiency of the study process and graduate employment rates³⁵.

The university funding model (operative in 2013) will be used to support the aims of education, including improved completion rates, more rapid transition to working life, more efficient administration, quality of education and research, internationalisation and more profiling of universities according to their strong areas.

The issue of privatisation in the sector emerges in the context of internationalisation. A legislative amendment in 2008 enabled Finnish HE to provide customised fee-based degree education to foreign companies and organisations. Students coming from countries outside the EU/EEA can be charged tuition fees in programmes leading to a university degree. In considering exporting Finnish higher education, effective structures for cooperation between the private and public sectors will be created. The Ministry of Education together with private bodies will examine opportunities to create a funding instrument to support the initial stage in exporting education.

5.5 Macro-efficiency

The Ministry of Education and Culture steers the system of higher education through performance agreements made with each HE institution separately. Student numbers, graduation rates and labour market entrance are important parameters in the new funding model. Macro-efficiency occurs mainly by allocating the number of student places in view of the future demand for labour. Steering on the level of educational provision occurs to a lesser extent, but is not excluded.

According to an evaluation by the Ministry of Education and Culture, there will be a need to reduce education in fields such as applied arts, communications and information science, computer science, electrical and automation engineering as well as in the tourism sector. Provision would need to be increased in the social welfare and health sector, in medicine,

³⁵ Opetus- ja kulttuuriministerio (2012) Polytechnic education in Finland, available in English at: <http://www.minedu.fi/OPM/Koulutus/ammattikorkeakoulutus/?lang=en>.

mechanical engineering, metal and energy technology³⁶. It is not clear whether this means a reduction in student places or on the level of programmes (closing down or establishment of new programmes). Such an intervention is felt to be an infringement on institutional autonomy.

At present the regulation of the higher education system is too detailed. Along with the admission reform, there is a need to reform the regulation of educational responsibilities with a view to strengthening the institutions' capacity for flexibly responding to changes in science, working life and society. During the last 15 years the number of universities has decreased from 20 to 16 and the number of polytechnics from 30 to 25. According to the Development Plan the higher education landscape is still too fragmented and the provision has not been targeted sufficiently to changes in labour market needs.³⁷

The corporate governance model for Finnish universities went along with a reorganisation of the system through three recent merger operations in different regions. These have been taken place in Eastern Finland, where two universities were merged together as the University of Eastern Finland; in the western part where a business school merged with the University of Turku, and in the capital area, where a business school, a technical university and a university of arts and design were forced to merge into the Aalto University.

The present government has launched plans to discontinue study programmes in provincial AMKs thereby moving the study places to the southern parts of the country and the capital area, where younger age cohorts are larger and where the opportunities for employment are more favourable. There is much resistance against these plans, in particular from the side of the polytechnics, but this illustrates the current policy on achieving efficiency gains in the system as a whole.

³⁶ The Research and Innovation Council of Finland, Research and Innovation Policy Guidelines for 2011-2015.

³⁷ Ibid. P. 43

6 Germany

6.1 Labour Market Relevance of Higher Education

The labour market relevance of higher education is mainly understood in two ways in Germany. On the one hand stakeholders and experts look at the development of supply and demand of highly qualified in the labour market. On the other hand the employability (Beschäftigungsfähigkeit) of higher education graduates is discussed in terms of their competencies and skills.

Looking at this first aspect of labour market relevance it becomes obvious that currently the supply of higher education graduates seems to meet the demand of the labour market as graduates hardly face unemployment. In 2011 unemployment rates were at 2.4% for the highly qualified.³⁸ The transition of graduates to the labour market is also rather smooth; e.g. one year after graduation the majority of students graduating in 2005 who entered the labour market have found regular employment, i.e. they have been fully employed or self-employed.³⁹ Though the majority of graduates find employment or self-employment some of them are inadequately employed as regards their qualification. Only about two thirds report that their job would match their qualification horizontally as well as vertically. This applies in particular to graduates from engineering or the natural sciences and those from the classical professions like medicine or law. Graduates from the arts and humanities more often face inadequate employment. About 10% from the 2005 graduates indicate that they are horizontally and vertically inadequately employed five years after graduation.⁴⁰

These numbers reflect the strong demand for highly qualified personnel on the German labour market. Experts expect also for the future a strong demand for highly qualified labour. Due to demographic changes and to changes in the qualification needs of the labour market an increased and stabile demand for higher education graduates is expected.⁴¹ A special subtheme addressed by a number of experts is the shortage of MINT

³⁸ Weber, Brigitte (2013): Qualifikation und Arbeitsmarkt: Bildung ist der beste Schutz vor Arbeitslosigkeit. <http://doku.iab.de/kurzber/2013/kb0413.pdf>.

³⁹ Grotheer, Michael; Isleib, Sören; Netz, Nicolai; Briedis, Kolja (2012): Hochqualifiziert und gefragt. Ergebnisse der zweiten HIS-HF Absolventenbefragung des Jahrgangs 2005. Hannover: HIS (Forum Hochschule, 2012,14). http://www.his.de/pdf/pub_fh/fh-201214.pdf, p. V.

⁴⁰ Grotheer, Michael; Isleib, Sören; Netz, Nicolai; Briedis, Kolja (2012): Hochqualifiziert und gefragt. Ergebnisse der zweiten HIS-HF Absolventenbefragung des Jahrgangs 2005. Hannover: HIS (Forum Hochschule, 2012,14). http://www.his.de/pdf/pub_fh/fh-201214.pdf, p. X.

⁴¹ In a prognosis of the development of supply and the demand of highly qualified labor till 2030 the Institute for Employment Research (IAB) estimates that demand for higher education graduates will be driven by the need to replace members of the baby boomer generation leaving the labor market around 2020. About half of the demand for highly qualified will be related to it. The other half of the demand will occur due to changes in the economic structures with an increasing share of occupations in the service sector, In: Maier, Tobias; Helmrich, Robert; Zika, Gerd; Hummel, Markus; Wolter, Marc Ingo; Drosdowski, Thomas et al. (2012): Alternative Szenarien der Entwicklung von Qualifikation und

graduates. Here a decrease of enrolments in the relevant disciplines has led to a substantial decrease in the number of graduates in the recent years. For the coming years most experts expect that due to the demographic changes and an increased demand for these MINT disciplines the gap between supply and demand will be dramatically widened. This issue of “Fachkräftemangel or Ingenieursmangel” is addressed by different stakeholders like the VDI.^{42,43}

The second aspect of labour market relevance – the skills and competencies of graduates – has been discussed with respect to the introduction of the two tier study structure, in particular for the introduction of the Bachelor’s degree. While most of the stakeholder welcomed the implementation of consecutive study programs they were sceptical about the quality of skills of bachelor students.⁴⁴ Within this discussion most stakeholders pointed to the need to strengthen the labour market relevance of study programs.⁴⁵ Here employability does not only refer to a distinguished set of skills and competencies that is related to a certain occupational profile. Moreover, within the discussion employability was defined as the “individual competence to offer them on the labour market, find, maintain and change employment based on their technical and general acting capacities and their competencies to generate value and achievements.”⁴⁶ Within Bachelor study programs students should be able to achieve so-called key competencies like flexibility, motivation and self-engagement that enable them to respond to changing working environments with flat hierarchies and a growing need of self-control. In 2008, the Bundesverband der deutschen Arbeitgeber (BDA), the Bundesverband der deutschen Industrie (BDI) and the Hochschulrektorenkonferenz (HRK) issued a position paper on the

Arbeit bis 2030. Edited by BiBB (Wissenschaftliche Diskussionspapiere des BiBB, 137). <http://www.bibb.de/veroeffentlichungen/de/publication/show/id/6986>

⁴² VDI (2012): 2012: Ingenieure auf einen Blick. Erwerbstätigkeit, Innovation, Wertschöpfung. Edited by Verein Deutscher Ingenieure. Düsseldorf.

⁴³ Other authors doubt whether the shortage of engineers will be as dramatic as the VDI expects. Their critique aims at the methodological foundations of the prognosis as well as on its empirical relevance. (Brenke, Karl (2010): Fachkräftemangel kurzfristig noch nicht in Sicht. In *Wochenbericht des DIW Berlin* (46), pp. 2–15. http://www.diw.de/documents/publikationen/73/diw_01.c.363686.de/10-46-1.pdf, and Zika, Gerd; Helmrich, Robert (2011): Qualifikations- und Berufshauptfeldprojektionen bis 2025. Fachkräftemangel: Es sind nicht nur die MINT-Berufe betroffen. In *Sozialer Fortschritt* 60 (8), pp. 161–168.

⁴⁴ Rehbarg, Meike (2006): Hochschulreform und Arbeitsmarkt. Die aktuelle Debatte zur Hochschulreform und die Akzeptanz von konsekutiven Studienabschlüssen auf dem deutschen Arbeitsmarkt. Bonn: Stabsabt. der Friedrich-Ebert-Stiftung. http://www.gew-huf-kassel.de/docs/Hintergruende/Statistiken_Erhebungen/FES/FES_Hochschulreform_und_Arbeitsmarkt.pdf, pp. 75ff

⁴⁵ Schaeper, Hilde; Wolter, Andrä (2008): Hochschule und Arbeitsmarkt im Bologna-Prozess. In *ZfE* 11 (4), pp. 607–625, p. 609.

⁴⁶ „Beschäftigungsfähigkeit - so die Definition - beschreibt die Fähigkeit einer Person, auf der Grundlage ihrer fachlichen und Handlungskompetenzen, Wertschöpfungs- und Leistungsfähigkeit ihre Arbeitskraft anbieten zu können und damit in das Erwerbsleben einzutreten, ihre Arbeitsstelle zu halten oder, wenn nötig, sich eine neue Erwerbsbeschäftigung zu suchen.“ Schaeper, Hilde; Wolter, Andrä (2008): Hochschule und Arbeitsmarkt im Bologna-Prozess. In *ZfE* 11 (4), pp. 607–625, p. 612

employability of higher education graduates.⁴⁷ Here employability was defined as a set of technical and methodological skills (like the ability to apply the technical knowledge gained), social (mainly communication and leadership skills) and personal competencies (like motivation, responsibility and entrepreneurialism).

Recent research has shown that the introduction of a two-tier-degree system by the Bologna Reform did not lead to a major disturbance in the transition of graduates to the labour market. Studies showed that the Bachelor degree was well accepted and graduates were able to find adequate employment to a high extent.⁴⁸ The percentage of students that moved to the labour market after the Bachelor's degree did also increase for both i.e. for university students and students from universities of applied sciences (Fachhochschulen). Bachelor degree holders also report to a high extent that their education meets their job requirements fully, in total about 88% of the Bachelor degree holders from the Fachhochschulen and 76% from the university Bachelors indicated this.⁴⁹

In quantitative terms the labour market relevance of study programs does not seem to be a big problem in Germany. Unemployment among higher education graduates is not existent; also for the future an increasing demand for highly qualified labour is expected. Also, from the qualitative angle the labour market relevance of higher education seems to be guaranteed: The majority of graduates find adequate employment; also employers are satisfied with the competencies and skills of students.

⁴⁷ BDA - Bundesvereinigung der Deutschen Arbeitgeberverbände (2008): Beschäftigungsfähigkeit von Hochschulabsolventen stärken. Für eine bessere Arbeitsmarktrelevanz des Hochschulstudiums ; gemeinsames Memorandum von BDA, BDI und HRK. 2008th ed. Berlin: Bundesvereinigung der Dt. Arbeitgeberverb., Abt. Bildung, Berufliche Bildung. [http://www.arbeitgeber.de/www/arbeitgeber.nsf/files/72374EDE418466EBC125755A004AC403/\\$file/Beschaeftigungsfahigkeit_Hochschulabsolventen.pdf](http://www.arbeitgeber.de/www/arbeitgeber.nsf/files/72374EDE418466EBC125755A004AC403/$file/Beschaeftigungsfahigkeit_Hochschulabsolventen.pdf).

⁴⁸ Alesi, Bettina; Schomburg, Harald; Teichler, Ulrich (2010): Humankapitalpotenziale der gestuften Hochschulabschlüsse in Deutschland: . Weiteres Studium, Übergang in das Beschäftigungssystem und beruflicher Erfolg von Bachelor- und Master-Absolventen. Edited by Expertenkommission Forschung und Innovation. Berlin. http://www.e-fi.de/fileadmin/Studien/Studien_2010/13_2010_Humankapitalpotenziale_Bologna_INCHER.pdf

Briedis, Kolja; Heine, Christoph; Konegen-Grenier, Christiane; Schröder, Ann-Kathrin (2011): Mit dem Bachelor in den Beruf. Arbeitsmarktbfähigung und -akzeptanz von Bachelorstudierenden und -absolventen. Edited by Stiftverband für die Deutsche Wissenschaft. http://www.his.de/pdf/22/Mit_dem_Bachelor_in_den_Beruf.pdf.

⁴⁹ Alesi, Bettina; Schomburg, Harald; Teichler, Ulrich (2010): Humankapitalpotenziale der gestuften Hochschulabschlüsse in Deutschland: . Weiteres Studium, Übergang in das Beschäftigungssystem und beruflicher Erfolg von Bachelor- und Master-Absolventen. Edited by Expertenkommission Forschung und Innovation. Berlin. http://www.e-fi.de/fileadmin/Studien/Studien_2010/13_2010_Humankapitalpotenziale_Bologna_INCHER.pdf, p. 48.

6.2 Monitoring supply and demand

A central monitoring of the labour market relevance of study programs or of higher education does not exist in Germany. Several surveys and research projects inform about the later careers of higher education graduates and the development of the demand for highly qualified labour in the coming years.

The HIS regularly conducts surveys among graduates. The surveys analyse the employment status of graduates five years after their graduation. Different aspects of the employment like kind of contract, employment sector and job adequacy are surveyed.⁵⁰ These surveys provide an insight on how well higher education responds to the needs of the labour market.

The Institute for Labour Market Research (IAB) of the Federal Employment Agency also looks into the employment of higher education graduates. On the hand the employment and unemployment rates as well as open vacancies for different areas are calculated from the official data of the Federal Employment Agency. This informs in general about the need for highly qualified labour and in particular about special areas where a gap between demand and supply might arise.⁵¹ The Institute for Labour Market research also does prognosis on the future development of needs for different levels of qualification and different occupational areas.⁵²

Further, also other stakeholder engage in the prognosis of the demand for special groups of highly qualified. For the MINT disciplines the VDI (Verein deutscher Ingenieure) has done a prognosis of the future demand for engineers.

6.3 Steering the relationship between higher education and the labour market

6.3.1 Steering on the federal level

Due to Germany's federal organization and the superiority of the Federal States in education matters the federal government has no possibility to determine the quality and the quantity of offered study programs. Here the Federal States can act autonomously and are also solely responsible. Within the states different forms to steer and profile the supply of study programs have been developed (see section 3.2.).

⁵⁰ Briedis, Kolja; Heine, Christoph; Konegen-Grenier, Christiane; Schröder, Ann-Kathrin (2011): Mit dem Bachelor in den Beruf. Arbeitsmarkt-befähigung und -akzeptanz von Bachelorstudierenden und -absolventen. Edited by Stiftverband für die Deutsche Wissenschaft. http://www.his.de/pdf/22/Mit_dem_Bachelor_in_den_Beruf.pdf; Briedis, Kolja; Minks, Karl-Heinz (2004): Zwischen Hochschule und Arbeitsmarkt. HIS. Hannover. http://www.bmbf.de/pub/his_projektbericht_12_03.pdf.

⁵¹ Weber, Brigitte (2013): Qualifikation und Arbeitsmarkt: Bildung ist der beste Schutz vor Arbeitslosigkeit. <http://doku.iab.de/kurzber/2013/kb0413.pdf>.

⁵² Main results of these prognosis have been presented in section 1. Zika, Gerd; Helmrich, Robert (2011): Qualifikations- und Berufshauptfeldprojektionen bis 2025. Fachkräftemangel: Es sind nicht nur die MINT-Berufe betroffen. In *Sozialer Fortschritt* 60 (8), pp. 161–168.

Nonetheless within the cooperation of the Federal States different measures that could have an impact on the study programs offered are available. Among these is the cooperation of the Federal States in the KMK (Kultusministerkonferenz – standing conference of ministers of education). Within the KMK the Federal States try to adjust their education policies and educational systems. They aim in particular to homogenize conditions for teaching and learning so that within Germany similar living conditions can develop and students/teachers can easily move between the different states. Though the KMK does not reach out for a homogenization of study programs across Federal States it was able to standardize degrees (e.g. same amount of required credit points for a master's degree) and structures to some extent. The accreditation council (*Akkreditierungsrat*) is a further institution that could have some impact on the offer of study program. Its task is to standardize different norms for study programs and to control and to certify other quality agencies that accredit study programs. For the accreditation of study programs it has been agreed on a set of minimum standards whereby employability has gained importance in the recent years.

Also for the re-accreditation of study programmes employability has become more important. Through the participation of representatives of employer organisations in the accreditation board indicators like unemployment rates, time-to-degree and non-completion rates have become central indicators. With the implementation of institutional accreditation the performance of the university as a whole with regards to the employability of its graduates is also considered.

Nonetheless, the Federal Government can have an influence on the number of study places offered via financial support. To tackle an increase in student numbers the Federal Government has implemented the Higher Education Pact 2020 in 2007. This program will run until 2015 and give additional funding to the universities to install new study places. It is expected that the number of new enrolments will increase dramatically due to demographic changes, the shortening of the schooling time from 13 to 12 years (*doppelter Abiturjahrgang* in 2012) and due to the abolition of the military and alternative services. The money is given half by the Federal Government and half by the Governments of the Federal States. It provides for each new study place about 4,000 € for four years. The Governments of the Federal States can decide on how they want to spend the money autonomously but should consider the special needs for the MINT disciplines and the inclusion of female talent.

6.3.2 *Steering on the Federal State's Level*

With the abolition of the framework law on higher education on the federal level the Federal States received full responsibility for higher education which is regulated by their individual higher education laws. Most of the Federal States have given full autonomy to the universities, and introduced different steering instruments.⁵³ Also for the planning of

⁵³ A detailed overview of steering instruments in the Federal States can be found in Hüther, Otto; Jacob, Anna-Katharina; Seidler, Hanns H.; Wilke, Karsten (2011): *Hochschulautonomie in Gesetz und Praxis. Eine Analyse von Rahmenbedingungen und Modellprojekten*. Edited by Stifterverband für die Deutsche Wissenschaft. Essen.

higher education - which involves the implementation and closure of new study programmes - the Federal States have established different solutions. While in the majority of the Federal States the higher education institutions have to plan their further development solely in some Federal States the planning of the further development of higher education is a joint effort between the higher education institutions and the ministry of education. For the latter the development of higher education is more state-driven and centrally planned than for the Federal States where higher education institutions decide on their further development more independently.

The state-driven planning of higher education can be characterized as a holistic approach to steer the whole higher education system of the country in an efficient way. The labour market relevance is one aspect that drives the set-up of the system, but more important are aspects like the excellence of the science and research system, the efficient use of resources and avoiding a doubling of same/similar study programs or research institutes that only meet a minor demand. Also the regional profiling of different research areas and clusters is included in this holistic planning. Bavaria and Saxony are among the countries that use this cooperative planning between the higher education institutions and the Ministry of Education.

- Bavaria

In Bavaria an „Optimization concept“ (Optimierungskonzept) was introduced in 2005. This concept aimed at an optimization of the study programs and disciplines offered across the Bavarian higher education institutions and tried to establish a harmonized offer, i.e. the profiles of higher education institutions should distinguish from each other and allow them to specialize in a certain disciplinary field. One principle for optimizing was to avoid that all higher education institutions have a broad offer but to sharpen their profile and gain international attractiveness. To implement the optimization concept first a stock-taking of the existing study programs at higher education institutions and the future challenges for higher education by a group of experts took place. Also universities and universities of applied science had to describe their plans for further developments. Based on these data the commission of experts formulated recommendations for the regional adjustment of study programs.⁵⁴ According to these recommendations the Bavarian parliament decided to close down some study programs: From the winter term 2005/2006 about 30 study programs were not allowed to enrol new students anymore. Also in higher education

http://www.stifterverband.info/wissenschaft_und_hochschule/hochschulen_im_wettbewerb/archiv/de_regulierte_hochschule/hochschulautonomie_in_gesetz_und_praxis.pdf.

⁵⁴ Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst (2005): Optimierungskonzept für die Bayerischen Hochschulen 2008. http://www.stmwfk.bayern.de/fileadmin/user_upload/PDF/Hochschule/optimierungskonzept.pdf; Expertenkommission Wissenschaftsland Bayern 2020 (2005): Wissenschaftsland Bayern 2020. Edited by Forschung und Kunst Bayerisches Staatsministerium für Wissenschaft. München. http://www.uni-passau.de/fileadmin/dokumente/studierende/Beratung/Career_Service/Wissenschaftsland_Bayern_2020.pdf.

institutions different measures to restructure the organization of faculties and institutes have been taken. Here the doubling of research areas and study programs should be avoided. The building of bigger faculties and research institutes within universities should contribute to more transparency and efficiency. The optimization concept itself formulated for each of the Bavarian higher education institutions a detailed plan in what areas they should profile, what study programs should be closed down, what kind of organizational reforms should be implemented and which cooperation with other Bavarian institutions should be strengthened.

Currently optimization takes place within the performance agreements between the Ministry of Education and the individual universities. Here it is controlled for the realization of development goals and the further development plan of the higher education institutions. The Ministry also supports the restructuring of the higher education systems with the funding of so-called Innovation Alliances (Innovationsbündnissen) that fund cooperation between universities and the profiling of universities.

- Saxony

Also in Saxony the development of a balanced offer of study programs and the profiling of higher education institutions is at the heart of the "Hochschulentwicklungsplan 2020".⁵⁵ Compared to the Bavarian concept it does not only emphasize that the Saxon higher education should gain in excellence and efficiency but also that the system should serve various purposes and stakeholders in a better way. At the heart of the development plan is to prepare the system for the upcoming knowledge society, demographic changes, globalization and financial restrictions. The function of higher education to produce highly qualified labour is also mentioned in this concept. Besides the profiling of the institutions this concept also wants to build up regional science clusters and strengthen networking and cooperation among the higher education institutions. Like the Bavarian concept the Saxon also formulates recommendations for the restructuring of its higher education system. These recommendations comprise the closure of certain study programs with only low demand and/or more cooperation among these study programs. Also the clustering of selected research topics in some areas and a strengthening of cooperation between research institutes and higher education institutions is recommended. Labour market aspects only play a minor role for these recommendations. Only in areas with an oversupply of graduates they ask for a reduction of study places or a closure of study programs (e.g. architecture).

Baden-Württemberg and Lower-Saxony are two of the Federal States that do not use a cooperative or holistic planning of the further development of the higher education landscape. Nonetheless they take different measures to adjust the offer of study places and study programs to demographic changes or to needs of the labour market.

- Baden-Württemberg

⁵⁵ Freistaat Sachsen (2011): Der Sächsischer Hochschulentwicklungsplan bis 2020. Edited by SMWK. http://www.studieren.sachsen.de/download/Hochschulentwicklungsplan_2020.pdf.

Baden-Württemberg has implemented the program “Hochschule 2012” to meet two requirements: first the program aims at tackling the increase of student numbers due to demographic changes and the doubling of the number of school leavers in 2012 because of the shortening of the schooling period from 13 to 12 years. In total about 72,000 additional study places should be established by end of 2012. Second the program aims at meeting the requirements of the labour markets. To steer the expansion of study places networks with universities, universities of applied science, chambers of commerce⁵⁶ and representatives of industry and services have been set up. These networks are organized on the regional level and responsible for the spending of funds from the program. Within these networks the demand for highly qualified labour from different disciplines in the regional labour market are monitored and the planning for the regional expansion of higher education institutions is planned. In this planning the closure and implementation of study programs as well as decisions about the establishment of new buildings are included.

- Lower Saxony

Also Lower Saxony does not use a holistic and cooperative concept to harmonize the offer of higher education in its territory. But it has set up general guidelines that are applied to the individual performance contracts between the individual university and the Ministry of Education (Niedersachsen). Among these guidelines the further development of the offer of study programs is also mentioned. Here it is clearly mentioned that the higher education institutions have to secure that study programs are relevant for the labour market. A constant feedback loop between labour markets and Alumni should help to guarantee the acceptance of study programs in the labour market.

Some of the Federal States have implemented instruments to control the set up and closure of study programs on their territories. While only a few use a holistic concept to harmonize the offer of study programs others use more weak instruments to steer it. Within most of the Federal States mainly the universities decide about the closure and set-up of study programs. The different measure taken by the Federal States can be regarded as accompanying measure to steer universities indirectly.

6.3.3 Steering at higher education institutions' level

With the reform of the higher education law and solely responsibility of the Federal states for education also a reform of the governance structure of the universities took place. Since the end of the 1990s several Federal States have introduced the Hochschulrat (university council) as a further governance body. The Hochschulrat is mainly responsible for the strategic management of the university. They act as brokers in the relationship between the governments of the Federal states and the single universities and take over control tasks that originally have been performed by the governments of the Federal states on the universities. In some of the Federal states the university council consists of external members only that are recruited from different areas, in particular from science and industry. In most of the Federal states the university council has some veto and co-determination rights in technical decisions. Mostly the right to decide about the

⁵⁶ An example of this regional networks is provided by the IHK Heilbronn: <http://www.heilbronn.ihk.de/ihknorthochschule2012/infothek.aspx>

development plan of the university and the performance agreement with the ministry is included here. Representatives from industry or public administration in the university council can therefore also evaluate performance agreements and development plan regards their labour market relevance.

Universities also have started different project to improve the labour market relevance of their study programs. The German Rector's Conference (HRK) has implemented the project "Nexus"⁵⁷ that collects and distributes information about these projects and informs about good practices. Besides the labour market relevance of study programs Nexus informs about good practices in several other areas like modularization of study programs, design of master study programs or diversity management in teaching and learning. At the heart of the projects is the improvement of the quality of study and the further realization of the Bologna principles. Here employability is also a concept that is pushed forward to be integrated in the curricula of study programs at universities and universities of applied science. The HRK understands employability as the combination of scientific and disciplinary competencies as well as personal and key competencies. Graduates should be able to find their way into employment and should be able to work autonomously. Curricula should be able to confer these different competencies to the students.

- Examples of good practices at universities⁵⁸

Among the good practices regards labour market relevance Nexus names e.g. the way internships are organized at the Zentrum für ökonomische Bildung at the Ruhr-University Bochum. Here the Zentrum has built in cooperation with the chamber of commerce a network of firms and alumni that can provide internships that fit to the typical needs of the students (based on the student's combination of majors and minors). Here students are matched to internships that actually meet their study interests. Within the internship students and firms agree that the student will work on a small-scale research project to learn to transfer their scientific knowledge to practical applications.

The University of Duisburg-Essen offers an English-taught master program "Pharmaceutical Medicine" where several new more practical and interactive forms of teaching are used. Among these are case-studies, teamwork, role-playing as well as group discussion. The study program aims in particular at building competencies like leadership, teamwork, presentation and rhetoric skills. The program is taught by a high number of international experts that are mostly employed at pharmaceutical firms or administrative bodies in the health sector. This should give the students the chance to integrate in a professional network already during their study period and to learn from the practical experiences of their teachers.

Another instrument that is used by German universities to build up and strengthen key competencies of their students is the use of business or management games. In the study program "international health management" at the University of Greifswald simulation

⁵⁷ Detailed information on Nexus can be found: <http://www.hrk-nexus.de/>

⁵⁸ A detailed list of different projects at universities can also be found at the website of the nexus-project:

games are used to learn about the management of small hospitals and specific management and financial issues.

7 Sweden

Within the context of the Higher Education Act and Ordinance the HE institutions in Sweden have a high degree of freedom regarding their organisation, almost complete autonomy on spending, and programme-offerings. Universities can offer general degrees in the first, second and third cycle, while the university colleges are allowed to offer professional degrees in the first cycle as well as master programmes (mainly one-year, but there are also two-year masters in a some domains). A programme can be offered in any field as long as the institution has degree awarding powers for a particular cycle.

7.1 Capacity funding

Funding is based on tariffs per student and the attained credits (performance). The tariffs differ for students in different subjects. The annual budget is based on realised number of students and the study results. The annual budget ceiling is mostly based on the allocated budget of the previous year. The Parliament can decide to increase the budget and make extra study places available, mostly for specific institutions.

From the perspective of macro-efficiency it is important to know that the annual budget for each individual institution is determined in bilateral agreements with the Ministry. The objectives and ambitions of the institution such as the number of students and their study results, and the distribution across the different funding categories will be taken into account. Negotiation is taking place about increase of the total number of funded students and the results, either on systems level or for individual institutions or different study programmes. Generally the Ministry pursues a rather restrictive policy and budget increases are more the exception than the rule. Generally, if an institution does not achieve the targets in terms of the maximum number of students or study results, its budget will be adapted. If an institution accepts more students than agreed, it does not receive additional funds.

A capacity funding is operational according to which institutions have a large degree of autonomy. Given the budget ceiling every institution can distribute the student numbers across the various programmes and allocate the resources internally. This means that there are no caps or targets on subjects and institutions can exchange student numbers between subjects. In practice institutions do hardly deviate from what they agreed with the Ministry in the previous years as an increase of the number of expensive students at the cost of cheaper ones but this is financially not profitable within the funding ceiling. On the other hand, if an institution has more students in cheaper programmes than agreed and thus less expensive students, the institution receives less money at the final settlement.

7.2 Macro-efficiency and labour market relevance

As indicated before the HE institution decides about the programmes it wants to offer. As the funding is not coupled to individual programmes the minister cannot deduct funding for a programme because of a decrease of student numbers or unfavourable labour market prospects. Programme termination which does not occur very often in the Swedish context is a matter for institutions themselves to decide. The demand from students determines to a large extent which programmes will be offered and which not and labour market considerations play a minor role in this. In some exceptional cases the government has re-allocated financial means to increase the number of study places for teacher training and the medical programmes because of labour market shortages in these professions.

The public-private dimension does not play a role in determining the provision of study places. Sweden has 36 HE institutions for which the state is the responsible authority. In addition there are ten or so private higher education providers, including Chalmers University of Technology, Jönköping University Foundation and the Stockholm School of Economics.

The procedures for establishing a new programme are, compared to the procedures adopted in other countries, very straightforward. In case there is demand from students and /or the labour market, the HE institution can decide to offer a new programme. For general (academic) programmes external permission is not required given this remains within the limits of the total number of students and study places that are financed. In practice this would mean that the institution has to consider reduction of students in other programmes or in the worst case termination of another programme. The question whether a programme has labour market relevance is also determined within the institution. It should be added that external representation is guaranteed in the Faculty Board and (with a majority) in the University Board. These external members in the decision-making bodies of the HE institution are supposed to assess the labour market relevance of (new) programmes.

For new professional programmes external approval is required from the Högskoleverket, the agency responsible for the accreditation. This agency determines whether the new programme has sufficient labour market relevance, in combination with other criteria regarding the quality⁵⁹.

To conclude, in Sweden labour market considerations play a relative role in steering the system. Macro-efficiency is not a real issue as there is the belief that the system has no serious shortcomings or inefficient and duplicating programme provision. For the government there are two main policy instruments to increase the labour market relevance of programmes:

- 1) To counteract oversupply and shortages on the labour market by providing information for prospective students to influence their study choices.

⁵⁹ The Högskoleverket (Swedish National Agency for HE) ceased to exist per January 2013. Its operations have been transformed to two new public authorities (The Swedish Higher Education Authority and the Swedish Council for Higher Education).

- 2) Development of the quality assurance system in which employers are represented and graduate employability is adopted as an important quality indicator of a programme.

This last point has extensively been discussed in the first thematic report on the labour market and this system has since then not undergone substantial changes.

8 United States

8.1 A very diversified system

The term post-secondary education refers in the US to all education after 16 years of age, and covers what in other countries would be further (vocational) education and vocational training and therefore not considered as higher education. Such a sharp distinction between higher education in the sense of a four-year college education and apprenticeship training is not made in the US. Participation rates are very high compared to averages in Europe. Over 60% of the young age cohort go on to higher education. Young people are inspired to stay in education for as long as possible and aspire to a 'college education' to get the best paid jobs.

Publicly funded post-secondary education is delivered by a diverse system consisting of a variety of institutional types: research-led, highly prestigious universities, primarily teaching universities offering four-year degrees, and community colleges offering two-year associate degrees and other courses which enable transfer to four-year degree courses at university. All these institutions offer many other professional and career-oriented programs, both on the intermediate and the postgraduate level.

A distinctive nature of the higher education system is the large private sector and the increasing privatization of public institutions. Some public universities move far down the road of privatization due to the growing emphasis on private revenues, such as high tuition fees and extremely successful fund-raising practices along with a declining state funding effort for higher education. Another facet is the rise of for profit colleges and universities which - as is generally believed - are more responsive to labour market demands. It is often contended that because private higher education is less subject to state regulation, it can quickly identify and act on new opportunities⁶⁰. However, over the past few years especially the for profit institutions have become under growing scrutiny from federal lawmakers and state regulators.

Because of this diversity of educational provision, the connection of higher education to the labour market is also very diverse. Given the fact that most higher education policies are being developed on the State level than the Federal level, this section can only be schematic on current important issues regarding graduate employability in the US.

Much current discussion on the diversity of the higher education system goes back to the Californian Master Plan for Higher Education to offer universal access to quality higher education opportunities at every level through an integrated system of public and private institutions. This plan recognized the distinctive needs of the different segments of the Californian population and attempted to provide a route to higher education for virtually

⁶⁰ See for example, Ch, Morpew & P. Eckel (Eds) (2009) *Privatizing the Public University: Perspectives from across the Academy*. John Hopkins University Press.

all high school graduates in the state. For example, the Master Plan recommended that the top 12.5% of secondary school leavers should be eligible to attend the University of California with the top third also being eligible for admission to California State University. Nowadays the targets are not met, due to a number of factors including poor attainment in secondary education, increasing tuition fees, and high competition for places on popular courses. The eligibility rates are the subject of increased concern in terms of employment demands and there is currently much concern about the missions of the different institutions and a decline of coordinating mechanisms resulting in suboptimal outcomes towards meeting State needs (see below on macro-efficiency).

8.2 Workforce development

On the State level postsecondary education committees are functioning to ensure the quality of the provision. They are expected to meet the changing demands of the economy as well as ensuring that sufficient places exist within the system to meet the demand for higher education. One of the main concerns in several States is the increasing pressure on admissions caused by a higher numbers of eligible students, funding cuts and strict enrolment targets (due to budgetary constraints). Students experiencing difficulties to obtain a place on the course of their choice in their preferred university may accept a place elsewhere and wait until a vacancy arises in their preferred subject. This contributes to the length of time that students take to complete their degree programmes.

The other main concern is to improve the relationship between post-secondary education and workforce development. Various workforce investment boards (WIB's) developed programmes funded by the state in a complex structure of governance, advisory boards, including many programmes focusing on jobs which do not require a Bachelor degree. As these are likely to account for 70-80 per cent of future jobs, the HE sector is being encouraged to be more involved in the supply of skills at the higher technical, rather than degree level and in supplying a more adaptable, skilled workforce generally. There is also concern that some university graduates do find work easily and many have to return to community colleges to take specific vocational courses.

Workforce investment boards generally enjoy a considerable amount of autonomy and have varying priorities, client groups and interests. They operate locally, but in other respects they vary significantly, despite moves to bring greater coherence to the system. Some work closely with HE institutions in collaborative local programs.

In California significant debate is taking place about how to encourage the research universities of the University of California to take a more active part in the process of a closer working between education and workforce development. Such alliances between State departments and their agencies and universities are unusual in the US system given the status of the university sector. Nevertheless, the awareness grows that education and training must be a greater focus of State department activity and that this also means engaging the university sector in workforce development. The community colleges, with their long tradition of engagement with the local communities are taking the lead in seeking ways of meeting local labour market needs, and doing so from a strategic basis.

The increase of employer engagement in education and workforce training is a main objective of the Washington's 10-Year Strategic Plan for Workforce Development⁶¹. This plan looks at the workforce system as a whole consisting of a series of interconnected pathways. As more jobs call for higher levels of education and skills across a wide range of industries, employers need to be active participants in the system's design, delivery, and evaluation of programmes. Employers should be involved in identifying skill standards and to develop and keep training programmes current so that the programmes prepare workers to meet these standards. Other parts of the strategic plan are:

- Provide students and their families with extensive information about career pathways and about education and career opportunities, including opportunities that require a bachelor's degree or call for a shorter-term investment in education.
- Provide students at colleges, universities and other postsecondary institutions with greater access to guidance information.
- Increase industry involvement in work-integrated learning by developing more opportunities for students to learn in workplaces (on-the-job-training, apprenticeships, work-based learning, and internships). Tie work-integrated learning to students' programme for study where possible.
- Increase employer investment in workforce training (matching to public sector or employee investments).

Policies on the Federal level are focusing on the investment in the community colleges. The federal budget funds a new initiative designed to improve access to job training across the nation and provides \$8 billion in the Departments of Education and Labour to support State and community college partnerships with businesses to train the skills of American employees. This builds on the success of the Trade Adjustment Assistance Community College and Career Training (TAA CCCT) program, which is providing \$2 billion over four years to help community colleges improve and expand their programs to meet local and regional labour market demands. Through rigorous evaluation, data collection, and greater use of employer collaboration and online learning, these investments will help colleges move toward the approaches that will produce the greatest returns for their students.

8.3 Employment value of a degree

For university degrees there is an ongoing debate about the value of a degree and a growing sentiment that college may not be the best option for all students. Would the individual or society benefit more from postsecondary education and is college worth the high cost and likely long-term debt? Some see little connection between the skills that students acquire in college and the skills they will need later in life, arguing that the Bachelor's degree has lost its luster in the labour market. Economists argue that empirical evidence to the contrary is ignored and that employers clearly value the general knowledge and work ethic that a student acquires in college. For most employers "qualified" means having generic skills which are more important than specific skills which can be trained in the workplace.

⁶¹ Workforce Training and Education Coordinating Board (2012) High Skills, High wages. Washington's 10-year Strategic Plan for Workforce Development.

Students themselves do not seem to question the value of college. A large survey among first-year students in 2012 reveals heightened expectations that a degree will provide economic security. The ability to get a better job appeared a very important reason to go to college. Compared to the 1975 survey, more students in 2012 put a greater value on job related factors (88% against 66% in 1975)⁶².

In the context of the employment value of the bachelor's degree, a renewed debate is taking place about the three-year bachelor degree. With more Americans pursuing advanced degrees, ways are explored to shorten the undergraduate proportion of their postsecondary education⁶³. Critics argue that it is not about the number of years as such but about whether colleges are willing to use more technology and embrace different modes of learning.

Although these debates will go, the policy focus is mainly on the supply and demand of STEM subjects in higher education (science, technology, engineering and mathematics). It is predicted that 92 per cent of STEM workers will need postsecondary education by 2018 and about 65 per cent STEM job openings will require at least a bachelor's degree⁶⁴.

8.4 Emphasis on STEM subjects

Although the US produces a significant number of STEM graduates each year (both US nationals and international students), there is concern in the US that its ability to compete is falling behind that of other countries. This is reflected in the relatively low ranking of the proportion of science and engineering graduates in the OECD figures. In 2005 the National Academies (Science, Engineering, Medicine and the National Science Foundation -NSF) responded to a call from a bipartisan group of senators to recommend 10 actions the Federal Government could take to enhance science and technology so America could successfully compete in the 21st century. Their response was published in a study, titled *"Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future."* This study together with work by the NSF on competitiveness led to the America Competes Act of 2007, which increased funding for the basic science research that underlies the industrial economy.

The same group released in 2010 a follow-up report *"Rising Above the Gathering Storm Revisited: Rapidly Approaching Category 5"* in which it stated that 'in spite of the efforts of both those in government and the private sector, the outlook for America to compete for quality jobs has further deteriorated over the past five years.' This suggests that the significant investments in STEM have not had the desired effect: As the report puts it: "We actually rank today sixth 11th among industrialized nations in the fraction of 25- to 34-year-olds who have graduated from high school; 16th in college completion rate; 27th among developed nations in the proportion of college students receiving degrees in science or engineering; 48th in quality of K-12 math and science education".

⁶² Chronicle of Higher Education, February 2013 (Freshman Survey).

⁶³ See for example, Robert Zemsky (2009) *Making Reform Work : The Case for Transforming American Higher Education*. Rutgers University Press.

⁶⁴ Georgetown University's Center on Education and the Workforce.

In a status report Fairweather concludes that as regards improving the quality of STEM undergraduate teaching and student learning, the reforms have not led to the hoped for magnitude of change in student learning, retention in the major and the like⁶⁵.

The response has been to make significant investments to improve the overall US school and HE systems with particular emphasis on improving take-up and completion of generic STEM subjects, getting STEM-qualified individuals into STEM jobs and widening participation. In addition, there are specific visa measures to attract and retain non-US individuals who have achieved a doctorate in a STEM subject.

The Government Accountability Office (GAO) reported that in 2010, 13 federal agencies invested over \$3 billion in programs aimed to increase knowledge of STEM fields and attainment of STEM degrees. Many programs have a broad scope and are overlapping, although not necessarily duplicative. Nonetheless, the programs are similar enough that they need to be well coordinated and guided by a robust strategic plan. According to the report there is limited use of performance measures and evaluations which may hamper the effectiveness of the individual programs as well as the overall STEM education effort. Most agencies did not use reliable output measures in a way that is clearly reflected in their performance planning documents.⁶⁶

Large budgets have also been made available to support evidence-based approaches at the K-12 and undergraduate levels. These programs will be developed in conjunction with a Government-wide effort to increase the impact of Federal investments in math and science education by ensuring that all programs supporting K-12 and undergraduate education adhere to consistent standards of effectiveness.

Finally on the Federal level much effort has been put to create the right tax and policy incentives in order to develop, recruit and retain the best and brightest students, scientists and engineers in the world.

8.5 Macro-efficiency

In the US a general need is felt for greater oversight of the costs and the productivity of American higher education. This is an important issue both on the State and the Federal level. On the State level there is much concern about the optimal use of resources for a diversified higher education provision. The Federal Government is concerned about its investments in financial aid to some of the private, for-profit colleges, especially in the wake of several scandals. Both dimensions will be briefly touched upon to illustrate the pressures by Federal and State governments for better regulative frameworks to optimize a broad and varied higher education in an efficient way.

⁶⁵ James Fairweather, Linking evidence and promising practice in science, technology, engineering and mathematics (STEM) undergraduate education. A status report for the National Academies National Research Council Board of Science Education.

⁶⁶ These reports were prepared for the National Academy of Sciences, Engineering, Medicine and the National Science Foundation. See http://www.nap.edu/caralog.php?record_id=12999.

The much celebrated Californian Master Plan in the 1960s, the state's blueprint for higher education used as a model for other states, offers universal access to quality higher education opportunities at every level through an integrated system of public and private institutions. Several comprehensive reviews of this system, however, revealed concern about the primary missions of the various institutions and described a system dominated by segmental rivalries and poor planning and coordination. In the absence of steering and coordinating mechanisms, institutions were able to act unilaterally and set their own priorities and their actions seemed to breach the core of the original Master Plan principle. According to the report by the Legislative Analyst's Office this decline in the effectiveness of coordination has resulted in suboptimal outcomes towards meeting state needs⁶⁷:

- Public universities have expanded programs that are not high priorities for the state while restricting undergraduate enrolment.
- Students experience ongoing difficulties transferring from two-year to four-year colleges.
- There is increased duplication of programs across segments, and evidence of growing institutional, local, and regional political influence at the expense of state-wide planning.

These challenges underscore the importance of aligning the performance of the Californian higher education system with the State's needs. The LAO recommends legislative actions to strengthen critical mechanisms of coordination. These include funding formulas, delineated missions, enrolment pools for each segment, approval processes for new programs and sites, accountability mechanisms, and finally active government steering in the harmonization of institutional priorities and programmes to policy aims.

8.6 Private higher education

The other issue of macro-efficiency concerns the investment of billions of dollars in companies that operate for-profit colleges. For profit colleges have an important role to play in the US higher education system. They offer the convenience of nearby campus and online locations, a structured approach to coursework, and the flexibility to stop and start courses quickly and easily as a response to labour market needs. These for profit colleges are rapidly increasing their reliance on taxpayer dollars. In 2010 the sector received 25 per cent of the total Department of Education student aid program funds. Government investigations on the sector have been very critical on the way these colleges are operating. The 2012 Senate Investigative Report⁶⁸ in particular speaks about fraud and illegal practices and quite a number of abuses, the most noticeable of which can be summarized as follows:

- Most for profit colleges charge higher tuition than comparable programmes at state public universities; some colleges increased tuition in order to create a gap between the total amount of federal aid a student can receive and the cost of attending.

⁶⁷ The Master Plan at 50: Greater than the sum of its parts –Coordinating Higher Education in California. Legislative Analyst's Office, January 2010.

⁶⁸ For Profit Higher Education: The Failure to Safeguard the Federal Investment and Ensure Student Success. http://www.help.senate.gov/imo/media/for_profit_report/PartI-PartIII-SelectedAppendixes.pdf

- The artificially high fee means that students must find even more financing by taking out private loans, leaving with more debts likely at a higher rate of interest.
- Aggressive and sometimes misleading study information and deceptive recruiting practices.
- Spending money on marketing is often out of all proportion to money spent on actual instruction (faculty and curriculum).
- Drop-out rates are extremely high among the large for profit colleges that call into question the extent to which the current public investment is being safeguarded.
- The self-reporting and peer-review nature of the accreditation process exposes it to manipulation by colleges and universities that are more concerned with their bottom line than with academic quality and improvement.
- Job placement data of other students to promote their programmes).
- Students who attended for profit colleges are more likely to experience unemployment and seeking work compared to graduates of similar programmes in other HE institutions.

The latter two points are central for our discussion as for profit colleges and universities market themselves as career focused and encourage students to enrol by offering the prospect of better jobs and better wages. Several of the colleges and universities have begun new advertising blitzes, most of which aim to highlight how their educational programmes can help students getting jobs, new relationships they have forged with employers, their career-planning emphasis in the curriculum and the connections that students can make through the university's alumni network. Accordingly, they use job placement data to promote their programmes and to satisfy national accrediting agencies and State regulators that the students who complete the programmes are finding jobs in their field. However, when placement places are audited, falsifications have repeatedly been found. Some accreditors require colleges to meet standards regarding the percentage of graduates who obtain employment in their field of study. As some colleges employ questionable tactics to meet this requirement, the Senate Investigative Report recommends establishing a uniform methodology for calculating job placement rates to better understand if students are working in their chosen field and to set standards to ensure the accuracy of reported job placement rates.

The report concludes that State oversight of for profit education companies has eroded over time and many states have taken a passive or minimal role in regulating colleges and universities. More oversight and regulation is felt necessary, although no single agency has wherewithal or expertise to do this alone. Accrediting agencies, State education agencies, and the Federal Department of Education, together known as the "triad", should be working more together in strengthening this oversight.

Some of the big players in the for profit sector are experiencing two years of falling enrolments, campus closures and employee layoffs. Enrolment fell by about 7 per cent between 2011 and 2012. This is a much steeper decline than the drop of 1.8 per cent for higher education overall during the same period. When students are more price-conscious, for profit colleges and universities seem less appealing. And students may decide it is not

worth it, after finding out how preceding students fared after taking those programmes⁶⁹. Here the market mechanism of informed student choices seems to work as well alongside the growing scrutiny from Federal and State regulators.

⁶⁹ For-profit colleges take a step back to regroup. *The Chronicle of Higher Education*, 2013, Febr 8, p. A3.

9 Summary

Belgium (Flanders)

In the recent years Flanders faced some imbalances on the graduate labour market. Job prospects were particularly low for graduates from female-dominated disciplines. The labour market was also characterized by a shortage of engineers and graduates for the health professions. As the low numbers of graduates from the STEM disciplines is seen as a major problem, the Parliament has concluded an action plan that comprises incentives for students to choose for these STEM disciplines. Further instruments that have been used to increase the employability of graduates were to implement work-based learning in the study programmes. Further the introduction of broad bachelor study programs should help to disentangle the study choice from a career choice. Students should be able to choose a study according to their competencies first and should be able to make a career choice later in their study program.

Macro-efficiency does not play a major role in Flemish higher education policy. Due to the autonomy of the higher education institutions there is little room to steer the provision of study programs, except for the establishment of new programmes which are subject of approval (accreditation) whereby societal and labour market relevance are main criteria. As regards the existing study provision different initiatives have been taken to avoid duplication of study programmes and to merge study programmes with only a small number of students.

Denmark

In Denmark the allocation of students to study programmes is a major problem. While students strongly demand study programmes in the social sciences and arts/humanities, the natural sciences have to face a shortage of new enrolments. To overcome this misallocation the Danish Government tries to implement policies that attract students to practice/professional study programs with better job prospects. In general study programs should integrate more components where students gain more broad or key competencies in addition to their technical knowledge. To initiate the implementation of more professional study programmes, instruments like a better support of study choices and incentives for higher education institutions to install study programmes with good job prospects have been used. For the accreditation of new study programmes the labour market relevance also has to be considered. Because of the autonomy of the higher education institutions macro-efficiency is hard to achieve in Denmark.

England

In the last few years various programmes have been developed to enhance the connection between higher education and the labour market. The current debate focuses on the strategically important and vulnerable subjects (SIVS). Measures have been developed to

increase and diversify demand for, and sustain and re-shape the supply of these subjects, a policy supported by employers who identified a broad set of attributes associated with graduate employability. This goes along with a new financing system for the teaching part transferred to the student. The basic idea is that well-informed student choice will be the primary driver for innovation and excellence in higher education.

In defining the labour market relevance of programmes, the Funding Council takes a rather pragmatic approach. If a subject is valuable to employers this will be reflected in their recruitment of graduates, which will be included in the information provided to inform student choice, which will in turn drive up the demand for and supply of the subject.

Macro-efficiency is, because of the high level of institutional autonomy, mainly a matter for the individual institutions. Nevertheless, a regulative framework is felt necessary to create more dynamism regarding programme provision focused on self-correction by institutions. The Funding Council has increasingly been assigned a leading role in this regulative framework, in collaboration with other important stakeholders.

The government aims to achieve greater diversity and competition by widening access to University Title for smaller, high quality providers. By creating a level playing field between higher education providers, including new entrants in the system, they can compete with universities over the recruitment of high-grade students. This is part of a system for private providers that requires them to come under the same student number controls as universities if their students were to continue to receive taxpayer-backed loans. This will create a more dynamic system which includes a wider range of higher education provision.

Finland

Finland is characterized by a very high standard of education among its population. It ranks among the countries with the highest share of higher education graduates in the world. It is expected that the share and demand of graduates will even increase in the future and policies are targeted at these aims. In particular meeting the growing demand for graduates is seen as a major challenge. To tackle these, the government has implemented a development plan that tries to increase the effectiveness of higher education: different measures have been put in place to lower the time to degree, to reduce the age at graduation and dropout rates.

A better adjustment between higher education and the needs of the labour market should be achieved by a clear division of tasks between the polytechnics and the universities, the implementation of work-based-learning in the study programs and the engagement of higher education institutions in life-long learning. Also, the introduction of members from business and industry in university governing boards should help to better connect the universities to the needs of their surroundings. The funding schemes for higher education have been related to the achievement of the targets of the development plan, e.g. to the completion rate of students. Macro-efficiency does not determine higher education policy in Finland as it finds its limits mainly in the autonomy of the higher education institutions. Nonetheless, in the recent years the higher education system has been reorganized to optimize it, for example through merging institutions, also across the binary divide between universities and polytechnics.

Germany

In Germany the quantitative output of the higher education system does not seem to be a major problem. Supply and demand of highly qualified labour equalled in the recent years, and also for the coming years it is expected that there will be only very low unemployment among higher education graduates. The higher education system also seems to produce higher education graduates with a high level of quality. The majority of graduates find adequate employment and employers are satisfied with the graduates' skills. Nonetheless, different measures have been taken to steer the output of the higher education system.

Starting from an increasing number of new enrolments States like Baden-Württemberg try to build up study places in disciplines with a high demand for labour in the coming years. Other States use instruments to achieve macro-efficiency of their higher education system by balancing out the offer of study programs in holistic approaches. Despite these efforts, higher education institutions are mostly responsible for setting up the 'right' study programmes. In the recent years some of them have started projects to improve the labour market relevance by integrating key and social competencies in the training.

Sweden

Sweden's higher education system is mostly steered by capacity funding. Here the demand of students determines how funding is allocated to the universities. Students' demand also decides on the implementation or closure of study programmes. These decisions are not taken by the government. According to this macro-efficiency is not a big concern in Swedish higher education policy. As the provision of study programmes mainly depends on the demand of students, policy makers assume that the study choices also reflect the labour market relevance of the study programme. To assure that students make a right study choice, different measures have been taken, such as the consultancy of prospective students, the integration of employability characteristics and the involvement of employers in the quality assurance system.

United States

The US post-secondary system is highly diverse consisting of a variety of institutional types, varying from research-led, highly prestigious universities to community colleges offering two-year associate degrees. A main concern is to improve the relationship between these institutions, workforce development and employer engagement. Various investment boards developed programmes funded by the State in a complex structure of governance and various advisory boards. Even the top-level universities have been encouraged to take a more active part in the process of a closer working between education and workforce development. Such alliances between State departments and their agencies and universities are unusual in the US system given the status and high level of autonomy of the university sector. Among the instruments are the provision of information and guidance to prospective students about their employment prospects and more opportunities for work-integrated learning. There is also a programme for a significant investment in STEM

subjects, although the actual effects on the STEM undergraduate teaching and student learning have not resulted in the magnitude of change as was hoped for.

Although there is not a coherent assessment of the higher education system as a whole, government agencies report a decline in the effectiveness of coordination, resulting in suboptimal outcomes towards meeting national and State needs. Public universities have expanded programmes that are not high priorities for the State and there is increased duplication of programmes across segments. This calls for more government steering in the harmonisation of institutional priorities and programmes to policy aims.

The private for profit sector which is supposed to be more responsive to labour market needs, has become under growing scrutiny from lawmakers and state regulators. More correct information is needed on graduation rates and job placement rates to better understand if students are working in their chose field. This is used with a view of assessing the extent to which public investment is being safeguarded and used in an efficient way.